



Different (Income) Classes and Presidential Popularity: An Empirical Analysis

About the Author and Preface

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Notice: The article below has been published in the Munich Social Science Review (MSSR), 1978/2, pp.53-69. The original contribution has been used for this re-publication.

About the Author: *Prof. Dr. Dr. h.c. mult. Friedrich Schneider, born in 1949, studied economics at the University of Konstanz, where he received his PhD in 1977. Since October 1st, 2017, he has retired. He has been a professor of economics at the University of Linz in Austria since 1986, where his work focused on economic and financial policies, and has been a research professor at the German Institute for Economic Research (DIW) in Berlin since 2006. From 1996 to 2007, he was also vice director of foreign relations at the University of Linz. Schneider was a board member of the IIPF (International Institute of Public Finance) from 2005-2009 and was, from 2001 to 2004, a member of the scientific advisory board of Avenir Suisse, a think tank aimed at furthering the development of Switzerland through social and economic policy. He also is the Chairman of the Academic Advisory Board of the Zeppelin University in Friedrichshafen, Germany from June 2013 to June 2016.*

Since October 2015 he has been a member of the European Academy of Sciences and Arts. He has received honorary doctorates from the Ricardo Palma University in Lima (Peru), the University of Stuttgart (Germany), the University of Trujillo (Peru) and the University of Macedonia (Greece). His research primarily concentrated in the seventies and eighties on politico-economic models (like Frey, B.S. and Schneider, F. (1978), "An Empirical Study of Politico-Economic Interaction in the U.S.," Review of Economic and Statistics 60, 1978: 174–183). Since the

nineties he focusses on the underground economy and illicit work, as well as tax evasion and money laundering (e.g., Schneider, F. and Enste, D. (2000), Shadow Economies: "Size, Causes and Con-sequences", Journal of Economic Literature, 38/1, pp. 77–114). In addition to this, he has conducted research on political economy, privatization, deregulation, and issues related to environmental economics.

Preface to the original contribution

In 1978, when I presented these first results about the influences of economic factors like disposable income, inflation and unemployment on the popularity of U.S. presidents (Nixon and Ford) spitted up among various (six) income classes, this was one of the first papers undertaking such an empirical analysis using disaggregated popularity functions. Over these 40 years, a lot has been happened with respect to the research about vote- and popularity functions.

I shortly summarize some important aspects of the development of the empirical work estimating vote- and popularity functions.¹

Estimating vote and popularity functions is one of the most frequent activities in empirical public choice analysis, Kirchgässner (2018) Nannestad and Paldam (1994, 1997), in their surveys of this work, refer to a large number of studies estimating links between economic variables and voters' evaluation of political parties and governments in many countries². One of their main conclusions was that a clear link exists in particular between unemployment and governments' and ruling parties' evaluation by the voters as expressed by results of elections or voting intentions embodied in popularity data from opinion polls and surveys. Weaker, but frequently also significant influences were obtained for inflation rates and sometimes (real) income or income growth rates. Most successful were estimations of vote and popularity functions using time series data, although some progress has also been obtained through micro studies. However, as these authors note, the stability of such functions across time and across countries is often lacking. These observations are confirmed by another survey by Lewis-Beck and Stegmaier (2013), who count that about 500 such investigations were carried out altogether. It even seems that more recently a new wave of interest in these activities is going on.

¹ Compare Kirchgässner (2018), Lewis-Beck and Stegmaier (2013), and Nannestad and Paldam (1994, 1997) for the latest and most comprehensive surveys about vote – and popularity functions.

² This short summary is taken from Neck and Schneider (2015: 1-3).

Over the last 20 years, the lack of stability of vote and popularity functions is somewhat disturbing and justifies additional empirical research. For instance, Kirchgässner (2009) has shown that in Germany during the last years the popularity function disappeared or at least did not result in significant and economically easily interpretable estimates for the influence of even the most frequently detected determinants on voters' opinion about the ruling parties, namely unemployment and inflation. He attributes this partly to changes in the European institutional framework, where the rate of inflation is no longer determined on the national level but is the main agenda of the European Central Bank. On the other hand, the lack of significance of unemployment and labor market variables is less easily explained as these are still at least partly under the control of government policies. These and similar concerns call for a reconsideration of the vote and popularity function also for other countries – a research which started now³

What do we learn from this short review about the vote and popularity functions? The research is going on and there are more doubts about the statistically secured impact of economic factors on vote- and popularity functions. But even today these first results about the influence of economic factors on disaggregated popularity functions on the Presidents Nixon and Ford provide some interesting facts.

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³ Compare here Neck and Schneider (2015), who investigate this question for the case of Austria

Nannestad, P. and Paldam, M. (1994), "The VP-function: A survey of the literature on vote and popularity functions after 25 years," *Public Choice* 79: 213–245.

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Different (Income) Classes and Presidential Popularity: An Empirical Analysis (*The 1978 paper*)

Friedrich Schneider⁴

1. Introduction

In politico-economic models, one of the main links between the political and the economic sector is the popularity function. The present paper extends the analysis of popularity functions insofar as different income classes are considered. In section 2 it is shown that U.S. presidential popularity depends on both; economic factors and the specific personality influences of a President. From the empirical estimation it can be concluded that unemployment, inflation, and growth of per-capita disposable income are significant, quantitatively important factors determining presidential popularity. In section 3 the fact is recognized that voters among various (income) classes are not equally affected by a change

⁴ The research on this paper was undertaken during the author's stay as an official visitor at the Public Choice Center, Virginia Polytechnic Institute and State University. The author is especially grateful to B. S. Frey, M. Gartner, Ch. Goodrich, and Th. Kriedel who made most helpful comments.

of macroeconomic conditions and that these groups therefore differ in their evaluation of a given state of the economy and of the President's (economic) performance. A rise in the rate of unemployment (in the rate of inflation) has a stronger (less) negative, impact on presidential popularity among lower and middle class voters than on presidential popularity among voters of upper income classes. From these results it may be concluded that the state of the economy exerts a strong influence on presidential popularity, and that the impact of a changing economic situation on presidential popularity differs considerably among various groups of society.

Considerable importance may be attached to the investigation of factors influencing Presidential popularity. It has always been intuitively felt that the public standing of a President depends strongly upon the state of the economy. Those in power have been especially interested in discovering the determinants of their popularity – so as to be able to influence it when the need arose. In a democracy, current popularity ratings are taken as indicators of future election performance given, that the underlying factors remain unchanged. A low popularity level therefore, would indicate that a President considers changing these conditions, if he is to improve his chances of staying in power.

Casual observation, backed up by scientific analysis shows that at election time, Presidents tend to improve economic conditions by handing out transfers and by trying to manage the economy so as to materially satisfy the electorate.⁵ However, a satisfactory analysis of this strategy can only be undertaken where the relationship between economic variables, other influences, and Presidential popularity is known. The popularity function is a crucial feature of this interaction between the economy and the polity.⁶

This paper analyzes U.S. Presidential popularity as measured by Gallup from 1969 to the end of 1976 using monthly data. The main purpose of section 2 is to determine the exact relationship between economic and non-economic (personality) influences on Presidential popularity. In section 3 an analysis shows that voters of different (income) classes do not evaluate the economic situation with respect to Presidential popularity in the same way, because they are differentially affected by changes in the economy. This analysis has provided some new results – amongst them that voters of lower and middle income classes consider the President as more (less) responsible for a rise in the level of unemployment (in the rate of inflation) than do voters of upper income classes.

⁵ See, e.g., Tufte (1975).

⁶ For a survey of such attempts, see Frey and Schneider (1975).

2. Economic and Personality Influence on Presidential Popularity

In recent years, a number of attempts have been made at estimating popularity functions. Countries studied include the United Kingdom⁷ and the Federal Republic of Germany.⁸ The first study for the United States was undertaken by Mueller (1970), who dealt with monthly data over the period 1945 -1969. He introduces a specific personality influence and popularity loss over the period of office, together with the influence of wars – yet he introduces only one economic variable. In his analysis, the state of the economy is represented solely by the unemployment variable. The size of the estimated coefficient suggests that alone per-cent increase in the rate of unemployment (over the initial level when the President began his term) leads to an approximate three per-cent drop in presidential popularity. The coefficient in this case is statistically significant.

Mueller's analysis of U. S. Presidential popularity is open to some criticisms.

(i) Doubt may be cast on Mueller's analysis for purely statistical reasons. The Durbin-Watson statistics reported are extremely low (between 0.13 and 0.67, see his tables 1 and 2) strongly indicating serial correlation of the residuals. Hibbs (1974) has re-estimated the equations with the aim of eliminating the serial correlation. On a more general scale, the unemployment variable becomes statistically insignificant, and there are considerable changes in the sizes of the other coefficients.

(ii) A serious weakness is that only the unemployment variable is used to represent the state of the economy and that Mueller (1970) does not give any (theoretical) explanation why he refuses to use other economic variables.

The most recent analysis of presidential popularity has been undertaken by Stimson (1976). He uses only one (non-linear) variable to account for the development of popularity over time. His finding that the 'average' President's popularity follows a parabolic movement over each term, and is completely independent from any economic and other (political) influences is – from a theoretical standpoint – not at all convincing.

⁷ See, e.g., Goodhart and Bhansali (1970).

⁸ See, e.g., Frey and Garbers (1972).

These criticized studies clearly point to the need for an integrated analysis of economic and personality influences on presidential popularity; equal weight being given to both factors. To test the influence of the state of the economy on presidential popularity it seems to be an obvious procedure to run a regression with the major macro-economic indicators; i.e. unemployment, inflation, and nominal (or real) growth of income as the first set of independent variables.⁹

The second set of independent variables should represent specific characteristics attributable to each President. These include: his party affiliation, his relationship with Congress and the Bureaucracy as perceived by the electorate, and the size of majority when he entered office. To this list one can also add the President's 'Public Appeal' with respect to the media, particularly TV.¹⁰ From now on these factors are to be called "personality influences," both to stress that they are specific to each President, and to differentiate them clearly from economic influences.

Personality influences are not only reflected in the level of presidential popularity, but also in the rate at which it falls over his term of office. This popularity loss (or 'depreciation') is due to a number of factors: Whilst in office a President will tend to alienate more and more voters through his actions (an effect which Mueller (1970) calls the "coalition of minorities"). Voters also become disillusioned with the President's management of national and international crises, and become increasingly aware of a discrepancy between electoral promises and actual policies and outcomes. To account for this in the following regression analysis, a dummy variable is introduced for each President which has the ascending values 1, 2, 3,... for each successive month of the presidential term – being zero otherwise. Popularity depreciation should therefore consequently be indicated by a negative coefficient. President Nixon's depreciation variable refers only to his first term (1969–1972). Because of the overriding importance of the Watergate scandal a special dummy variable (WAT) is introduced for his

⁹ It is assumed that voters maximize utility; they support the President according to whether or not they are satisfied with his performance. However, because of the high costs and low benefits involved, the voters have little incentive to become fully informed about the President's performance. To simplify the decision problem, they make the President responsible for the course of economic events, which can be measured in macro-economic indicators that are easily available to most voters.

¹⁰ Further (and more detailed) theoretical reasons for including these personality factors as explanatory variables in the empirical analysis of presidential popularity are given in Mueller (1970).

second (unfinished) term; this being designed to capture the electorate's dramatic loss of confidence in Nixon following Watergate.¹¹

After discussing potentially important independent variables, the *dependent* variable, the popularity of the President is regularly collected by Gallup.¹² This indicates the percentage approval of the electorate in response to the question: "Do you approve or disapprove of the way Mr. ... handles his job as President?". For the empirical estimation the following linear function is used:

$$(1) \quad \text{POPP}_t = a_1 \text{RP}_t + a_2 \text{UR}_t + a_3 \text{RYDN}_t + a_4 \text{LV} \cdot \text{Ni} + a_5 \text{LV} \cdot \text{F0} \\ + a_6 \text{DV} \cdot \text{Ni} + a_7 \text{DV} \cdot \text{F0} + a_8 \text{DV} \cdot \text{WAT} + e_t$$

where

POPP = presidential popularity (percentage approval of the electorate);

RP = annual percentage growth rate of consumer price index;

UR = percentage civilian unemployment rate;

RYDN = annual percentage rate of increase of per-capita disposable income in nominal terms;

LV·Ni (Fo) = popularity level variable for Nixon (Ford);

DV·Ni (Fo) = popularity depreciation variable for Nixon (Ford);

DV·WAT = Watergate variable for Nixon (second term);

t = time period (month);

a₁ to a₈ = coefficients of economic and personality variables of equation (1); the theoretically expected signs of these coefficients are: a₁, a₂ < 0, a₃ to a₅ > 0, and a₆ to a₈ < 0.¹³

e = random variable; it is assumed that all other influences are random and therefore included in e.

The attempt to explain presidential popularity with economic and personality factors is made with monthly data for the period 1969:4 (Nixon's first term) to 1976:10 (Ford's first term).¹⁴ The OLS-regression of

¹¹The exact specification of these personality variables is given in the data appendix.

¹²The source of the popularity and economic data is given in the appendix, too.

¹³It is assumed that the President loses (wins) popularity if the rate of unemployment and/or the growth rate of inflation rise (fall), and if the rate of growth of disposable income falls (rises).

¹⁴An analysis of presidential popularity is done with quarterly data for a much longer period ("1953:II quarter" to "1975:II quarter") in Frey and Schneider

presidential popularity data on three economic and five personality variables generates the results given in Table 1 (see Appendix).

Firstly the influence of economic and personality factors were investigated separately (see equations 2 and 3 in Table 1). In both equations the parameter estimates correspond to a priori expectations. In equation 2, all personality variables are statistically significant at the 99 % confidence level, whereas in equation 3 only the rate of inflation has a significant influence on presidential popularity. These regressions explain a rather large part of the variance, however the Durbin-Watson statistics indicate serial correlation of residuals in both equations, suggesting – as observed above – that both partial formulations may be subject to misspecification.

For this reason only a joint consideration can adequately capture their effect on presidential popularity. The results of simultaneously incorporating economic and personality variables is represented by equations 4-6 in Table 1 (Appendix), which have an excellent statistical fit. They account for over 90 % of the variance of presidential popularity and there is no serial correlation of the residuals. All coefficients – with the possible exception of the unemployment rate – have a significant influence on presidential popularity; again all parameter estimates correspond to a priori (theoretical) expectations and are remarkably stable.

The popularity levels of Presidents Nixon and Ford differ quite markedly from each other. Both Presidents experienced a statistically significant depreciation in their popularity over their respective terms in office. The influence of Watergate in Nixon's second term is strongly significant and of considerable size. This was indeed a unique event affecting popularity over the period studied.

The simultaneous inclusion of three economic variables may cause statistical difficulties because they are correlated among themselves; the correlation coefficient between the rate of unemployment and the growth rate of nominal per-capita disposable income is remarkably high with a value of -0.90.¹⁵ Hence multicollinearity may be so strong as to invalidate

(1978) using the same theoretical approach. With respect to the significance of the economic and personality factors the empirical results show no great difference over this longer period as compared to the following results of a much shorter period. The reason for the selection of this shorter period is that the disaggregated popularity data among different voter groups does not go further back without a major change in the classification.

¹⁵ The correlation coefficients between the other two economic variables are -0.35 for RP and RYDN and -0.61 for RP-and UR. If one uses the annual growth rate of real per-capita disposable income (RYDR) instead of RYDN, the correlation coefficient between RYDR and UR has a value of -0.90, then there is no

estimation of equations 3 and 4 with the consequence that there may be a large sampling variance and a possibly incorrect omission of variables from the analysis because their coefficients seem to be not significantly different from zero.¹⁶ Therefore it seems to be advisable to estimate the popularity function, while leaving out one of the intercorrelated variables UR or RYDN.

The outcome of this procedure is shown in equations 5 and 6. Examination of these results indicates that the unemployment rate now has a significant influence on presidential popularity. Comparison of the two equations shows that the estimation with the economic variables RP and UR (including personality factors) is superior to the estimation with RP and RYDN.¹⁷ Both variables (RP and UR) are highly significant at the 99 % confidence level. A one per-cent increase in unemployment decreases presidential popularity by 3.76% whilst a one per-cent increase in the rate of inflation decreases presidential popularity by 1.98 %. The estimated greater influence of unemployment seems reasonable since unemployment affects voters in a more direct way.

These results indicate that both economic and personality factors are important determinants of presidential popularity. Therefore, a joint consideration of both factors appears to be adequate for estimating presidential popularity. In the next sections, only the variables unemployment and the rate of inflation are used to describe the state of the economy, in order to avoid the problem of multicollinearity.

3. Presidential Popularity within Different Voter Groups

Until now, research into the influence of the state of the economy on presidential popularity has dealt with the electorate as if it were a homogeneous group. However, it is well known that this is in reality not so, and that consequently different groups of voters (e.g., of various income classes) may be expected to be differently affected by a changing economy. The aim of this section is to analyze, whether or not different groups of voters equally evaluate a changing economy according to the President's performance, therein exhibiting a different sensitivity with respect to changes of unemployment and inflation.

remarkable difference in the OLS estimation of presidential popularity using RYDR as explanatory variable in equations 4 and 6.

¹⁶ Further details see, e.g., Johnston (1912: 159ff.)

¹⁷ E.g., the coefficient of determination rises from 0.82 to 0.91, indicating a better fit of the regression when using the economic variables unemployment (UR) and inflation (RP).

Various studies, like Hollister and Palmer (1972), Metcalf (1972) and Thurow (.972), come to the conclusion that a changing economy affects voters of various income classes in a different way. Members of lower income classes are in favor of an economic situation with low unemployment and possibly a relatively high inflation. In contrast people in upper income brackets are mainly interested in the (theoretical) opposite situation (low inflation and possibly high unemployment). Hollister and Palmer conclude that rising inflation (and/or decreasing unemployment) – during an upswing of the economy – has the strongest positive impact on voters of lower income classes (up to 5,000 \$ annual income). A one percent increase in the rate of inflation (decrease in the rate of unemployment) leads to a 0.2 % (0.9 %) decline in the population share of this income group. Considering this conclusion the authors put forward the following arguments:

(i) During a tight labor market (which is normally the case during an upswing of the economy) members of lower income classes (in comparison to the other income classes) profit more from the additional hiring) of workers and the increased wages and

(ii) in most cases, the government's transfer payments to low income voters are automatically raised corresponding to the rate of inflation. Especially before elections this compensation tends to even exceed the actual inflation rate.¹⁸

Recently, Hibbs (1975), too, has argued that members of upper income classes suffer from a loss of income when inflation accelerates but are less strongly affected by an 'increasing unemployment rate than are citizens with lower incomes. According to Hibbs, a similar statement can also be made with regard to general polls: lower and middle class voters regard unemployment as a much more severe problem of economic policy than inflation; for upper class voters it is the opposite.

On the basis of these results, the following hypothesis on the influence of the state of the economy on presidential popularity is formulated:

An increase (decrease) in presidential popularity among lower and middle class voters is – *ceteris paribus* – due more to a falling (rising) unemployment rate than to a decline (incline) of the inflation

¹⁸Tufte (1975) gives a good example for such a policy: During the 1972 presidential election, President Nixon took the necessary steps to raise transfer payments above average with the aim of getting additional votes.

rate. Presidential popularity among upper class voters is – *ceteris paribus*–more strongly affected by a rising inflation rate than a declining unemployment rate.

This hypothesis can be tested using monthly popularity data of voters belonging to six different income classes (POPP-YC 1 to POPP-YC 6) and, alternatively-, to four different occupational groups (POPP-OG 1) to POPP-OG 4). The grouping which the Gallup Poll is based on includes the following income classes (annual income in US \$):

0 – 2,999	=	Income class 1	(YC1)
3,000 – 4,999	=	Income class 2	(YC2)
5,000 – 6,999	=	Income class 3	(YC3)
7,000 – 9,999	=	Income class 4	(YC4)
10,000 – 19,999	=	Income class 5	(YC5)
20,000 –	=	Income class 6	(YC6) ¹⁹

Furthermore, the electorate is divided into the following occupational groups:

farmers and unskilled workers	(OG 1)
manual workers	(OG 2)
clerical & sales	(OG 3)
professional & business	(OG 4)

With these two dimensions of the electorate Gallup reports the corresponding time series of presidential popularity over the period 1969:1 to 1976:12 without a major change in the two classifications. Empirical estimation of presidential popularity functions is undertaken for both classifications using the same theoretical approach as developed in Section 2. The estimations of presidential popularity for different income classes are reported in Table 2 (Appendix).

¹⁹ E.g., POPP-YC1 corresponds to the presidential popularity among voters from the income group 1.

The coefficients of both inflation and unemployment rate are – with one exception, respectively – statistically significant and have the theoretically expected negative signs. The six equations shown have an excellent statistical fit; they account for over 80 % of the variance, and there is no serial correlation of the residuals. The hypothesis specified above is verified with these empirical results: in the estimation of equation 7 (POPP-YC 1) the size of the unemployment coefficient is -4.44 and increases to -1.84 in the estimation of POPP-YC 6 (equation 12 in Table 2). As to the size of the inflation coefficient the opposite effect is true; the estimated parameter has a value of -1.00 in the presidential popularity function of lower class voters and decreases to -2.60 in equation 12 (presidential popularity of upper class voters).

Finally there is a significant difference in the estimated parameters for unemployment and inflation between equations 7 and 12 (popularity functions of lower and upper class voters, respectively).

In contrast, the estimated coefficients of the personality factors do not differ in the same way as the economic coefficients of the estimated popularity functions for different voter classes do. In all equations the estimated parameters of personality influence correspond to both common sense and theoretical a priori expectations. The coefficients of the popularity depreciation variables are significant in all six equations. The influence of Watergate is again highly significant, and the size of the coefficient increases on moving from lower to upper income classes.

The hypothesis specified above is also verified by the empirical results of presidential popularity functions for different occupational voter groups (see Table 3, Appendix):²⁰ the size of the strongly significant unemployment parameter drops from -5.28 in equation 13 (presidential popularity function of voters from the occupational group farmers and unskilled workers) to -2.40 in equation 16 (presidential popularity function among voters from the occupational group professionals & business) and becomes insignificant. Again the opposite effect for the estimated parameter of the inflation rate occurs: the coefficient has the lowest size of -2.66 in equation 16 (POPP-OG 4), where it is highly significant, and increases to -0.30 with no significant influence on presidential popularity among voters from the occupational group farmers and unskilled workers (eq. 13). It is interesting to note that the difference in the size of the coefficients of inflation and unemployment is much greater in the

²⁰ Again, the four estimated equations of presidential popularity have a good fit; they account for over 80 % of the variance of presidential popularity; and there is no serial correlation of the residuals.

estimation of presidential popularity for different occupational 'groups than in the estimated popularity functions for various income classes.

These empirical results show that voters of different income classes differ in their evaluation of a given state of the economy. Presidential popularity among lower and middle class voters decreases more (less) with a rising unemployment (inflation) rate than among voters of upper classes. The same holds for voters of different occupational groups which is not surprising because the average income steadily increases when moving from group OG 1 to OG 4.

4. Summary

In the first two sections of this study, it is argued that presidential popularity depends both on economic factors and the specific personality influences of each President. It is further demonstrated that it is important to differentiate carefully between a President's popularity and its depreciation over the time he is in office. It may be concluded that unemployment (or alternatively the rate of disposable income) and inflation are significant and quantitatively important factors determining presidential popularity. A one percent increase in the rate of unemployment decreases popularity by about four percent and a rise in the annual growth rate of inflation by about two percent.

In the third section of this paper it is recognized that voters of various income classes (alternatively: of different occupational groups) are not equally affected by a change of macro-economic conditions and therefore evaluate the President's (economic) policy differently. Especially a rise in the rate of unemployment (in the growth rate of inflation) has a stronger (less) negative impact on presidential popularity among lower and middle class voters than among upper class voters. Therefore it may be concluded that the state of the economy exerts a strong influence on presidential popularity and that the impact of a changing economic situation on presidential popularity differs considerably among various groups of society.

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Appendix

Definition and data sources

DV-FO	Depreciation variable of the Ford Administration: 1, 2, 3, . . . , 24 for the period 1974:9 - 1976:10; zero otherwise.
DV-NI	Depreciation variable of the Nixon Administration (first term, only): 1, 2, 3, . . . , 45 for the period 1969:4 - 1972:12; zero otherwise.
DV-WAT	Dummy variable for the Watergate scandal: 1, 3, 5, 6, 10, . . . , 10 for the period 1973:3-1974:8; zero otherwise.
LV-FO	Level variable of Ford's popularity: 1, 1, 1, . . . , 1 for the period 1974:9 - 1976:10; zero otherwise.

LV-NI	Level variable of Nixon's popularity: 1, 1, 1, . . . , 1 for the period 1969:4 - 1974:8; zero otherwise.
POPP	Popularity of the President: percentage approval of the electorate in response to the question: "do you approve or disapprove of the way Mr.... handles his job as President?", percentage points, source: The Gallup Opinion Index, Report-No.2 43 (January 1969) – 140 (Dec. 1976), Princeton (N. J.): The American Institute of Public Opinion.
POPP-OG 1 POPP-OG 2	Presidential popularity: percentage approval of the electorate divided into four occupation groups, respectively; percentage points, source: The Gallup Opinion Index, op. cit.
POPP-YC 1 POPP-YC 6	Presidential popularity: percentage approval of the electorate divided into six income cases, respectively; percentage points, source: The Gallup Opinion Index, op. cit.
RP	Yearly growth rate of consumer price index: percentage points, U.S. average general summary, 1957-59 = 100, source: Monthly Labor Review, vol. 91/1 - 108/1, U.S. Department of Labor, Washington D.C.
RYDN	Yearly growth rate of nominal per capita disposable income: percentage points, source: Federal Reserve Bulletin, vo. 55/1 - 71/1, Washington D.C.
UR	Unemployment rate: total (all civilian workers), percentage points, source: Monthly Labor Review, op. cit.

The economic variables RP, RYDN, and UR are seasonally adjusted.

Tables 1-3

NOTE: The figures in parenthesis indicate the t-values. Testing against zero (i.e. using the one tailed test), the parameter values are significant if the t-values are larger than 2.00 (95 % level of security, indicated by the asterisk "*"). R^2 is the corrected coefficient of determination; D.W. the Durbin-Watson coefficient, and df are the degrees of freedom.

Table 1: The effect of three economic variables and personality factors on presidential popularity (POPP), 1969:4-1976:10; monthly data; OLS regression estimates.

eq.	dependent variable	economic factors			constant	personality factors					test-statistics		
		rate of inflation % RP (t)	unemployment % UR (t)	rate of nom. Income % RYDN (t)		pop. level		pop.depreciation		dummy-v. Watergate DV-WAT	R ²	D.W.	df
						Nixon LV-Ni	Ford LV-Fo	Nixon DV-Ni	Ford DV-Fo				
2	POPP					61.88* (30.18)	73.30* (23.73)	-0.39* (-3.65)	-2.79* (-3.93)	-3.48* (-11.56)	0.76	1.02	84
3	POPP	-2.25* (-2.91)	-1.02 (-1.29)	0.79 (0.82)	74.83* (9.97)						0.61	0.95	85
4	POPP	-1.72* (-2.93)	-2.65 (-1.92)	1.19* (2.94)		62.84* (15.66)	72.26* (10.39)	-0.30* (-2.25)	-2.55* (-2.56)	-3.15* (-9.52)	0.92	1.77	81
5	POPP	-1.98* (-3.54)	-3.76 (-2.90)	-----		85.45* (12.61)	98.76* (16.44)	-0.31* (-2.45)	-2.49* (-2.56)	-2.97* (-8.73)	0.91	1.82	82
6	POPP	-2.08* (-2.78)	-----	0.97* (2.74)		62.74* (10.06)	75.63* (10.72)	-0.39* (-3.27)	-2.95* (-3.74)	-3.42* (-10.71)	0.82	1.74	82

TABLE 2: Presidential popularity of different income class voters (POPP-YC1-6). 1969:4-1976:10; monthly data; OLS regression estimates

eq.	dependent variable	economic factors		personality factors					test-statistics		
		inflation RF (t)	unemployment UR (t)	pop. level		pop.depreciation		dummy-v. Watergate DV-WAT	R ²	D.W.	df
				Nixon NV-NI	Ford NV-FO	Nixon DV-NI	Ford DV-FO				
7	POPP-YC1	-1.00 (-1.64)	-4.44* (-4.13)	72.00* (13.82)	87.51* (15.61)	-0.10 (-1.09)	-1.94* (-2.15)	-2.12* (-6.63)	0.84	1.74	82
8	POPP-YC2	-1.16* (-2.19)	-4.67* (-4.50)	74.57* (13.61)	84.19* (14.40)	-0.06 (-0.94)	-0.89 (-1.24)	-2.19* (-6.51)	0.81	1.72	82
9	POPP-YC3	-1.43* (-2.57)	-4.29* (-4.07)	79.14* (14.34)	96.51* (16.51)	-0.21* (-2.19)	-1.43 (-1.91)	-2.09* (-6.14)	0.82	1.68	82
10	POPP-YC4	-2.26* (-3.92)	-3.60* (-3.38)	86.04* (14.41)	95.43* (15.43)	-0.20* (-2.21)	-1.92* (-2.53)	-2.46* (-7.09)	0.86	1.66	82
11	POPP-YC5	-2.29* (-4.04)	-2.56* (-2.24)	92.97* (16.02)	109.41* (18.45)	-0.21* (-2.31)	-2.41* (-2.94)	-2.84* (-7.23)	0.83	1.71	82
12	POPP-YC6	-2.60* (-4.70)	-1.84 (-1.71)	94.02* (16.59)	116.51* (19.82)	-0.29* (-2.43)	-2.09* (-2.20)	-2.93* (-7.89)	0.86	1.68	82

TABLE 3: Presidential popularity of voters from different occupation groups (POPP-OGI-4), 1969:4-1976:10; monthly data; OLS regression estimates

eq.	dependent variable	economic factors		personality factors					test-statistics		
		inflation RP (t)	unemploy- ment UR (t)	pop. level		pop.depreciation		dummy-v. Watergate DV-WAT	R ²	D.W.	df
				Nixon LV-NI	Ford LV-FO	Nixon DV-NI	Ford DV-FO				
13	POPP-OG1	-0.30 (-0.51)	-5.28* (-4.04)	88.46* (9.88)	102.41* (11.49)	-0.41* (-3.21)	-3.00* (-2.69)	-3.68* (-6.94)	0.85	1.68	82
14	POPP-OG2	-1.70* (-2.78)	-4.21* (-2.90)	96.99* (7.97)	116.64* (10.54)	-0.27* (-2.48)	-2.54* (-2.20)	-3.25* (-5.41)	0.84	1.71	82
15	POPP-OG3	-2.05* (-2.81)	-3.40* (-2.10)	93.04* (7.09)	108.61* (10.04)	-0.47* (-2.51)	-1.89 (-1.81)	-3.16* (-4.21)	0.81	1.67	82
16	POPP-OG4	-2.66* (-3.03)	-2.40 (-1.69)	86.87* (9.60)	118.09* (12.51)	-0.22 (-1.94)	-2.69* (-2.97)	-4.03* (-6.99)	0.91	1.64	82