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Presidential Popularity and the Linear Model

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This Honor's thesis entitled

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April Gosser

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Overview

Since the 1970's, much research has been done in an attempt to determine variables that cause decline of the president's popularity. Although there are different studies that give various reasons for the decline of the president's popularity, all agree that there is a trend of decline over the president's term. To represent the decline, James Stimson suggested a parabola model, whereas John Mueller suggested a linear-regression model. This paper attempts to show that a linear-regression model is more effective in explaining decline of the presidents from Truman to Johnson, than from Nixon to Bush. The findings show that a linear model does somewhat represent the era of Truman to Johnson better than the era of Nixon to Bush.

Presidential Popularity and the Linear Model

Political scientists continue to search for independent variables which affect presidential popularity. One common

finding is a tendency for presidential popularity to decline over the term. This topic has been the subject of much research. There have been several hypotheses to explain the decline of presidents' popularity. Some of the hypotheses included war, party cleavages, and economics. George Edwards studied the variables of economy, war, issues, and rally events. John Mueller researched the possibility of a multivariate hypothesis; variables that he believed affected presidential popularity were time, national events, economy, and war. Samuel Kernell employed a marginal strategy which predicted popularity associated with partisanship. Richard Brody and Benjamin Page looked only at the Johnson administration and the Nixon administration and based the rise and fall of presidential popularity on "good" news and "bad" news. Henry Kenski and Kristen Monroe analyzed the effect of the economy on presidential popularity. These scholarly studies are discussed more in the literature review.

There is a general consensus that there are variables which affect the ratings of the president, but questions regarding which variables and to what extent do the variables affect the decline of the president causes a considerable

disagreement. One of the disagreements is whether or not the ratings of the president can be represented by a linear regression or by a parabola model. A linear regression model suggests that the line will have a constant slope that will decline; whereas, a parabola line suggests that the slope will decline at different rates. John Mueller studied the decline of presidential popularity from Truman to Johnson and contended that the "coalition-of-minorities" is a strong variable affecting the decline of the president's popularity. He found linear declines in popularity for almost all the presidential terms he studied. In a more recent study, James Stimson, argued for a parabola model to explain the decline of the president's popularity. Stimson's model predicted that the president's popularity will be at its highest when he enters office. The decline will continue into the second half of the term then will rise slightly at the end of his term but will never reach again the previous high point. Stimson looked at popularity as being cyclical and a function of time. Stimson's and Mueller's research is discussed more extensively in the following background section.

This thesis will review the literature pertaining to presidential popularity, propose a hypothesis, test the

hypothesis and analyze the results of the hypothesis. The contradiction between Stimson and Mueller is the focal issue. The thesis will test the linear model on two time periods. The predicted outcome is that the linear model is a better predictor of the era from the Truman administration through the Johnson administration than form the Nixon administration through the Bush administration. The reasoning behind the prediction relies on the known tendency that, over the past twenty years, the public's opinion has become more volatile. The change of the American people over the past two decades can be associated with their distrust of government, weak ties to parties, and the impact of media on public opinion.

Background Information

The background information gives a chronological overview of previous research. The start of the reviewed research begins in 1970 with John Mueller, and ends with a study by George Edwards in 1985. Over the past twenty years the studies have become advanced in manipulating data, with studies sometimes building on one another. Each study varies

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in the approach used to test for presidential decline and on the proposed variables that attribute to this decline.

John Mueller, from the University of Rochester, examined the president's popularity from Truman to Johnson (Mueller 1970). Like most researchers of presidential popularity, he used the Gallup Poll's question "Do you approve or disapprove of the way (the incumbent) is handling his job as President?" Over time, the index has become the longest and the most consistently asked question in the history of polling. Mueller analyzed the polling results from the Truman administration to the end of the Johnson administration. During this time, the popularity question was asked 300 times.

Mueller used four variables to predict the president's popularity. The variables were: 1) the length of time the incumbent has been in office, 2) the influence of ratings because of major national events, 3) the influence of ratings due to an economic slump, and 4) the impact of war on the president's ratings. He employed a multiple-regression analysis and a basic analytic technique to control for the independent impact of each variable.

The dependent variable, presidential popularity, was the percentage approving the way the incumbent was handling his

job as president. The average approval rating for the presidents from Truman to Johnson was fifty-eight percent. The Gallup Poll's question on presidential popularity pried into the respondents' viewpoint on how the president was handling his job. The question did not relate the respondents opinion to a specific event or issue. It simply inquired whether or not the respondent approved or disapproved, and if no opinion was given, the opinion must be volunteered by the respondent to be included in the results.

Mueller found that the president's popularity had varied from Truman to Johnson. Harry Truman was the most popular president. At one time, in 1945, his popularity reached eighty-five percent. Also, he was the least popular--from early 1951 until March 1952--with a ratings less than thirty percent. Lyndon Johnson closely approached Truman's highest approval rating. Eisenhower's rating topped off at seventy-nine percent and did not drop below forty-nine percent. Also, Kennedy had a very high approval rating which did not drop much before his death.

The "coalition of minorities" variable explained that even though a president always acts with majority support on an issue, he can alienate a sizable amount of minorities. In other words, a president will upset different minority groups (women, organized labor, environmentalist, etc.,), but a

combined coalition of minorities equals a majority of people that are displeased with the president for different reasons. There were three reasons a coalition of minorities could happen. First, the president gradually created unforgiving opponents out of his former supporters. Second, the president's actions could not please either side resulting in a "minus sum" game. Third, disillusionment occurs when the president makes promises he cannot keep. The occurrences of these coalition of minorities predicted decline.

Mueller opertionalized the coalition-of-minorities variabler by using the length of time, in years, since the incumbent was inaugurated (for first terms) or re-elected (for second terms). Mueller calculated r as -.47 and the decline was to start over again for the second term because the president should have rebuilt his coalition of minorities into minority supporters. Mueller assumed a linear decline of popularity. In other words, he hypothesized that the president's decline would be at an even rate for his four years of his term.

The "rally around the flag" variable expected that a president's popularity will increase due to certain intense international events. Mueller stated that caution must be

observed because one tended to find a sizable sudden increase in support and then dart to the historical records to find an intense international event. This process can prove that the variable is significant.

Mueller adopted a different strategy to find rally points. "In general, a rally point must have associated with an event which 1) is international and 2) involves the United States and particularly the president directly; and it must be 3) specific, dramatic, and sharply focused." (Mueller 1970) When using this criteria, Mueller found thirty-four rally points that fall into the following categories: sudden military intervention; major military developments in ongoing wars; major diplomatic developments; major technological developments; presidential conferences with a country's head; and the start of the president's term.

Mueller operationalized the rally-around-the-flag variable by calculating the length of time, in years, since the last rally point. The simple r was -.11 and the variable is in linear form. This variable was used to test the hypothesis that although a president popularity declines over time, the spurt in the line can be explained by the rally-around-the-flag variable.

The third variable examined by Mueller was the "economic slump." He used the unemployment rate as the economic indicator. Mueller recommended this indicator because of its availability by each month and because it had a general indicator of health. The economic variable was the unemployment rate at the time of inauguration subtracted from the rate at the time of the poll. During Eisenhower's term, unemployment reached some of its highest points. Mueller added a dummy variable to explain this phenomenon. The variable included the general taking care of the unemployed. Due to a correlation of .77 between the correlation coefficient and the regression coefficient for the economic variable, an adjustment was made. Mueller set the economic variable equal to zero, whenever the unemployment rate was lower at the time of the survey than it had been at the start of the incumbent's present term. It assumed "Bust is bad for him, but boom is not particularly good." (Mueller 1970)

The fourth variable was war. During the study of presidential popularity, Truman's and Johnson's ratings were greatly effected by the Korean conflict and the Vietnam War. Mueller found that the correlation between presidential popularity and the war variable was -.66. However, Mueller recognized a problem in the analysis - the fact that Truman

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and Johnson's popularity was declining before the wars started. Also, they both had a sizable decline in their first terms without the dilemma of war. To see how the wars effected the already declining popularity was to use another dummy variable, a variable that took on a value of one when a war was on and remained zero otherwise.

To find the results, Mueller presented six equations. All the equations were presented in chart form, but not all of the equations were discussed. Each equation assessed the four variables and their association with the popularity of the president. Mueller discussed the war variable on its own.

Equation one suggested that the average popularity rating started at sixty-nine percent and declined six percentage points per year. The coalition-of-minorities variable had a significant negative relationship. The coefficients of the rally around the flag variable and the economic slump variable moved in the right direction but failed to be statistically significant.

Equation two added a dummy variable for all of the presidents. This equation suggested that all the presidents would decline or increase at the same rate and allowed for

each President to start at its own level of popularity. The rally-around-the-flag and the economic slump variables moved greater to the predicted direction. However, the rally-around-the-flag variable did not quite attain statistical significance.

Equation three allowed for each president's popularity to start at different levels and increase at their own rate. President Truman's ratings fell eleven to twelve percentage points per year. Johnson's popularity ratings fell around nine percentage points per year. Kennedy ratings per year could not be assessed because of his untimely death. Equation three portrayed Eisenhower's approval ratings as not declining at all. On the contrary, Eisenhower achieved a statistically significant increase of popularity of two and a half percentage points per year.

The rally around the flag variable proved to be statistically significant in equations 3, 4, 5, and 6. Mueller described that the rally around the flag variable acts as a parasite. This variable can explain the bumps and wiggles on the pattern for other variables. However, on its own the rally around the flag variable cannot explain all of the declines in presidential popularity.

The economic slump variable weakened in equation 3, 4, 5, and 6. This variable "suggests a decline of popularity of about three percentage points for every percentage point rise in the unemployment rate over the level holding when the President began his present term." (Mueller 1970) The economic slump variable tended to be limited because of the small (three to seven percentage points) of the unemployment rate.

The war variable assessed the impact on Presidential popularity of the wars in Korea and Vietnam. Truman's and Johnson's popularity was in decline in their first terms and in clear decline in their second terms before the start of the wars; therefore, the dummy variable was used in equation 6. Equation 6 implied that the presence of war would decrease the popularity ratings of Truman and Johnson by over seven percentage points. The results concluded that the Korean war had a statistically negative impact on Truman by eighteen percentage points. The Vietnam War, on the other hand, had no independent impact on Johnson's popularity ratings (Mueller 1970).

Richard A. Brody and Benjamin I. Page studied the impact of events on presidential popularity during the Johnson and

Nixon administrations (Wildavsky 1975). Their approach to explain presidential popularity was rather unique. The indicator of the rise in presidential popularity was "good news," and the fall was predicted by "bad news." More specifically, good news was considered to be news perceived as advancing their values. On the other spectrum, bad news was when a person perceived the news to impede their values.

To determine good news and bad news, there were both clear-cut lines and not-so-clear lines. For good news, peace, prosperity, victory, and scientific discoveries were a given. For bad news it was assumed that unemployment, inflation, war casualties, and riots were bad. To determine the nature of news, Brody and Page used an empirical method to distinguish good news from bad news.

Brody and Page gathered two time series to test their theory. The first time series started in June, 1965, and ended in April, 1968. The second time period covered January, 1969, through 1971. The percentage of the population at a given time which approved the president's handling of the job and the Gallup Poll were analyzed. Brody and Page found that these approval ratings occurred thirty-five times for Johnson and thirty-four times for Nixon. They

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analyzed the data by tracking the changes in approval, and found that for Johnson the trend of popularity was down. From the beginning of his time series to the end, Johnson's popularity gradually went from seventy percent to thirty-six percent. Nixon's popularity was similar to a roller coaster. He started with a rating of sixty percent in 1969, and dropped to fifty percent in 1971, but climbed up to sixty percent once again before dropping to twenty-four percent in 1972.

The independent variable was the balance of negative and positive news between two successive Gallup poll dates. News stories were the most important story in each day's news; they were classified into domestic, general foreign, and Vietnam. Then the news stories on the results of policy performance were coded as "good," "bad," or "ambiguous." The results seemed to be statistically significant. The theory was confirmed in both administrations. The single variable of news discrepancy correlated .50 with opinion change in the Johnson administration and .28 in Nixon's administration. The theory accounted for eighty-four percent of the variation in the level of the presidential popularity for Johnson and fifty-five percent for Nixon. Brody and Page stated that

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"the presidential popularity can be accounted for by the inertial effect of past opinions and the quality of news between polls." (Wildavsky 1975)

James A. Stimson reported in his article, "Public Support for American Presidents: A Cyclical Model," the ability to predict presidential popularity with a parabola model (Stimson 1976). Using the data derived from the popular Gallup question, "Do you approve or disapprove of the way [the incumbent President] is handling his job as President," Stimson explained that the consistency of the question and the small random error of each data point were the reasons for using the Gallup Poll. Stimson used the measure of "relative approval" (the percent approving as a proportion of all those expressing an opinion). Stimson preferred the reactive approval over the simple approval because of the abundance of "no opinion" given in earlier surveys.

Stimson utilized a parabola, concave upward, with a focus in the latter half of the presidential term to model the popularity of the president. The model theorized that the president's popularity would peak when he first took office and then would gradually decline over time and bottom

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out during the last half of the four year term. After the period of bottoming out, the approval rating would slightly increase, but not to its original level.

To fit data on the parabola model, some criteria must be met. One criterion was the ability to predict the individual data points. The second criteria must be that not only should the data points be predicted, but that the prediction should be significantly better than predictions using a linear model. Stimpson arranged the computed approval scores for the seven terms (Truman to Nixon). All points were gathered along the same zero to four-year time scale. Time was ordered as presidential years. Stimson uniquely determined the coefficients, and the parabola predicted all the Gallup approval readings for five Presidents and seven terms. The correlation was one-half percent. With this high correlation, Stimson met the above criteria. Stimson concluded that the parabola model was an effective representation of Presidential popularity (Stimson 1976).

Henry C. Kenski tested the impact of economic conditions on presidential popularity. The study analyzed the presidential popularity from Eisenhower to Nixon's second

term. Truman was dropped due to underepresentation of data points and defects in sampling.

Kenski's report noted that Mueller used unemployment as an indicator of the state of the economy. Also, he noted Hibbs contended that Mueller's indicator of the economy was not statistically significant. Mueller had suggested using other variables in addition to unemployment; so and Kenski applied Mueller's advice, using unemployment and two indicators of inflation (general price and food price). Also, Kenski changed the measurement of the economic variables which were monthly data and used six-month moving averages.

Kenski assessed the economic indicators to presidential popularity by using an analytic technique of multiple regression. The regression coefficients, the standard errors, and the r-scores were also examined. The last technique employed was the t-test to determine the confidence limits for the regression coefficients at the ninety-five percent confidence level.

Inflation appeared to be more sensitive than unemployment. The impact of the monthly rate and six-month moving average of unemployment proved not to be statistically

significant. The signs of the coefficients were positive. However, when the presidents' administrations were separated, the popularity of the Republican presidents could be adversely affected by the rate of unemployment. On the other hand, the Kennedy and Johnson administrations were positive. Kenski argued that it would be foolish to impute a causal linkage, but instead concluded that the Democratic presidents were able to record their highest popularity ratings despite high unemployment. The results of the impact of inflation on presidential popularity had an association, but Kenski felt that the statistically significant findings were tainted by serial correlation. Kenski suggested that the serial correlation problem should rank high on the agenda to be solved. Another concern was his use of the bivariate theory. Kenski proposed the development of a multivariate theory regarding the impact of the economic conditions on presidential popularity (Kenski 1977).

Samuel Kernell took the marginal strategy approach to assess public opinion (Kernell 1978). In the marginal strategy approach there were two predictions of presidential popularity and economic performance. The first prediction stated that Democrats' support of the president will be

associated closely with unemployment, and Republicans'
support with inflation. The second prediction stated that
the president can gain new support among opposition
identifiers. Kernell tested these predictions from
Eisenhower to Reagan's first term. To assure that the
results were not biased, Kernell identified exogenous
variables in addition to the economy's effects on
presidential popularity.

Inflation failed to produce a negative sign during the
Kennedy and Reagan administration; therefore, this part of
the analysis was omitted. Unemployment for the Democrats
under Carter showed a positive sign, an inverse relationship
between the economic indicator and the president's approval
rating.

Overall, Kernell found that there were differences in
the relative strengths of the relationship across partisan
groups; however, Johnson's and Nixon's partisan relationship
were consistent with the prediction made by the Gallup Poll
Surveys. The Gallop Poll Survey predicted that, whatever a
person's political affiliation, they will judge the economy
on the basis of its general conditions.

Kernell did find some support for the marginal strategy approach to assess presidential popularity. For Eisenhower's popularity, neither unemployment nor inflation had much impact, but the relationships were stronger for opposition identifiers than presidential partisans (Kernell 1986).

Kristen R. Monroe tested the economic influences on presidential popularity (Monroe 1978). In 1976, James Stimson said that, in the long term, the president's popularity was unaffected by economic conditions. Monroe took the same time frame as Stimson (1950-1974) and, with more sophisticated equipment, found a strong relationship between the ratings of presidents and the economic conditions. She theorized that the influence from the economy needed a lag model in which economic influence may be both immediate and cumulative. The lag model would allow for a time lag before people experience the impact of economic events and an extended time period during which people react to economic changes.

In Monroe's data, presidential popularity was measured by the percentage of respondents who indicated approval of the president in the monthly Gallup Poll from 1950, through the end of the Nixon incumbency in 1974. To represent the economy, Monroe used unemployment (U), inflation (I), real

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personal income (RBI), the Standard and Poor Market index (SM), and military expenditures (MILX). The first three representatives of the economy were to measure the political influences from individual economic well-being. The MILX variable was to indicate the government's fiscal policies to stimulate the economy.

Monroe employed a distributed lag model that was used by Almon in 1965. This model permitted the effects of the economy to be distributed over different periods. The Almon model allowed for situations in which the political impact of economic condition may be noted slowly and felt a long time after it occurred. For example, an increased inflation in the spring could still have an impact into the fall. When using the Almon equation, dummy variables were used to control the cyclical fluctuations. Also, manipulations were effective in eliminating the trends of the variables in the use of the time series.

Monroe concluded that inflation and military expenditures were consistently significant influences on presidential popularity. However, unemployment, real personal income, and the stock market were not significant influences on popularity. The cumulative sum of the statis-

tical significance suggested that, if inflation increased one percent, the effect was a decrease of almost four percentage points in popularity; therefore, the overall pattern of the data showed that inflation was a significant negative influence on presidential popularity and can have an impact which stays politically important and significant up to one year after the occurrence. The military expenditures, too, were significant and politically important, but the positive effect was present from thirteen to twenty-three months after the expenditure, but not any time before (Monroe 1978).

George Edwards conducted a study to test for the effects of economy, war, issue differences with the president, and rally events on the president's approval (Edwards 1985). The statistics used were tau-b and Somer's D. Edwards noted that lack of uniformity appears to be a problem with data consistency across studies. The surveys he analyzed did not specifically ask the same question from time to time. Also, the types of questions varied in degree. Edwards noted that the economy definitely has an influence on Americans. Some political scientists believe the economy is the basis for approval or disapproval of the president. However, recently some scholars argued that the public evaluates the success of

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the president on grounds other than economics. "In other words, rather than asking what the president has done for them lately, citizens ask what the president has done for the nation (Edwards 1985)."

In the surveys regarding a person,s economic perspective, the two questions asked were "Would you say that you (and your family living here) are better off or worse off financially than you were a year ago?" and "Do you think that a year from now you (and your family living here) will be better off financially or worse off, or just about the same as now?" The questions were cross-tabulated with presidential approval ratings. From 1968 to 1980, this relationship between popularity ratings and financial status accounted for fifty-two percent of those polled. The approval or disapproval ratings of the president is directly related to whether or not the financial status of those polled had gone up or done.

Unemployment statistics cross-tabulated with presidential approval resulted in a weak correlation. The unemployment of a respondent or of the head of family would seem to cause respondents to evaluate the president's performance negatively. Edwards believed that people who were unemployed

would be more likely to blame the president if they felt unemployment was a solvable problem. The result showed a statistically weak correlation of -.11 only among the Democrats and no correlation for any other respondents. Also, when the control was that the federal government was responsible for providing everyone with a good job and standard of living, there was no statistically significant relationship. Edwards overall findings concluded that personal experience with unemployment does not strongly correlate with the popularity of the president.

Since inflation affects everyone in the country, Edwards assumed inflation would have a widespread effect on the president's popularity. If people were to evaluate the president on economic condition, then inflation should reflect the president's approval. Edwards' analysis of the personal impact of inflation on respondents was based on 1980 data. The data proved not to be statistically significant at -.08 for the Democrats, Independents, and Republicans.

Then Edwards proceeded to ask respondents their view of the presidents performance on economic policy. The significance ranged form -.29 to -.50. Edwards found that this evaluation was not more statistically significant than

the evaluation of inflation. He attributed this to the logic that "the public evaluates the president more on the basis of how it thinks the economy itself is performing." (Edwards 1985) Edwards concluded that economic factors do affect the presidency but not to a great extent. However, he found a substantial difference in the relationship between the public's evaluation of the president on economic policy and the public's personal economic condition.

When Edwards analyzed war and the president's approval, he only evaluated the effect of the Vietnam War. The 1968 survey asked respondents if a close friend or family member served in Vietnam. Edwards assumed that, if a person evaluated the president on the impact of the war, it would be revealed here. He admitted that his assumption was wrong, for in no incident did this happen.

In the three surveys (1968, 1970, 1972), respondents were asked to rate on a scale what they felt was the right policy for Vietnam. The scale ranged from withdraw to completing a military victory. Then the respondents were asked to place the president on the same scale. To determine the president's approval on the war issue, Edwards computed

the differences with the president on Vietnam. The statistics proved to be significant at -.01.

In summary, the findings were similar to those for the economy. The respondents evaluated the president in terms of their perception of the president's performance. Personal experience with the war in Vietnam proved to be almost irrelevant.

Edwards conducted seven surveys to measure the impact of issues and policy on the president's popularity. Respondents were asked to place both themselves and the president on a scale for each of a variety of issues. Then Edwards computed the results by adding the absolute differences between the respondents and the president on each issue. Almost all of the data proved to be statistically significant and varied in terms of strength.

A rally event, as defined by John Mueller, was international, directly involves the U.S. and particularly the president. A rally event is specific, dramatic, and sharply focused. This included events that were prominent to the public. The rally event theory assumes that the people will increase their support for the president in times of crisis because "America is at stake."

In the Edward's study, all rally events were considered equal. An increase of ten percentage points in the polls was the baseline for an impact by a rally event. Two approaches were taken in identifying a rally event. The first approach looked at sudden jumps in presidential approval to see if they followed a rally event. The second approach examined all qualifying rally events to see if they preceded a surge in presidential approval.

Sudden jumps occurred in the polls twenty-one times. Not even half of the surges were preceded by a rally event. Edwards said it was difficult to determine the effect. The rally event proved to be hard to isolate. In conclusion, there seemed to be no difference between the rally event surges and the non rally event surges.

Edwards concluded that presidential approval ratings were due to how the public evaluated the handling of policies. Policy efforts and issue stands play a more important role than unemployment , the cost of living and war casualties. Therefore, the public expected the presidents to handle issues successfully (Edwards 1983).

Methods and Procedure

Using the Gallup Poll seemed to be the best choice for popularity ratings. The Gallup Poll's constant regularity over the past four decades, using the question "Do you approve or disapprove of the way (the incumbent) is handling his job as President?", has provided a basis for a presidential popularity index. Over time, this index is one of the longest, continuous line of questioning in polling history. This study divides the line for the period of the beginning of the Truman administration to the end of the Johnson administration as time period "A," and the beginning of the Nixon administration to the end of the Bush administration as time period "B." The time periods are tested to see whether or not that time period "A" can be predicted by a linear decline model better than time period "B."

The data was incorporated into a data file. The data file included the date of the popularity rating, the approval rating, and a dummy variable. Most of the polling was taken once per month; however, in the instance that there were more than one per month, the first polling of each month was included and the last polling of the month was discarded. The dummy variable was set as a constant. The following is the point slope formula used:

predicted population = intercept B0 + B1(dummy variable)

To attain B1 and B0 of the point slope formula the approval rating was regressed against the dummy variable for each term not including the last year of each term. The remaining dummy variables were then added into the formula for the last year of the president's term. In the case of a president serving more than one term the data started over as if ignoring the previous term. This approach tried to predict popularity ratings for the last last year of each term. Each predicted approval data point was then compared to the actual rating done by the Gallup Poll by taking the difference between the projected popularity and the real popularity. When taking the difference, each difference was turned into a positive. For example, if a predicted popularity was thirty-five percent and the real popularity was twenty-five percent the difference would be negative ten. The number was then given a positive sign because the predicted popularity varies; therefore, the average of the difference would appear much smaller. Then an average was taken for each term to compare the accuracy of the linear model (See Appendix K). Last, a regression line was used because which "best

summarizes the distribution of data points on a scatter diagram and the slope of which characterizes the relationship in units of change between two intervals." (Manheim and Rich 1991)

Results

All president's approval ratings have unique and similar qualities. I will evaluate president's approval ratings in two ways. First, I will evaluate each president for the variance of their approval ratings, their approval ratings in relation to winning or losing reelection, the ability to predict their approval rating and the accuracy of the linear model compared to the curvilinear model. Second, I will evaluate their ratings by comparing time period A to time period B. Areas to analyze will include the accuracy of the linear model and the patterns of the president's approval rating.

Due to infrequent polls and erratic polling intervals that were not set, Truman has been discarded from the analysis. After predicting for Truman's last year which consisted of five points, the average error in predicting was close to twenty percent. The polls simply were not taken

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frequently enough. There were a total of twenty-one polls taken over a four year time period. The linear regression model must have consistency in polling for projection purposes.

Eisenhower's first term

During Eisenhower's first term, the Gallup Poll surveyed the public twenty-seven times (See Appendix A). Only four polls were taken the last year of his first term; therefore, four approval ratings were predicted for him. The variance of Eisenhower's approval ratings for his first three years ranged from fifty-seven percent to seventy-nine percent. The fact his approval rating was always more than fifty percent during his first term helps explain his re-election to a second term.

When predicting Eisenhower's approval ratings, the difference between the projected popularity and the real popularity ranged from a high of six and a half points and a low of one. The average difference between the projected and the actual popularity was close to three points. Compared to the other presidents, Eisenhower's predicted popularity fared rather well. The success of the predicted approval rating could have been due to the fact that each of his last four

approval rating points from one polling to another did actually regress.

Eisenhower's second term

Eisenhower's second term did not predict as well as his first term (See Appendix B). Twenty-seven polls were taken over the four years of his second term. Again Eisenhower kept his approval ratings above fifty percent; the highest rating was seventy-nine percent, and the lowest was fifty-two percent. During his fourth year, seven polls were taken, and the difference between the actual and the predicted popularity ranged from a high twelve and a half and a low of one. There were three points when his ratings did not follow a decline in his polls. One of these points was at the end of his term when a new president was already elected and the public was being kinder to Eisenhower. The average difference between projected and actual popularity was six, and the predictions underestimated the Gallup Poll approval ratings.

Kennedy

Although Kennedy's term was unfortunately cut short, there were enough data to include him in the analysis (See Appendix C). There were twenty-one polls taken in a three year period and the last eight pollings were predicted. During the first two years of his term, the highest approval rating stood at seventy-nine percent, and the lowest dropped to sixty-six percent. The last approval rating taken during his third year reached a low of fifty-nine percent.

The difference between the estimated and the real popularity ranged from a high of nine and a low of four; whereas, the average was six compared to an average of twelve during his first year. The range of his actual approval ratings was between sixty-six percent to fifty-nine percent. All but two of Kennedy's approval ratings declined. The predicted approval rates tended to overestimate Kennedy's approval ratings.

Johnson

The analysis of Johnson begins at his election in 1964. During his time in office, the thirty-three polls taken showed a wide range of approval (See Appendix D). He peaked at seventy percent and hit bottom at thirty five percent. In

September of 1966, his approval rating dropped below fifty percent and never recovered.

Johnson's last year had more of a curvilinear look than a linear. The ability to predict his approval ratings had an average difference of eight. The difference between the expected and the actual popularity ranged from a low of less than one to a high of eighteen. If the last approval point of Johnson was thrown out, assuming the jump in his last approval rating was given out of generosity of ending his term, then the average difference would improve to seven points. The predicted approval rates tended to underestimate the approval ratings.

Nixon's first term

During Eisenhower's term twenty-seven polls were taken; whereas, in Nixon's first term there were forty-four pollings. Nixon's popularity fluctuated from forty-eight percent to sixty-eight percent (See Appendix E). The predicted approval ratings tended to underestimate Nixon's actual approval ratings. The difference of the expected and the real popularity ratings ranged from a low of one to a

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high of fourteen and a half points; whereas, the average difference was close to ten points.

The approval ratings for Nixon would probably be better predicted using a curvilinear model. Nixon's lowest approval ratings occurred toward the second half of his third year and than moved from forty-eight percent to sixty-two percent within a year and a half. One reason for the increase of approval ratings in his fourth year could have been his successful campaign to rebuild public support for his upcoming election.

Nixon's second term

Nixon's second term consisted of eighteen polls over a two year period, and there was an attempt to predict the last six points (See Appendix F). The ratings started rather low at fifty-one percent and ended even lower at twenty-six percent. The highest approval rating was sixty-five percent which occurred in the middle of fifty-one percent approval and fifty-nine percent approval. For the most part the ratings were extremely low, dwindling to twenty-two percent.

The rapid decline of his approval rating was caused by the Watergate scandal. The fluctuation of the approval

rating varied forty-three percent over two years, which
probably substantiates the fact that the predicted approval
rating was highly underestimating Nixon's approval rating.
Nixon's second term regressed, but the rate of regression was
too quick for the linear model to be accurate. The last
predicted approval rating for Nixon predicted an approval
rating of forty-six points, which was a difference of twenty
points from the actual approval rating. The first approval
rating had a difference of five points. The average approval
rating between the real and the estimated approval rating was
twelve.

Ford

Ford's variance of approval ratings for all twenty-four
polls taken ranged from thirty-seven percent to seventy-one
percent (See Appendix G). The average difference of the
actual approval and the estimated approval rating was nine.
The predicted approval ratings underestimated the actual
approval ratings. Ford's popularity steadily declined the
last year of his term; however, the last rating taken in

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December 1976, was rather high. If it were to be eliminated, the average would improve to eight points. This would represent a more accurate picture of Ford's linear decline of his approval rating. These low approval ratings, which were almost all below fifty-percent, could reflect the incident of not being re-elected.

Carter

Forty-six polls assessed the approval ratings for Carter. The approval ratings fluctuated from twenty-nine percent to seventy percent (See Appendix H). For the most part, the last year represented a linear decline, but the starting point for the predicted approval rating was so low that the difference between the real approval rating and the projected approval rating was nearly twenty-six points. Overall, the predicted approval ratings were underestimating the Gallup Poll approval ratings. The difference between the predicted approval rating and the real approval rating ranged from eight to twenty-six, and the average was fifteen. Like Ford, Carter's struggled during his last year in office to maintain approval ratings above fifty-percent. Also like Ford, Carter lost this bid for re-election for a second term.

Reagan's first term

During Reagan's first term, the Gallup Poll administered the presidential approval poll forty-seven times, and eleven of the last approval ratings were attempted predictions (See Appendix I). Reagan's approval ratings varied from thirty-one percent to sixty-eight percent. The predicted approval ratings tended to underestimate Reagan's last year. In fact the relation of the predicted approval rating to the actual approval ratings were inversely proportioned. The lowest difference between the real and predicted popularity was the first prediction which differed by twelve, and the point difference between the prediction and the real approval ratings increased for each consecutive prediction. Therefore, the last predicted approval rating was the highest; it differed by twenty-six. The average difference between predicted approval ratings and the approval ratings was eighteen. Reagan's approval ratings progressed during the last year of his first term, which could have been caused by his attempt to regain support for his re-election.

Reagan's second term

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Reagan's second term was more successful in terms of higher approval ratings. Only nine approval ratings out of thirty-nine pollings were below fifty-percent. The average difference between the predicted and the estimated popularity was two and a half points (See Appendix J). This success seems the predicted approval ratings would assume that Reagan's last year followed linear regression. However, the raw approval ratings if plotted on a graph would not exemplify a linear regression nor curvilinear regression. The graph of points would look more like a yo-yo which goes up and down for no apparent reason. The approval ratings never varied more than five points, so even the greatest difference did not exceed five points.

Bush

During Bush's administration, the Gallup Poll surveyed his popularity forty-seven times. During the first three years of his administration, Bush kept his approval ratings above fifty percent and peaked at an overwhelming eighty-nine percent. Despite the fact that he was given the highest approval rating of all the Presidents from Truman to Reagan, he failed to get re-elected.

Bush's approval rating his last year regressed straight downward, but the whole term did not (See Appendix K). The last year of approval ratings saw the fall of his ratings after the peak of the curve. The predicted approval ratings highly overestimated Bush's actual approval ratings. The predicted approval ratings for Bush's last year in office ironically progressed as the Gallup Poll's approval ratings regressed. Bush was the only president in this study to possess a progressive predicted approval rating; therefore, his average difference between real and predicted popularity was thirty-three which was higher than any other President. The progression of the predicted approval rating happened because the first three years of Bush's term progressed rather than regressed. Also, the trend during Bush's term to receive continually higher approval ratings halted near the end of his third year. So the predicted approval ratings predicted progressive ratings, whereas Bush's actual ratings exemplified the linear model.

Time period A and B

Time periods A and B contained some interesting elements. To analyze the results of the study, a comparison

must be made between time period A and B. The data for each time period possess some patterns, and the predicted approval ratings vary for each time period. Another important element was whether or not each time period followed the linear model.

The first comparison made was the approval ratings. In time period A, the approval ratings stayed above fifty percent except for Johnson, whereas in time period B, not one president's approval ratings stayed above fifty percent. For time period A, the difference between the highest and lowest approval ratings hovered in the twenties, and for time period B, the difference was in the thirties and forties. The approval ratings in time period A remained between fifty and seventy percent most of the time. However, in time period B, ratings dropped to the twentieth percentile and reached as high as the upper eighties. The highest and lowest approval ratings for presidents since the 1950's can be seen in time period B. This truly supports one premise of the thesis that public opinion was more volatile in the post-Nixon era.

The second comparison was the success of the predicted approval ratings (See Appendix K). For time period A, the total average difference between real and estimated

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popularity of each president was six points, and for time period B, the average was eleven and a half points. Time period A could be better predicted by using the linear model, but there was no continuity in predicting the points.

The least average difference between the actual and the predicted popularity rating, Reagan's second term, was in time period B, the time period which had a greater average difference between the actual and the estimated popularity. The second lowest average difference was for Eisenhower's first term (See Appendix L). For Eisenhower's second term, Johnson, Nixon's both terms, Carter, and Reagan's first term, the predicted approval ratings tended to underestimate the actual approval ratings. The only times the predicted popularity ratings overestimated were for Bush and Kennedy. When the predicted approval ratings overestimated or underestimated, the difference was clearly seen. However for Eisenhower's first term and Reagan's second term the popularity rating jumped over and under the predicted popularity rating.

All of the president's predicted popularity declined except for Bush. Bush was a-typical because his popularity ratings were so high, the predicted population had a positive

point slope.   The presidents last year did decline, the regression did not reflect the success of the predicted approval ratings.   If the starting point for the first predicted approval rating was equal to the first actual approval rating and continue to use the rate of decline, then the predicted approval ratings would be more favorable.

Conclusion

As predicted in the hypothesis, time period A can be predicted better than time period B when using a linear model.   The problem lies in whether or not it is statistically significant. To be statistically significant, time period A and time period B must possess a distinct difference in the success or failure of the linear model predictions.

Three reasons can be given for not relying heavily on this hypothesis. One is that, although there are differences in the variance of the approval ratings, the approval ratings for Presidents within a particular time period were not always similar to each other.   Second, the linear model worked better for time period A, but that could be due to the

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lack of polling during the last six months of office when most candidates regain more support. The differences could be due to the fact that the periods of polling were different. To improve this, rather than predict the last year, the prediction should be only for the first six months of the President's last year. Thirdly, the predicted approval ratings and the real ratings average difference only varied six between time period A and B, but what value should be considered a poor or good prediction was not determined. The hypothesis heads in the right direction; the idea should not be totally discarded because of the problems mentioned above, but more research and analysis should be done on the validity of the linear model to predict Presidential approval ratings.
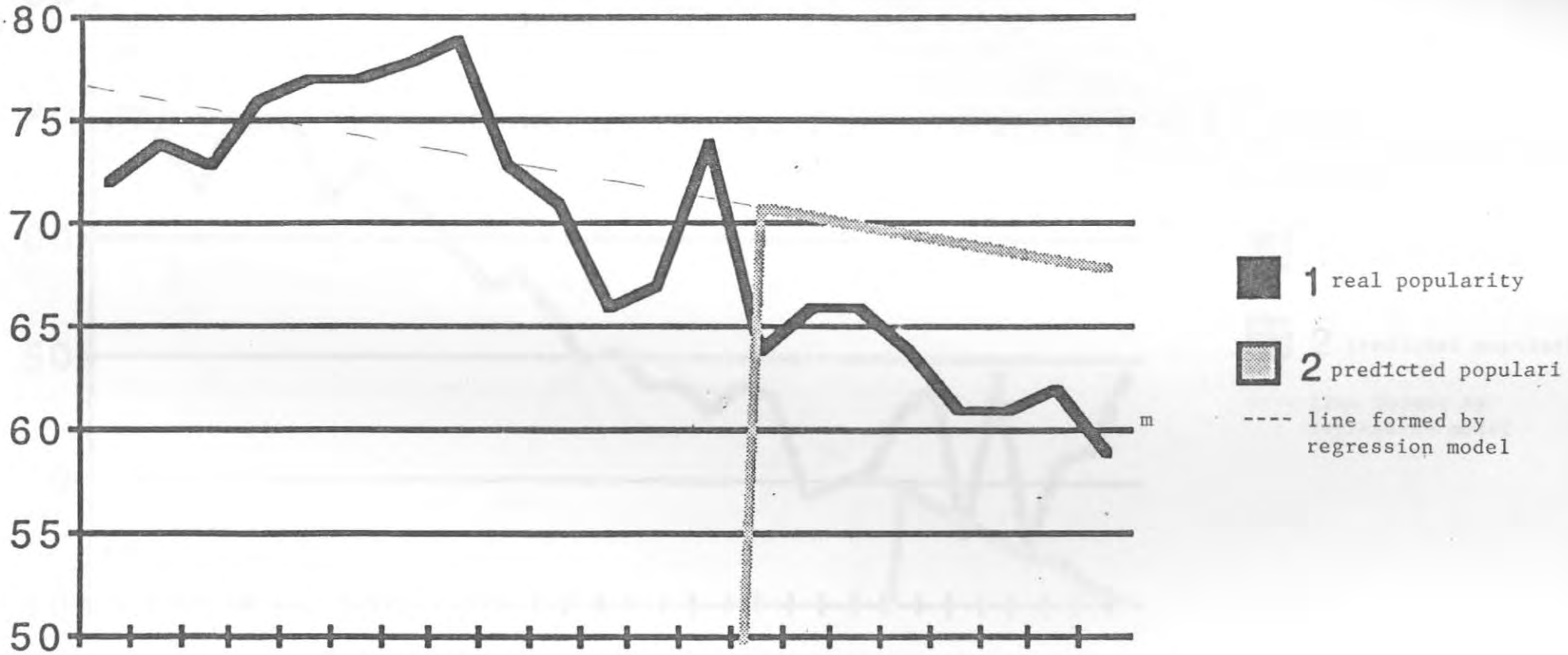
Eisenhower's First Term
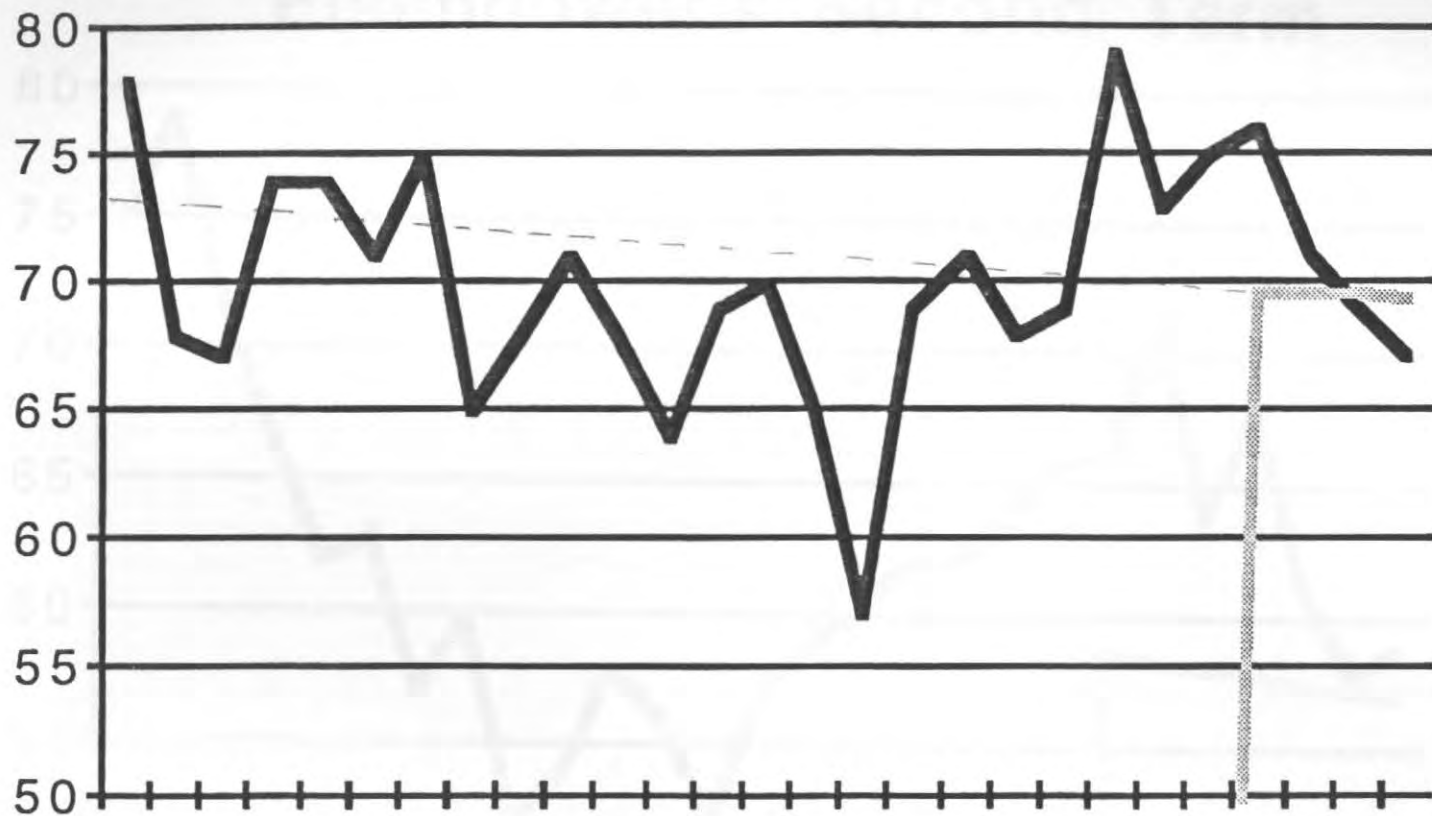
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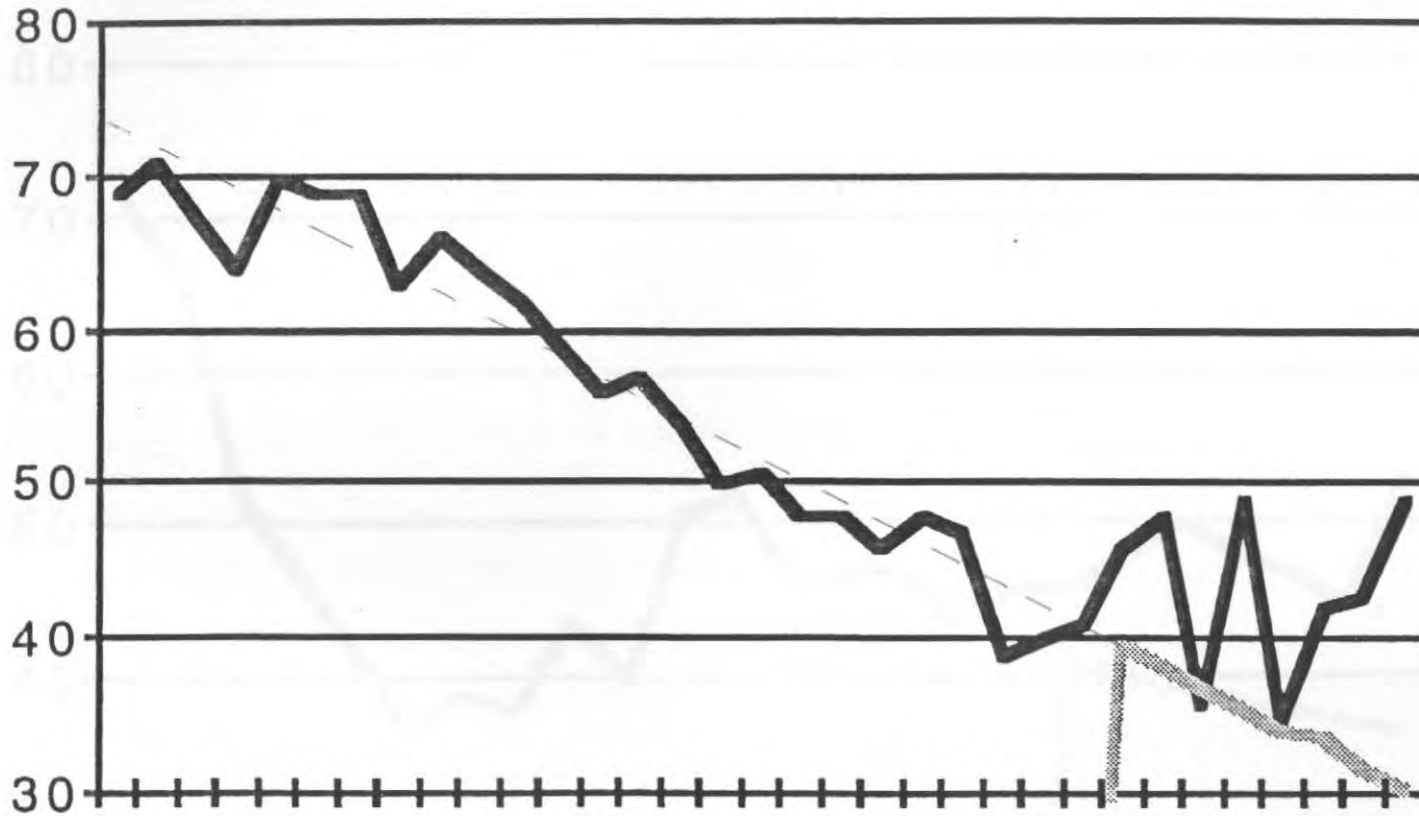**2** predicted popularity

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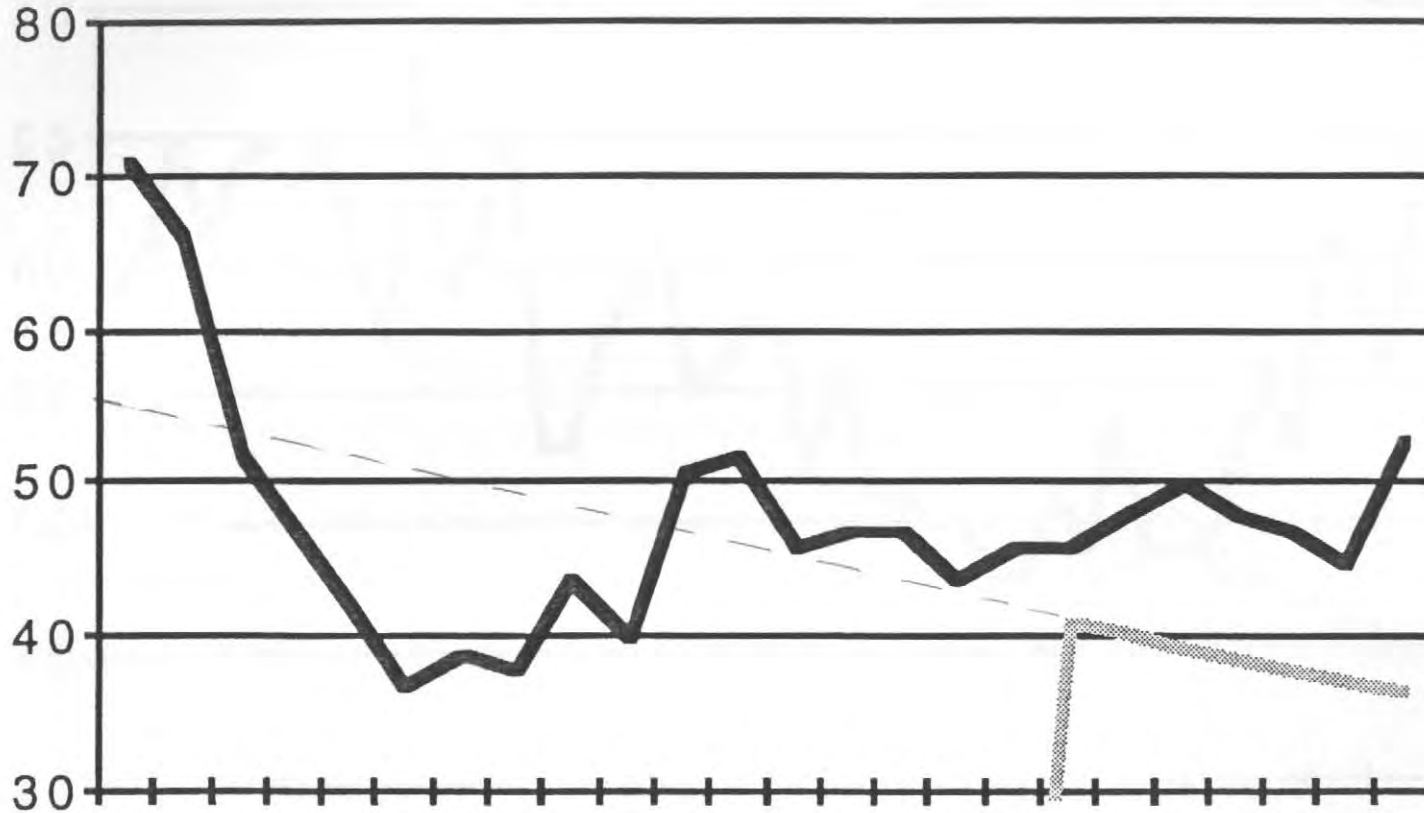
Eisenhower's Second Term

1 real popularity

2 predicted popularit

---- line formed by
     regression model

Kennedy

Legend:
- 1 real popularity
- 2 predicted populari
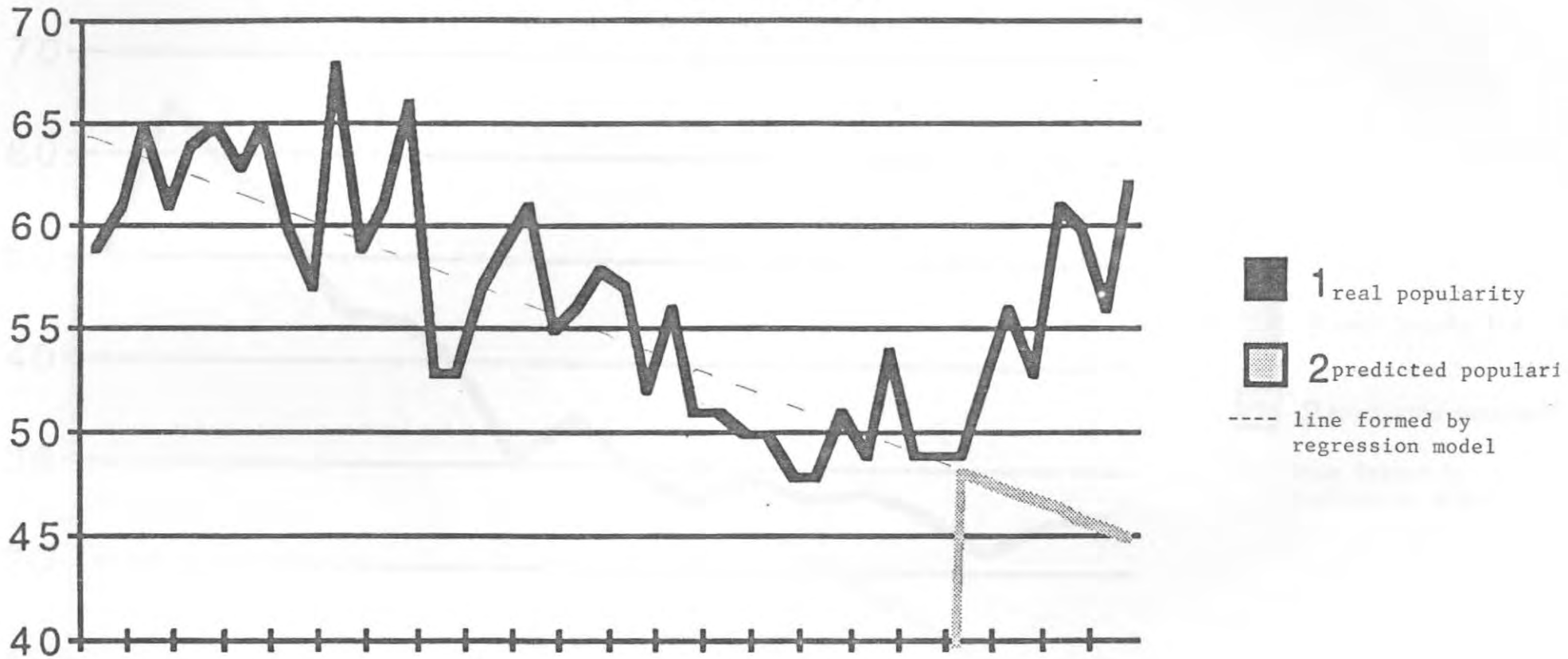- ---- line formed by regression model
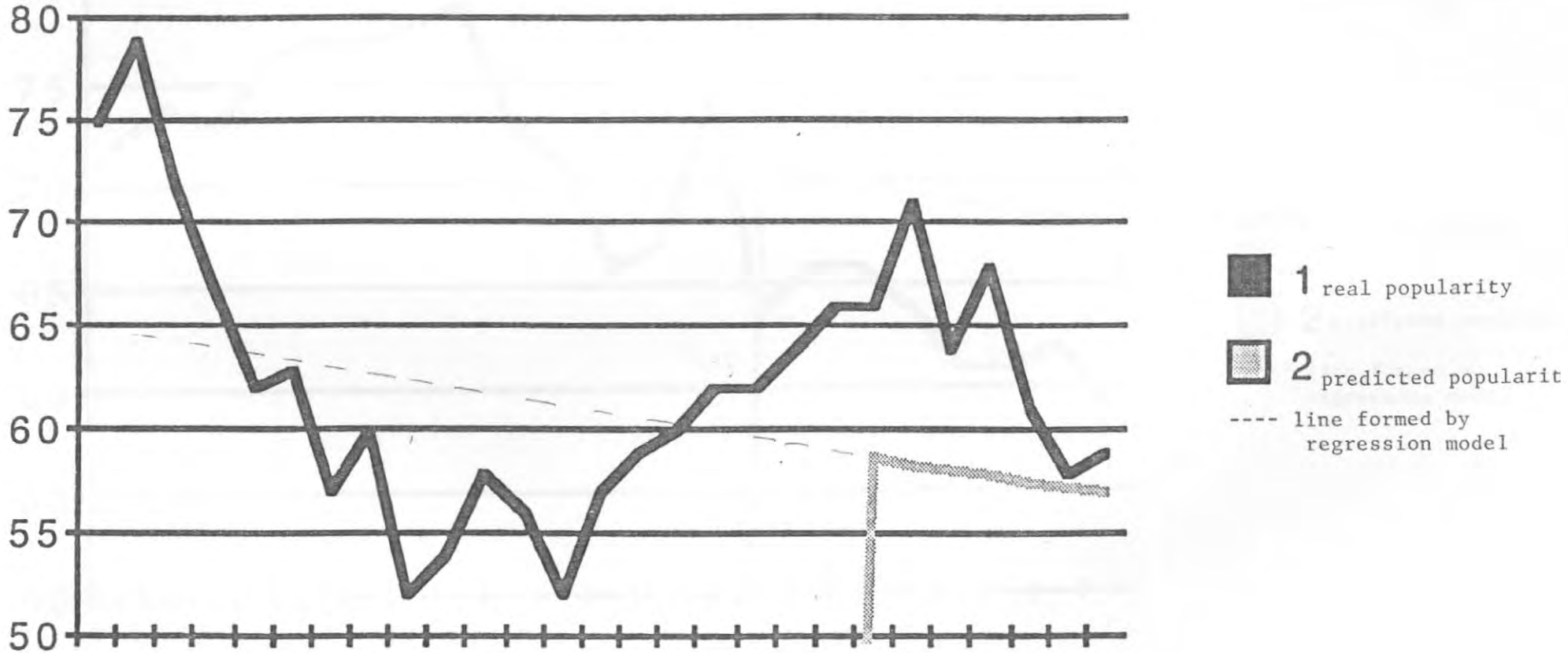
Johnson

1 real popularity

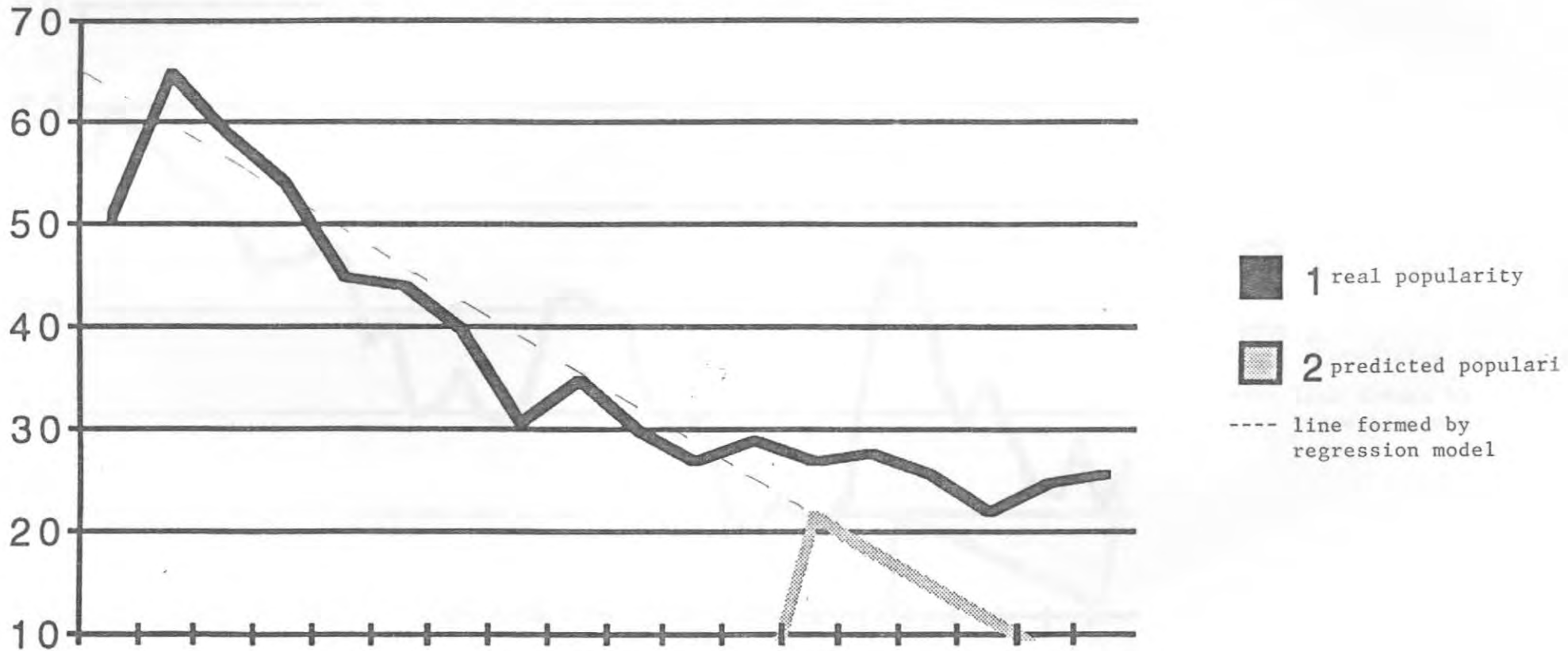**2** predicted populari

---- line formed by
regression model

Ford

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2 predicted popularit
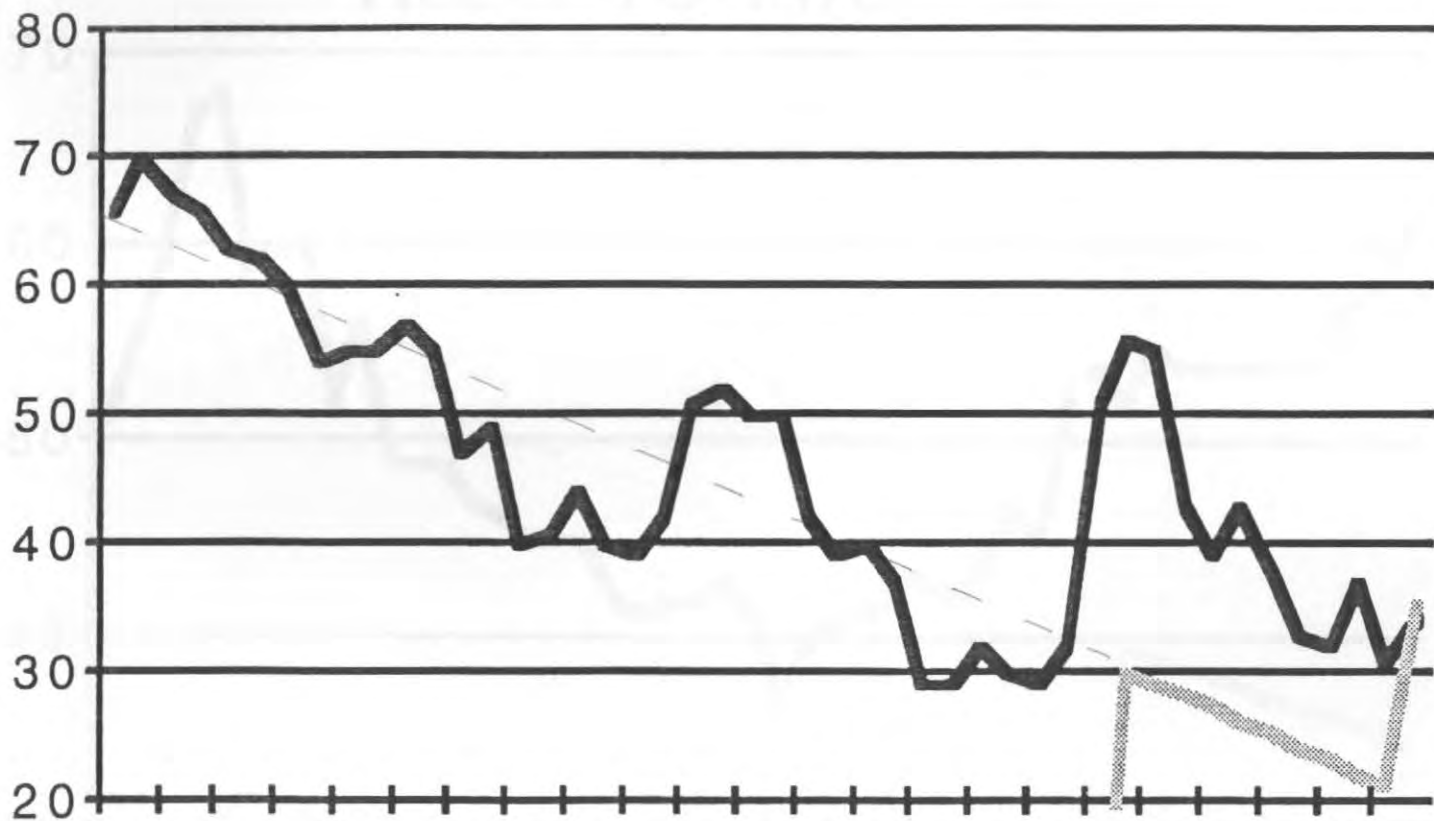
---- line formed by
regression model

Nixon's First Term

Legend:
- 1 real popularity
- 2 predicted populari
- ---- line formed by regression model

Nixon's Second Term

Legend:
- **1** real popularity
- **2** predicted populari[ty]
- ---- line formed by regression model

Carter

Reagan's First Term

Legend:
- **1** real popularity
- **2** predicted populari
- ---- line formed by regression model

Reagan's Second Term

Legend:
- 1 real popularity
- 2 predicted populari[ty]
- ---- line formed by regression model

Bush

90
80
70
60
50
40
30

1 real popularity

2 predicted populari

---- lined formed by
regression model
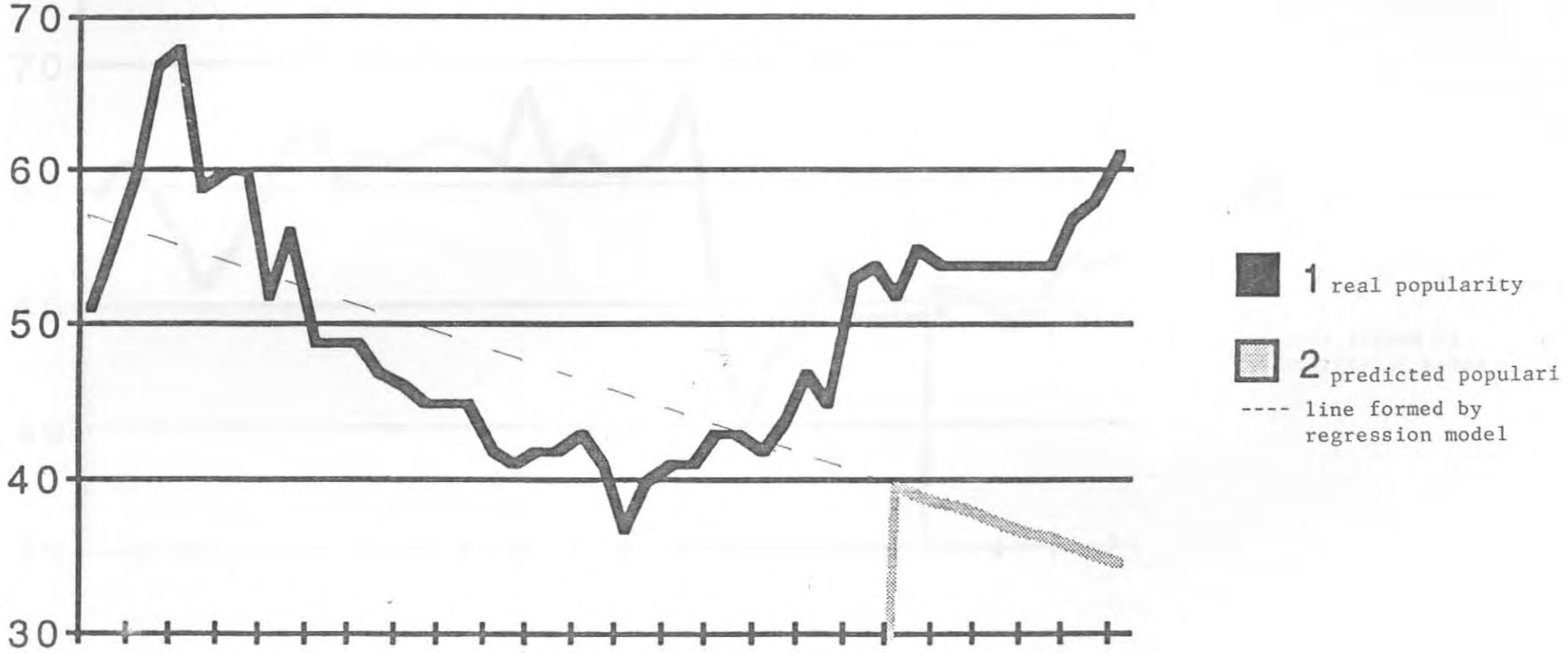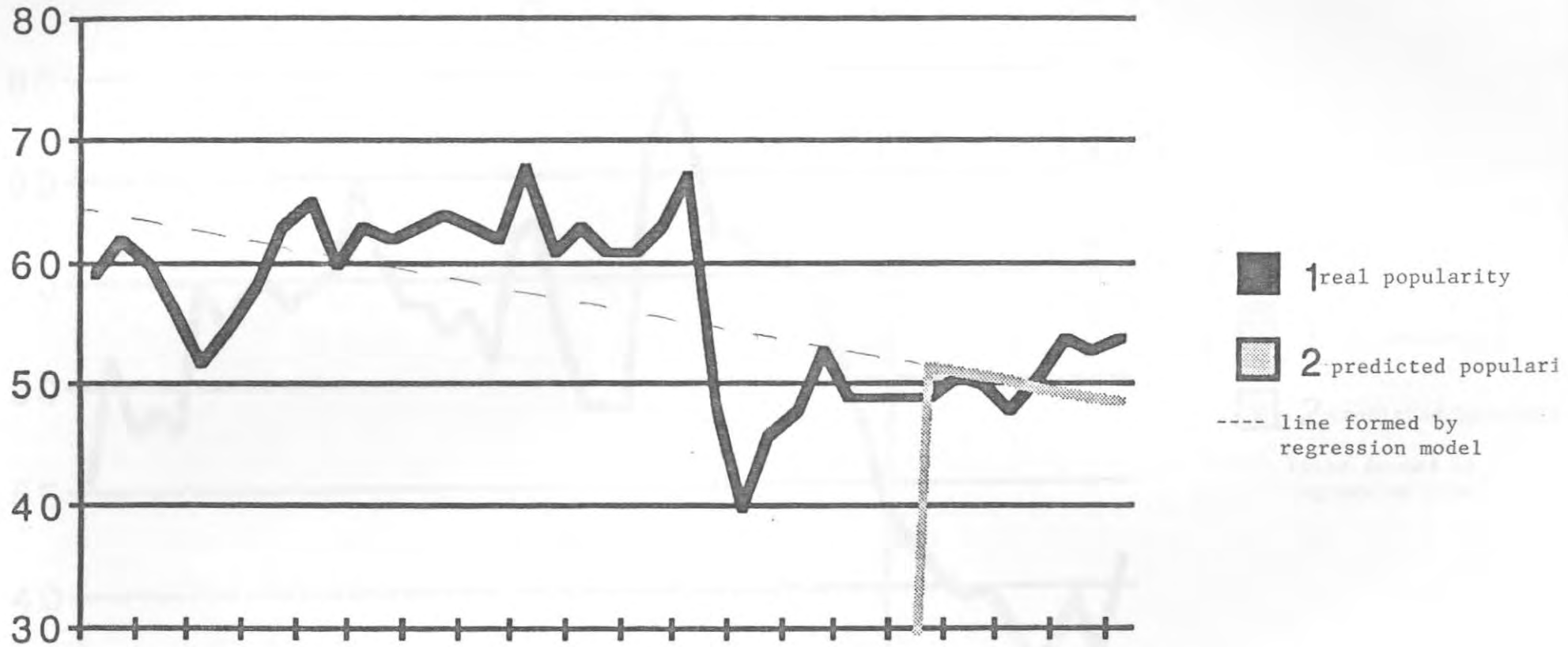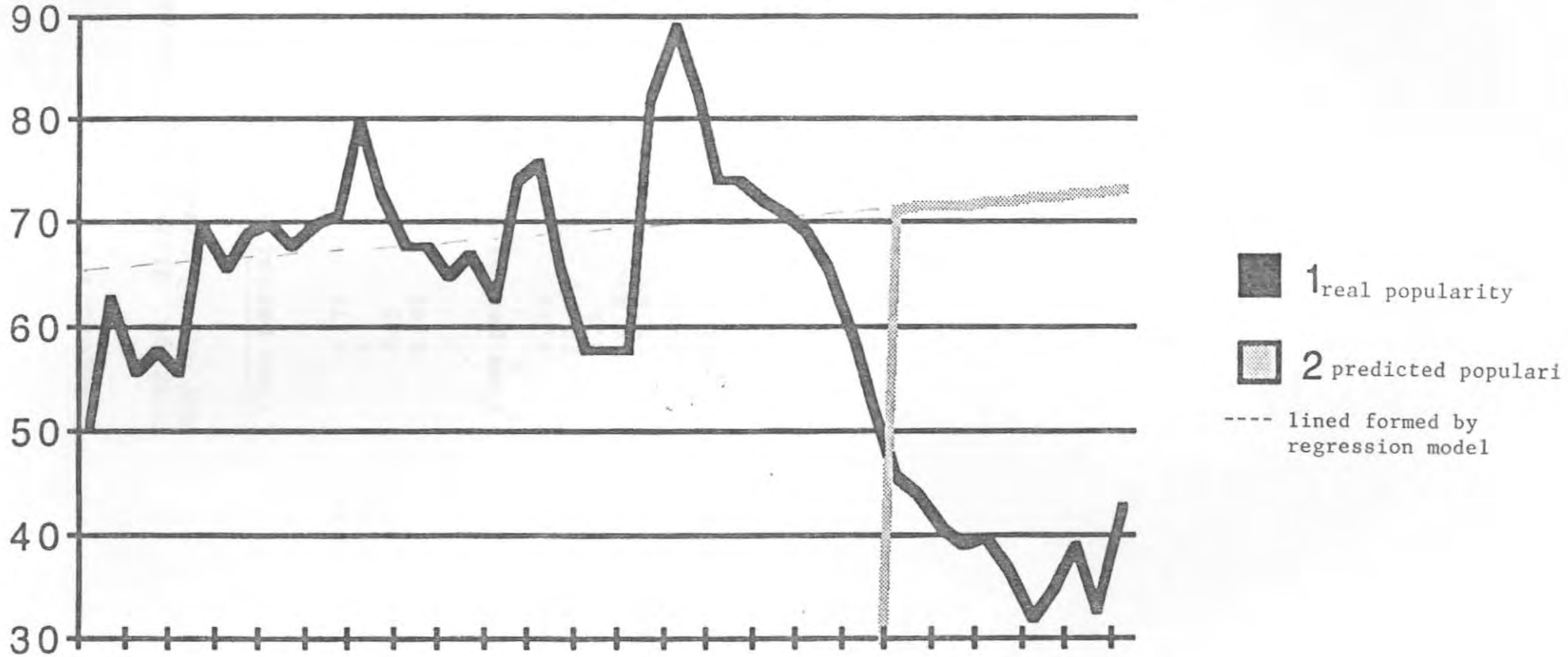
Appendix L

President	Average difference between projected and actual popularity

Time period A

Eisenhower (1st term)	2.72
Eisenhower (2nd term)	6
Kennedy	6.5
Johnson	8.65

Time period B

Nixon (1st term)	9.64
Nixon (2nd term)	12.29
Ford	9.3
Carter	14.83
Reagan (1st term)	17.93
Reagan (2nd term)	2.55
Bush	16.46

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