HOW DO ELECTORAL VOTES, PRESIDENTIAL APPROVAL, AND CONSUMER
SENTIMENT RESPOND TO ECONOMIC INDICATORS?

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How Do Electoral Votes, Presidential Approval, and Consumer Sentiment Respond to Economic Indicators?
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ABSTRACT

This paper studies the effect of economic indicators on the Michigan Consumer Sentiment Index, Presidential approval ratings, and Presidential election outcomes since 1956. How closely do the indicators predict sentiment, how well does sentiment predict approval, and what role does approval have in explaining election outcomes measured by electoral votes? How much of the variance of approval ratings depends on non-economic factors like the "honeymoon effect"? Is there a role for economic indicators in explaining election outcomes once the contribution of approval ratings is taken into account? Regression equations provide answers to these questions and allow new interpretations of political history. Equation residuals and the contributions of specific variables are graphically displayed, providing insights into time intervals when sentiment was above or below the prediction of economic indicators, when approval differed from its usual relation with sentiment and the indicators, and when and why the electoral vote totals in each election since 1956 exceeded or fell short of the predictions of the econometric equations.

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1. Introduction

The influence of economic indicators like unemployment, inflation, and GDP growth on Presidential election outcomes has long been evident, with support from numerous papers going back at least to Fair (1978). There is a separate literature on the effect of economic indicators on the Michigan Consumer Sentiment Index (MCSI), including the question about reverse causation – is there private information in the MCSI responses that helps to predict one or more economic indicators? A separate body of research looks at determinants of Presidential approval ratings. Do economic indicators and/or the MCSI explain approval ratings?

This paper is the first to assess the role of economic indicators for all three -- election outcomes, values of the MCSI, and approval ratings. Is there a chain of causation in which economic indicators explain variations in the MCSI, which in turn explains approval ratings, which in turn explains election outcomes? Are there economic indicators that explain tapproval ratings over and above the influence of the MCSI? What are the most important non-economic determinants of approval ratings? Are there economic indicators that explain Presidential election outcomes in addition to the influence of the MCSI and/or approval ratings?

In the American system Presidential election outcomes depend on electoral votes, not the margin of the popular vote. In the seven Presidential elections between 2000 and 2020, the Democratic candidate won the popular vote in six of the seven, excluding only 2004. Yet the Democratic candidate lost in both 2000 and 2016 because of a deficit in the electoral vote tally; Al Gore in 2000 fell short by only 4 electoral votes while Hillary Clinton's deficit was a more substantial 43 electoral votes. Because of the importance of the electoral college, the regression equations in this paper use electoral votes as the dependent variable, differing from the popular vote share equations upon which the work of Fair (1978, 2009) and others has focused.

This paper also begins its election study in 1956 rather than the 1916 start point of Fair's work, which is heavily influenced by the huge swings of real GDP growth between record negative in 1932 and record positive in 1936 to explain Roosevelt's landslide victories in those years. Another reason to focus on the more recent period is the role of rising polarization as the nation has become divided in the last two decades into red states and blue states. No major-party Presidential candidate has received less than 160 electoral votes since 1988 as red and blue state allegiances guarantee a minimum electoral tally in every recent Presidential election. It is hard to imagine an election today in which the losing candidate receives only 13 electoral votes, as did Ronald Reagan's opponent Walter Mondale in 1984.

A study that explains electoral votes, Presidential approval, and consumer sentiment together has intrinsic historical interest, in addition to any insights it may provide about the 2024 Presidential election campaign (this version is released before the election and will be revised after those election results are determined). When the influence of economic indicators is taken into account, historical recollections sometimes need to be adjusted. For example, the outcome of the close contest between John Kennedy and Richard Nixon in 1960 is often

attributed to Kennedy's superior performance in the Kennedy-Nixon debates, whereas a more convincing explanation is that the economy was in the middle of a recession in November, 1960. Jimmy Carter's 49 electoral votes in 1980, a postwar record low for an incumbent President seeking reelection, is often blamed on the Iranian hostage crisis, which may have been less important than the facts that a recession occurred in the election year of 1980 while inflation steadily accelerated during Carter's term. Barack Obama's victory in 2008 is sometimes credited to his achievement as the candidate to be the first Black President and his verbal and rhetorical skills, whereas the real cause of Obama's victory over the incumbent Republican party was the free fall of the economy in November 2008 at the worst stage of the 2008-09 "Great Recession."

The MCSI and Presidential approval regression results are of independent interest besides any role they may have in explaining election outcomes. In contrast to electoral votes, where we have only 17 observations since 1956, there are 274 quarterly observations on the MCSI and approval variables between 1956:Q1 and 2024:Q2 available to be explained by the regressions. The ups and downs of the Michigan sentiment index readings, which range from 54 to 110, are well explained by our set of economic indicators. The residuals from our equation highlight several periods when the actual value of the MCSI is substantially lower or higher than the prediction of the economic indicators.

Most notably in 2022-24 the actual value of the MCSI was on average 16 points lower than the economic indicators predict, helping to explain the low popularity of Joe Biden. The low Biden MCSI values are surprising, since our set of economic indicators includes the cumulative extra inflation in the current Presidential term relative to the cumulative inflation in the previous term, and this excess inflation is usually cited as the main reason for the low readings on consumer sentiment and Presidential approval during 2022-24. The Biden deficit is even larger than the negative residuals that occurred in 1973 during the first oil shock or in 2008-09 during the Great Recession. In the opposite direction the actual MCSI was 10 points higher than the predicted value during the year 2000 at the peak of the dot.com stock market bubble and the last year of the 10-year 1991-2001 business cycle expansion.

While with these exceptions the variation in the MCSI is well explained by the economic indicators, that of the Presidential approval rating, which ranges from a low of 25 to a high of 91, is not well explained by the MCSI or the economic indicators. An important non-economic determinant of the PAR is a "honeymoon effect" in which each President but one since 1960 has enjoyed a rating 10 points higher during his first year of office than can otherwise be explained. Interestingly, the only exception was Donald Trump who suffered from a low lapproval rating throughout his term. On average the approval rating in the last year of each Presidency is 13 points lower than in the first year. Other significant non-economic determinants are low ratings for Johnson during the Vietnam War and for Nixon because of the Watergate scandal. Short-lived events that boosted the ratings of Bush father and son were the Gulf War and the aftermath of the 9/11 attacks.

The election regressions explain the electoral vote total of the candidate of the incumbent party for the 17 elections between 1956 and 2020. In these 17 elections 11 of the candidates were the incumbent President, while in the remaining six elections the incumbent party's candidate was the Vice-President (four elections) or a newcomer (the remaining two elections).   The results are ambiguous about the advantage of an incumbent President running for re-election. Presidents Eisenhower, Johnson, Nixon, and Reagan all won landslide tre-election victories with more than 450 electoral votes. The three more recent incumbency victories of Presidents Clinton, Bush Junior, and Obama, were less impressive, with each winning less than 350 electorl votes – the result of growing red/blue state polarization. Weighing against an incumbency advantage are the defeated re-election candidacies of Presidents Ford, Carter, Bush senior, an Trump.

The results indicate that two economic indicators – growth in real GDP per capita and excess inflation during the incumbent's term – have significant explanatory power in addition to the approval rating. When approval and consumer sentiment are entered together, approval wins out and sentiment becomes insignificant. The best equation accurately predicts the outcome of 15 of the 17 elections, missing only Al Gore's 2000 defeat when he lost by only four electoral votes, and the loss of Hillary Clinton in 2016 by an even narrower margin, with the regression predicting that she should have won 271 electoral votes compared to the 270 needed for victory. Both Gore and Clinton won the popular vote in those years.

In addition to predicting correctly the outcome of the other 15 elections, the best equation provides a historical retrospective on several election outcomes. For instance, Ronald Reagan's stunning 1984 re-election victory with 525 of the total 538 electoral votes is matched almost perfectly, with a predicted value of 507. In contrast Richard Nixon's 520 vote landslide in 1972 is underpredicted by 146 electoral votes, an interesting "miss" in light of the usual interpretation that Nixon's victory was due to his imposition of price controls and his goading of Arthur Burns to expand the money supply. Other interesting election outcomes are also highlighted.

Part 2 of the paper introduces the economic indicators. Part 3 studies the economic determinants of the Michigan Consumer Sentiment Index and asks whether independent information in the MCSI can predict any of the economic indicators. Part 4 then turns to the Presidential approval ratings, examining the influence of the MCSI, other economic indicators, and such non-economic determinants as the "honeymoon effect." Part 5 presents the results for electoral votes, including the role of the economic indicators, MCSI, approval ratings, and the Presidential re-election incumbency effect. This analysis includes the predicted outcome of the 2024 election from the two best equations. Part 6 concludes.

2. Introducing the Economic Indicators

The unemployment and inflation rate are the most commonly cited economic indicators to summarize the health of the economy. Arthur Okun once famously dubbed the sum of these two indicators as the "misery index." Both are expected to have negative effects on consumer sentiment, Presidential approval, and electoral votes.

The third indicator is the growth rate of real GDP per capita, which if rapid can raise consumer sentiment, approval ratings, and electoral votes even if unemployment is relatively high. For instance, even though the unemployment rate averaged 7.4 percent and inflation 4.0 percent in the four quarters ending in 1984:Q2, real GDP per capita growth averaged a very rapid 6.8 percent in the same four quarters, making a major contribution to high 1984 consumer sentiment, Presidential approval, and Reagan's landslide re-election victory.[1]

As is evident in the low MCSI and approval ratings of 2023-24, other dimensions of inflation matter besides the actual rate over the past year. Sentiment and approval depend on perceptions not only of the absolute value of the inflation rate, but about whether it is getting worse. To capture this our fourth economic indicator is the acceleration of inflation, measured as the inflation rate over the most recent four quarters minus the average inflation rate over the last 14 quarters. But that is not all that concerns approval ratings and electoral outcomes. Voters also judge a President by the average inflation rate over his term compared to what they are used to. We call this "excess inflation" and measure it by the average inflation rate over the most recent 14 quarters minus the same average four years earlier.

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[1] In 1984:Q3 the MCSI was at 98.9 compared to a post-1955 average of 86.2, the Presidential approval rating was 53.3 compared to a post-1955 average of 52.4, and Reagan in November, 1984, won 525 of the total 538 electoral votes.

Figure 1. Unemployment Rate vs. NAIRU, 1948:Q1-2024:Q2
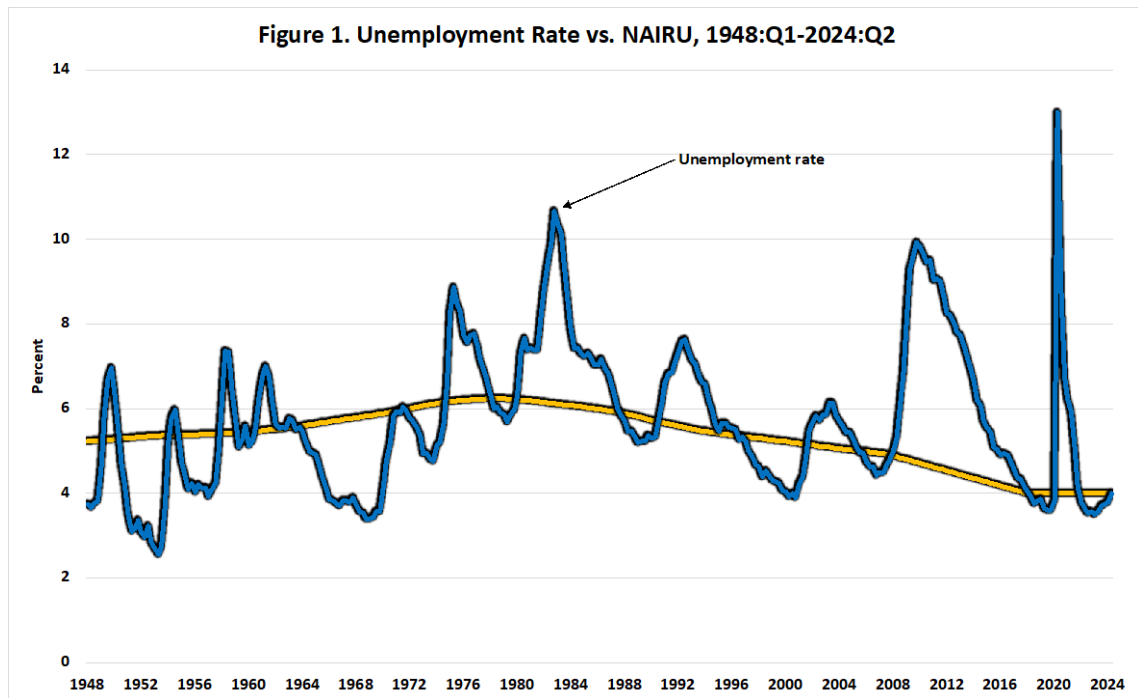
The Unemployment Rate. Figure 1 plots the unemployment rate since 1948, showing the alternation of peaks toward the end of recessions and the subsequent economic expansions that bring unemployment back down toward its minimum value in each business cycle. Clearly visible are the four short, mild, and frequent recessions of 1948-49, 1953-54, 1957-58, and 1960-61. The relatively mild recession of 1969-70 was followed by the much more severe oil shock recessions of 1973-75 and 1981-82, with a milder recession in 1980 usually blamed on the Carter credit controls. Then recessions became less frequent, with a decade elapsing between the recessions of 1990-91 and 2001, followed by the "Great Recession" of 2007-09 and the two-month pandemic recession of 2020. The low frequency of recessions between 1982 and 2007 leads this era to be called the "Great Moderation." Also visible is how quickly the unemployment rate fell after the 1981-82 recession, a side-effect of the rapid real GDP growth in 1983-84 that helps us to understand Reagan's 1984 election landslide.

Figure 1 compares the actual unemployment rate, shown by the blue line, with the NAIRU, or "Non-accelerating Inflation Rate of Unemployment," plotted by the yellow line. This is the unemployment rate that, in studies of the relationship between inflation and unemployment, appears to be consistent with steady inflation that neither accelerates nor decelerates. The series has been developed in previous papers by numerous authors (for instance, Gordon 1997) and is now regularly maintained and updated by the Congressional Budget Office (CBO). In light of the absence of any inflation acceleration in 2018-19 when the actual unemployment rate fell below 4.0 percent, the NAIRU series in Figure 1 has been

adjusted from the CBO NAIRU series to trend down after 2007 to a fixed value of 4.0 percent starting in 2018:Q1 (the CBO value for 2019 is 4.5 percent and in 2024 is 4.4 percent). [2]

The economic indicator entered into the regressions below is not the unemployment rate itself, but rather the four-quarter average of the difference between the unemployment rate and the NAIRU. This reflects the idea that the impact of high unemployment is conveyed better by the excess of unemployment over "normal" unemployment than the unemployment rate itself. As shown in Figure 1 the NAIRU slowly increased from 1965 to 1980, fell back from 1980 to 1995, and then fell further through 2018. The 1965-80 increase is usually attributed to the increase in the share of women after 1965 and of baby-boom teenagers during the 1970s, as both women and particularly teenagers have higher average unemployment rates than adult men. Higher average unemployment as a result of this shift in the composition of the labor force should not influence consumer sentiment or Presidential approval.

The post-1980 decline in the NAIRU is partly due to the decline in the share of teenagers as the baby-boom generation became adult workers. A second factor has been the rise in the share of the adult male population in prison, reflecting the likelihood that those who are incarcerated would otherwise be more likely to be unemployed than the average person. A third factor may have been the invention of the internet, which made job search more efficient. A final factor may have been a decline of inflation expectations due to inflation targeting by the Federal Reserve.

The Current Inflation Rate. The price index used to measure inflation is the headline personal consumption deflator, not the Consumer Price Index. The PCE deflator is based on chain weighting back to 1959 and is consistently measured throughout. Unlike the CPI, which cannot be revised due to its use in contractual indexing, the PCE deflator is regularly revised as new data become available. An alternative CPI called the CPI "research series" (CPI-RS) imposes consistency on CPI measurement but is not chain-weighted and is upward biased compared to the PCE deflator.

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[2] A similar adjustment has been made by the Federal Reserve. The Fed indicated after its meeting of June 19, 2019, that it had lowered its projected range for the NAIRU to between 3.6 and 4.5 percent, i.e., an average of 4.05 percent. See the ranges shown in the right side of the table in:
https://www.federalreserve.gov/newsevents/pressreleases/monetary20190619b.htm

Figure 2. Four-quarter Percent Change in PCE Headline PCE Deflator, 1948:Q1-2024:Q2
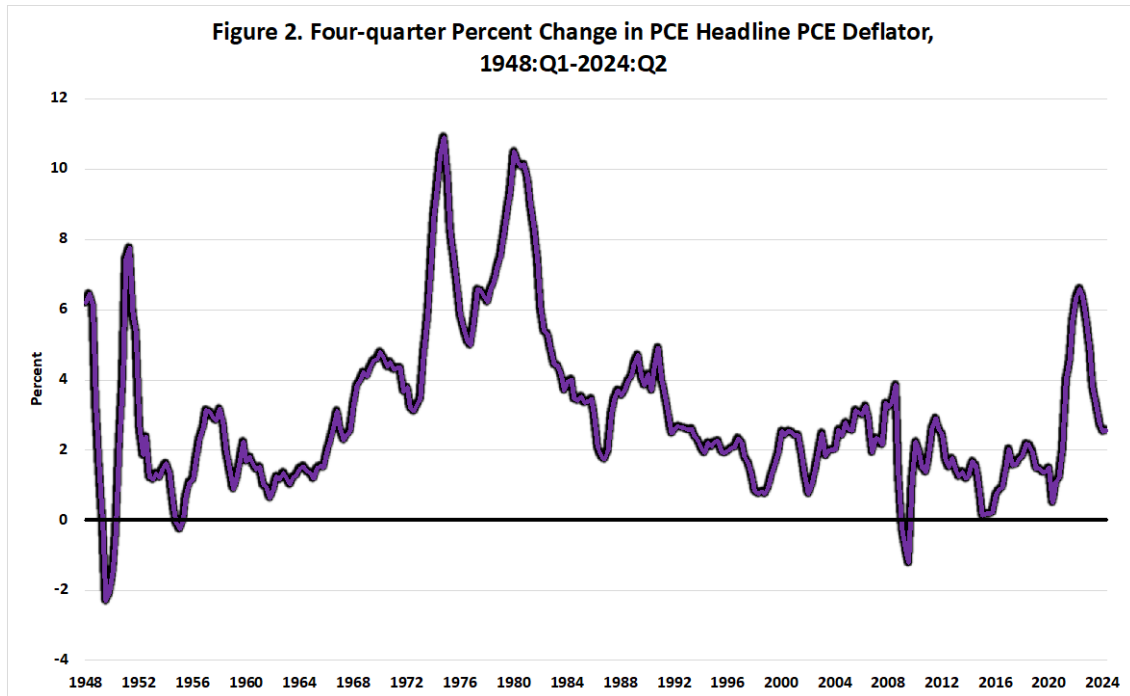
Figure 2 shows the history since 1948 of the four-quarter change in the headline PCE deflator. Clearly visible are the successive episodes of high inflation, starting with the early postwar inflation in 1948, the Korean war inflation of 1951-52, the gradual acceleration of inflation during the Vietnam war era of 1966-70, the two episodes of sharp oil-shock inflation in 1973-75 and 1979-81, and then the long interval between 1993 and 2020 when inflation varied only modestly above and below two percent per annum. The post-pandemic "Biden-era" inflation reached a peak of 6.6 percent for the four quarters ending in 2022:Q2. As an unusually stark example of upward bias, the increase in the CPI in the year ending in June 2022 was 8.6 percent, fully two percentage points higher.

Growth in Real GDP per Capita. Real GDP per capita is a better measure than real GDP of the impact of economic growth on household welfare. Average annual population growth slowed from 1.7 percent during 1948-64 to 0.6 percent during 2010-24. The use of real GDP without the population adjustment would exaggerate the benefits of economic growth in the early postwar years compared to more recent decades. The indicator entered into the regressions is the four-quarter change in real GDP per capita minus its 1948-2024 average value of 1.95. Thus above-average growth higher than 1.95 percent is assumed to improve consumer sentiment, approval ratings, and electoral votes, and vice-versa for growth below 1.95 percent per year.

Figure 3. Four-quarter Percent Change in Real GDP per capita, 1948:Q1-2024:Q2
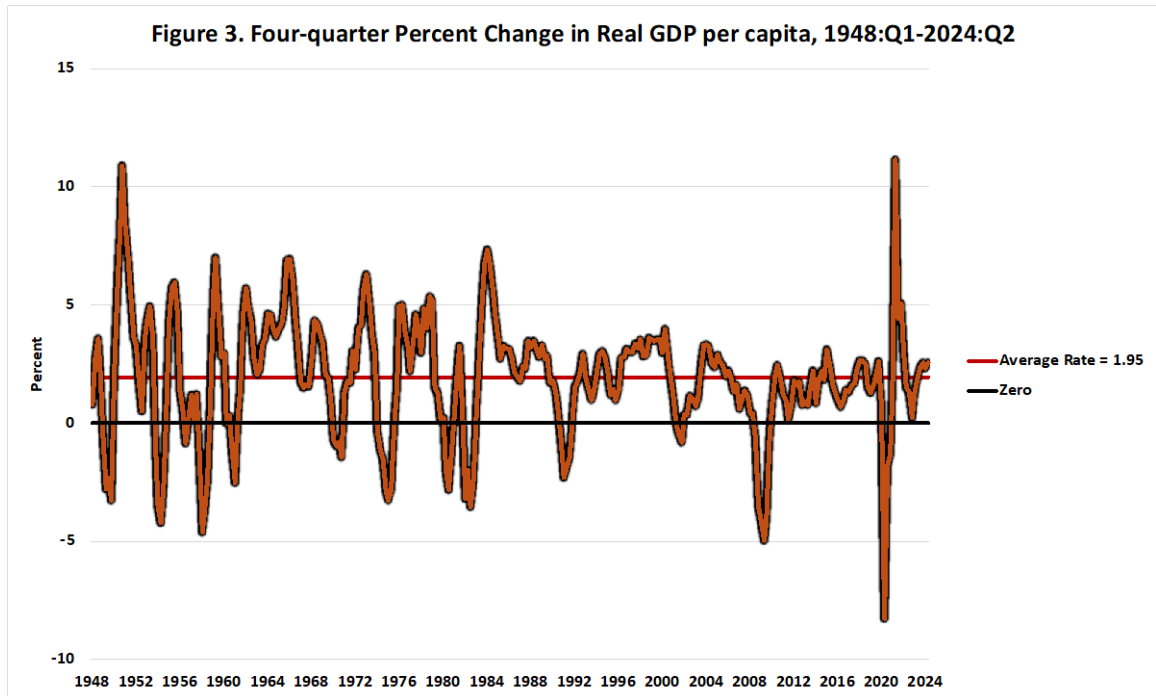
Figure 3 displays the four-quarter growth rate of real GDP per capita since 1948. The black horizontal line shows zero growth and the red horizontal line displays the average growth rate of 1.95 percent per year. There is a sharp contrast between the highly erratic behavior before 1985 and the less volatile "Great Moderation" era, particularly between 1985 and 2007. Leaving aside the short but sharp pandemic recession and recovery of 2020, four-quarter real GDP per capita growth dropped below zero only three times in the 40 years between 1984 and 2024, in contrast to ten times in the 36 years between 1948 and 1984.

Acceleration of Inflation. The current rate of inflation is not the only measure relevant to consumer sentiment, Presidential approval, or electoral votes. Also relevant is whether inflation has been getting worse over the term of the incumbent President. An inflation rate of four percent when four percent has been the average over recent years is unlikely to be perceived as unfavorably as a four percent inflation rate when households have become used to zero inflation.

Figure 4. Acceleration of Inflation vs. Excess Inflation, 1952:Q1-2024:Q2
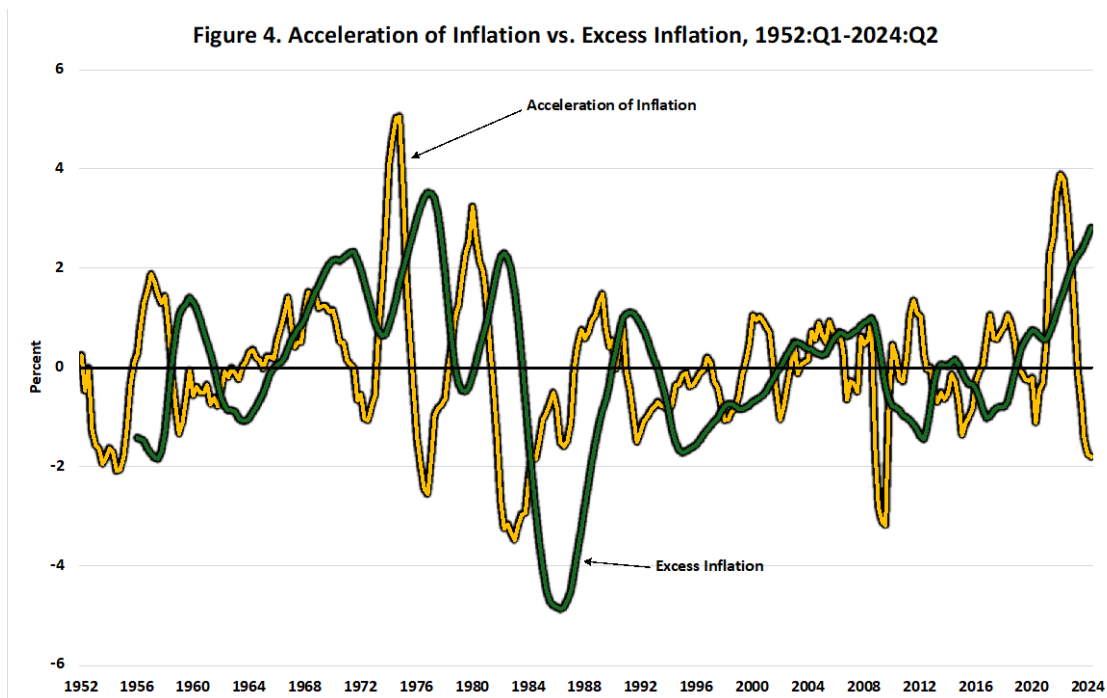
The yellow line in Figure 4 plots the inflation acceleration variable, defined as the four-quarter change in the PCE deflator minus the 14-quarter change. The span of 14 quarters is chosen because this corresponds to the length of data available about average inflation during a Presidential term as perceived by voters making their election decision during the third quarter of an election year. The adverse movements of the yellow line are dominated by three upward spikes during the oil shocks of 1973-75 and 1979-81, and the post-pandemic inflation of 2021-22. The most pronounced negative, i.e., favorable, movements are soon after the two oil shocks, briefly during the 2008-09 Great Recession, and briefly in 2023-24.

Excess Inflation. Another important dimension of inflation clearly matters in 2023-24 yet has not been studied in the previous literature. This is the overall inflation experience during a Presidential term compared to the previous term. When survey respondents in 2024 cite "the economy" as the most important issue, what they usually mean is that during the past Presidential term prices have risen a lot compared to their recollections of the price level four years earlier. This concept of excess inflation, as it turns out, is relevant not only to explaining low consumer sentiment and Presidential approval in 2023-24, but also why consumer sentiment in 1984 was so high despite ongoing unemployment and current inflation, as well as why Reagan's 1984 landslide victory was so one-sided.

The green line in Figure 4 plots the excess inflation variable. This is defined as the 14-quarter average rate of inflation minus the 14-quarter average rate of inflation four years earlier. Because our inflation data begin in 1948, the earliest data of this variable is 1956, which is the start date of all our regression equations. By definition the green excess inflation line in Figure 4 is less volatile than the yellow inflation acceleration line and lags behind it by roughly two

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years. The favorable negative value of -4.8 percent in 1984-85 is even more important than the unfavorable positive value of +2.8 reached in 2024:Q2.

## 3. Regressions Explaining the Michigan Consumer Sentiment Index

Table 1. Regression Response of Consumer Sentiment Index to Changes in Economic Variables, 1956:Q1-2024:Q2					
	(1)	(2)	(3)	(4)	(5)
Unemployment Rate minus NAIRU	-3.14**	-2.75**	-3.12**	-3.45**	-0.51*
Current Inflation Rate	-3.24**	-2.99**	-2.70**	-2.09**	-0.49**
Real Per-capita GDP Growth Rate minus 1.95	---	2.11**	2.08**	1.90**	0.58**
Acceleration of Inflation	---	---	-1.14**	-1.77**	-0.84**
Excess Inflation	---	---	---	-1.90**	-0.38[+]
Lagged Consumer Sentiment Index	---	---	---	---	0.76**
Constant	98.0**	93.1**	92.5**	91.2**	22.9**
Adjusted R^2	0.45	0.61	0.62	0.67	0.85
RMSE	9.1	7.7	7.6	7.1	4.8

a. [+] indicates statistical significance at 10% level, * indicates statistical significance at 5% level, ** indicates statistical significance at 1% level.
b. Exact variable definitions are provided in the text.

The Michigan Consumer Sentiment Index (MCSI) is available back to 1953:Q1 and varies from a minimum index value of 54 in 1980:Q2 during the Carter credit-control recession and a maximum value of 110 in 2000:Q1 at the peak of the late 1990s economic expansion and stock market bubble. The regression equations with the MCSI as the dependent variable are displayed in Table 1. The variables are introduced sequentially in the order in which they were introduced in the previous section.

When only the traditional unemployment and current inflation indicators are included as in column (1), the R^2 is 0.45 and the Root Mean Squared Error (RMSE) is 9.1. Both indicators are highly significant at better than the 1 percent level. When all five indicators are included as in column (4), the R2 jumps to 0.67 and the RMSE drops to 7.1. All five indicators are significant at the 1 percent level. It is somewhat surprising that three different dimensions of the influence of inflation – current inflation, the acceleration of inflation, and excess inflation – are necessary to capture the complex impact of inflation on consumer sentiment.

Previous research on consumer sentiment has often included the lagged dependent variable in the equation that explains MCSI. This captures the fact that the

response of the MCSI to the economic indicators is slower than suggested by the direct impact of the economic indicators, even though all of these are averages over four quarters or even longer in the case of excess inflation. As shown in column (5) the lagged dependent variable is highly significant but leaves an explanatory role for all five economic indicators. Current inflation, GDP growth, and inflation acceleration retain significance at better than the 1 percent level. The significance of unemployment drops from 0.0 percent to 5 percent, and of excess inflation from 0.0 percent to 8 percent.

Figure 5. Actual vs. Predicted Consumer Sentiment Index on Economic Variables, 1956:Q1-2024:Q2
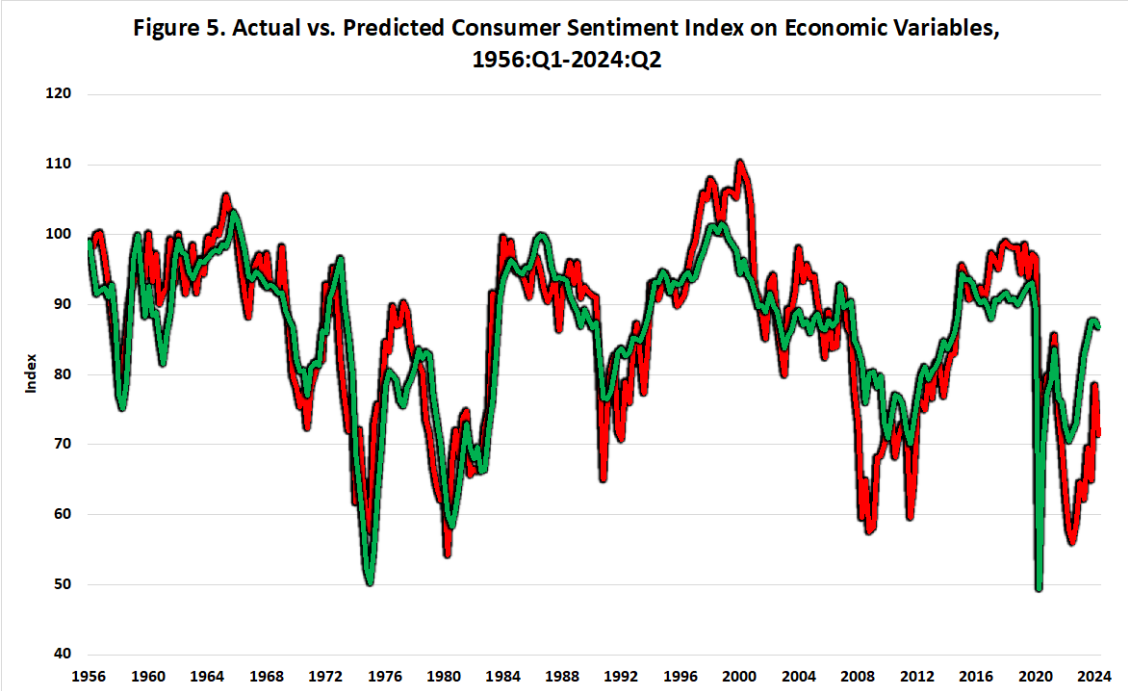
The equation that omits the lagged dependent variable in column (4) of Table 1 is preferable because it avoids "explaining MCSI by itself." The actual values of the MCSI and the predicted values from column (4) are plotted in Figure 5, with actual values in red and predicted values in green. By examining the column (4) version we can see not only how well the economic indicators do by themselves but can also focus on particular intervals when the residual differences between actual and predicted values are relatively large.

The first string of three consecutive double-digit residuals occurs during the first three quarters of 1973. This is not clearly visible in Figure 5, because the predicted values do a good job of tracking the collapse of consumer sentiment at the time of the first oil shock, but the predicted values are two quarters late. For instance the actual values collapse from 96 in 1972:Q4 to 72 in 1973:Q3. The predicted values show a similar collapse from 90 in 1973:Q2 to 68 in 1974:Q1, i.e., two quarters late, so the

average of the residuals is -14 index points in the first three quarters of 1973. The next strong of three consecutive double-digit residuals is in 1977, with positive residuals averaging +12 percent, possibly a reaction to the inauguration of the new President Carter (see below in Part 4 for a discussion of the Presidential approval "honeymoon effect").

Then we jump to the four quarters of the year 2000 with an average positive residual of +13 points, perhaps a reflection of the general euphoria as reflected in the stock market bubble and as a reaction to ten years of prosperity without a recession. By far the longest string of double-digit residuals was during the seven consecutive quarters starting in 2008:Q1, during and immediately after the "Great Recession," when the residuals averaged -15 percent and peaked at -22 percent in late 2008. "Great Recession" is a fitting label for this interval, when consumer sentiment fell so far below its usual relationship with the economic indicators. Interestingly the equation fits almost perfectly during the equally deep 1981-82 recession, with an average residual of only -0.1 points during the six quarters of that recession.

Of great current interest is the final stretch of double-digit residuals averaging -16 percent during the nine quarters between 2022:Q2 and 2024:Q2 (the last quarter of our data). This inability of the equation fully to capture unfavorable consumer sentiment is surprising in light of the inclusion of the excess inflation indicator to which the sour recent mood of consumers is usually attributed. As we shall see below, negative sentiment extends to the approval ratings of the Biden presidency, which also exhibit negative residuals even when the already-negative MCSI is included as an explanatory variable in the approval equation.

The contributions of the economic indicators to the predicted values of the basic Table 1 column (4) MCSI equation are plotted in Figure 6.   "Contributions" are defined as the regression coefficients times the values of the corresponding explanatory variables. To avoid complexity the indicators are divided into two groups. The combined contributions of unemployment and real GDP are shown by the positive and negative pink areas in the top frame and the combined contributions of the three inflation variables are shown by the green areas in the bottom frame. The positive pink areas are relatively small, concentrated in the 1962-72 decade and the late 1990s. The negative pink areas are more substantial and, as expected, occur in the 1970s and early 1980s and especially between 2008 and 2016, reflecting both the depth of the 2008-09 recession and the slow real GDP recovery from that recession.

Figure 6. Contributions of Economic Indicators to Fitted Values of Consumer Sentiment Index, 1956:Q1 – 2024:Q2
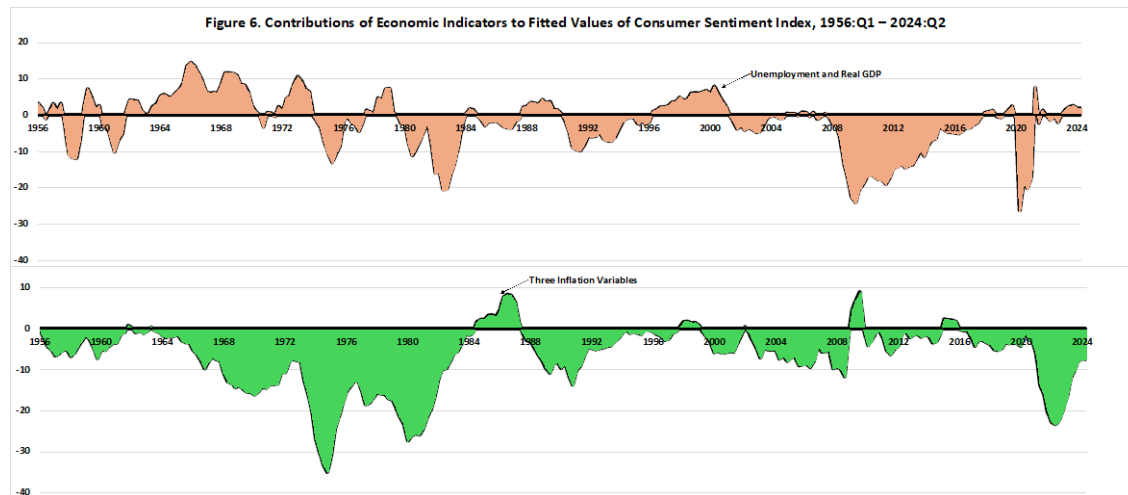
The positive green areas show that the only positive impact of inflation on consumer sentiment was during 1984-88, a result of the strongly negative excess inflation of that interval. It is not surprising that most of inflation's impact on consumer confidence as shown by the negative green areas, since the inflation variables are defined relative to zero rather than to some positive "normal" inflation rate such as two percent. As expected the contribution of the three combined inflation variables to consumer sentiment is continuously negative from 1966 to 1984 and again in 2022-24. The negative impact of the last two years is roughly similar in magnitude to that between 1978 and 1984 but lasted for two years instead of six.

The previous literature studying the effects of economic indicators on the MCSI includes the paper by Lovell and Tien (2000). In their sample period of 1953-98, they find significant effects on the MCSI of the unemployment rate, the change in the unemployment rate, the inflation rate, and the S&P stock market index. Most of their regressions include the lagged dependent variable. They do not test the acceleration of inflation nor excess inflation. A paper by Vuchelen (2004) on the shorter 1985-2000 sample period finds significant effects on the MCSI of the change in a "business cycle index," the change in the unemployment rate, the level of the nominal short-term interest rate, a fixed-horizon economic forecast, and the dollar exchange rate. All regressions include the lagged dependent variable. An earlier paper by Garner (1981) on the short 1962-78 interval found significant effects on the MCSI of inflation, the stock market, disposable income, and the lagged dependent variable.

A previous paper by Acemoglu *et al. (1994)* has studied reverse causation and has concluded from Granger causality tests that the MCSI contains independent information that helps to predict the values of several economic indicators. These include unemployment, inflation, income growth, real wealth, and the real interest rate.

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Since the Acemoglu paper based its evidence on a relatively short sample period between 1975 and 1990, it is worth looking again at the issue of reverse causation.

Table 2. Granger Test of the Consumer Sentiment Index on Economic Variables, 1956:Q1-2024:Q2			
	Unemployment	Inflation	Real GDP Growth
Consumer Sentiment Index (t-1)	0.00	-0.01	0.04**
(t-2)	0.00	0.01	0.02
(t-3)	-0.01	0.00	-0.01
(t-4)	0.01**	0.00	-0.03
Unemployment (t-1)	1.67**	---	---
(t-2)	-0.67**	---	---
(t-3)	-0.13	---	---
(t-4)	0.10$^+$	---	---
Inflation (t-1)	---	1.40**	---
(t-2)	---	-0.42**	---
(t-3)	---	0.04	---
(t-4)	---	-0.06	---
Real GDP Growth (t-1)	---	---	0.74**
(t-2)	---	---	0.02
(t-3)	---	---	0.00
(t-4)	---	---	-0.21**
$^+$ indicates statistical significance at 10% level, * indicates statistical significance at 5% level, ** indicates statistical significance at 1% level.			

A Granger causality test is two-way, regressing variable A on its own lagged values and the lagged values of variable B, and vice-versa where the dependent variable is B rather than A. The effect of economic variables on the MCSI is already shown in Table 1, so Table 2 displays the reverse regressions in which three indicators are dependent variables in turn, and each regression includes the values of the lagged dependent variable and four lags of the MCSI. Table 2 has separate columns for the three dependent variables – unemployment, the current inflation rate, and the change in real GDP per capita.

As shown by the asterisks that designate statistical significance, there is a significant effect of MCSI lag four on unemployment and a significant effect of MCSI lag one on growth in real GDP per capita. However the sign in the unemployment equation is positive rather than the expected negative sign. There is no effect of the MCSI on inflation once lagged values of inflation are included. These results are for four-quarter averages of the three indicators; similar equations for the current one-quarter values yielded no significant feedback of the MCSI on the economic indicators. These results are consistent with the paper by Howrey (2001) that finds that the MCSI significantly predicts real GDP growth.

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4. Regressions Explaining Presidential Approval Ratings

This paper studies whether there is a chain of influence running from economic indicators to consumer sentiment, and from there to Presidential approval ratings and subsequently to election outcomes. We discover that neither economic indicators nor the MCSI has much explanatory power for the approval rating, which varies from a minimum of 25 to a maximum of 91 with an average of 52. Instead most of its variance is explained by non-economic factors. These include a "honeymoon effect" in which each President since 1952 has a substantially higher rating in his first year than can be explained by the other variables in the equation. A parallel finding is that ratings jump on average by 13 points between the last year of a Presidency and the first year of the next Presidency in the 12 transitions between Eisenhower to Kennedy in 1961 and from Trump to Biden in 2021. Further non-economic determinants of Presidential approval include a foreign policy negative for approval (Vietnam), two foreign policy positives for approval (the Gulf war and the 911 attacks), and a domestic policy negative (Watergate). The last term of Bush junior and most of Biden's term were uniquely unpopular even when controlling for the influence of already-low MCSI and two of the economic indicators.

	First 4 Quarters	Last 4 Quarters	Change	Transition	Average Approval
Table 3. Honeymoon Effect of Presidential Approval, 1953:Q1-2024:Q2					
Eisenhower	68.5	62.0	-6.5		65.2
Kennedy	75.1	64.3	-10.9	13.1	70.3
Johnson	73.3	41.9	-31.5	9.1	55.1
Nixon	61.3	29.5	-31.8	19.4	51.1
Ford	45.5	46.0	0.5	16.0	45.4
Carter	63.3	38.2	-25.1	17.3	46.4
Reagan	57.3	52.3	-4.9	19.1	53.0
Bush Sr	64.6	40.1	-24.5	12.3	60.5
Clinton	50.1	59.9	9.8	10.0	55.5
Bush Jr	67.8	29.4	-38.3	7.8	49.6
Obama	57.8	51.8	-5.9	28.3	48.0
Trump	38.7	43.8	5.2	-13.2	41.1
Biden	50.3	39.2	-11.1	6.4	43.0
Average	59.5	46.0	-13.5	12.7	52.6
Average Pre-2000	62.1	48.2	-13.9	14.5	55.8
Average Post-2000	53.6	41.1	-12.5	7.4	45.4

The honeymoon effect as demonstrated by the President-to-President transition is displayed for 13 Presidents in Table 3. Column (1) displays the average rating in the first year and column (2) displays the last year, with the change shown in column (3). 10 of the changes are negative, two are positive, and one is close to zero. Of the negative changes, the largest (-38 points) was recorded by Bush junior, while Johnson and Nixon are tied for the next largest

decline (-32 points). Bush senior comes next, helping to explain why he won his 1988 election by a substantial margin yet lost his re-election bid in 1992. Next comes Carter. Positive changes were recorded only by Clinton and Trump, and the Trump rebound comes from the lowest first-year starting point of any President on the list.

Column (4) shows the approval rating change when the last year of each Presidency is compared to the first year of his successor. These transitions demonstrate the power of the honeymoon effect, as the inauguration of a new President overrides the influence of both economic and non-economic variables. For instance despite the fact that the economy was as bad in 2009 as in 2008, Obama's first year garnered a rating jump of 28 points compared to Bush junior's last year. Similarly, economic conditions in 1977 were not much better than in 1976, but Carter's first year was rated 17 points higher than Ford's last year, while Reagan's first year was rated 19 points higher than Carter's last year. The honeymoon effect worked even during the Vietnam war, when Nixon's rating in 1969 jumped by 19 points from Johnson's in 1968, even though the war continued unabated from 1968 to 1969.

The final column of Table 3 shows the average rating during each of the full Presidencies. The highest ratings were achieved by the first two of the listed Presidents, with Kennedy's rating of 70 a bit ahead of Eisenhower's 65. Notably the ratings decline over time with all four Presidents since 2000 registering average ratings below 50. The bottom two lines of Table 3 show that the average rating since 2000 has been a full 10 points lower than the average rating before 2000. Interesting evidence of recent polarization is that the two most recent Presidents had the lowest ratings since 1952, with Biden's average of 43 barely ahead of Trump's at 41.

Table 4 displays the regression results for the Presidential approval ratings. The first two columns display results with the explanation limited to economic effects, with the MCSI entered alone in column (1) and alternatively the five economic indicators included in column (2) with the MCSI omitted. The MCSI variable in column (1) is highly significant with a R^2 of only 0.22. The alternative in column (2) that omits the MCSI but includes all five economic indicators has an even lower R^2 of 0.16. Four of the five economic indicators are significant in column (2), with only the real GDP change lacking significance. The fact that the MCSI by itself does better than the combined effect of the economic indicators suggests that whatever depressed sentiment relative to the prediction of the economic indicators, as measured by the Figure 5 residuals, matters as well for Presidential approval. This is particularly true during 2005-08 for Bush junior and 2022-24 for Biden.

Table 4. Regression Response of Approval Ratings to Economic Indicators and Non-Economic Effects, 1956:Q1 – 2024:Q2						
	Time Period	(1)	(2)	(3)	(4)	(5)
Consumer Sentiment Index		0.46**	---	0.46**	---	0.20**
Unemployment Rate minus NAIRU		---	-2.14**	---	-1.52**	-1.30**
Current Inflation Rate		---	-0.88*	---	-2.58**	-1.78**
Real Per-capita GDP Growth Rate minus 1.95		---	0.23	---	0.33[+]	---
Acceleration of Inflation		---	-1.89**	---	0.49	---
Excess Inflation		---	-1.25**	---	-0.04	---
Honeymoon Effect	See note	---	---	8.89**	9.46**	9.43**
Vietnam War	1966:Q1-1968:Q4	---	---	-11.7**	-15.2**	-14.3**
Nixon Watergate	1973:Q3-1974:Q2	---	---	-17.1**	-18.2**	-16.3**
Gulf War	1991:Q1-1991:Q2	---	---	29.2**	26.7**	27.1**
9/11 Attack	2001:Q4-2003:Q2	---	---	20.5**	20.6**	19.3**
Post-Katrina Bush	2005:Q4-2008:Q4	---	---	-12.2**	-13.6**	-13.9**
Trump	2017:Q1-2020:Q4	---	---	-11.8**	-8.90**	-11.0**
Biden Slump	2023:Q3-2024:Q2	---	---	-3.64	-8.78**	-7.73*
Post-Millenium	2001:Q1-2024:Q2	---	---	-4.07**	-9.27**	-6.74**
Constant		13.1**	56.5**	14.5**	64.5**	44.2**
Adjusted R^2		0.22	0.16	0.68	0.72	0.73
RMSE		10.4	10.8	6.7	6.3	6.1

a. [+] indicates statistical significance at 10% level, * indicates statistical significance at 5% level, ** indicates statistical significance at 1% level.
b. The honeymoon dummy variable is equal to unity in the first four quarters of each Presidency from Eisenhower through Biden, except for Trump, and zero otherwise.

Column (3) of Table 4 introduces a set of non-economic influences on Presidential approval. The honeymoon effect row is equal to unity in the first year of each Presidency (not each Presidential term) and zero otherwise. As shown in Table 3 Trump did not have a honeymoon effect and so that variable does not apply to him. The other non-economic effects are introduced for the time periods shown and are chosen for periods when the residuals of the of the column (1) and (2) equations have an absolute value above 10 points. Besides the honeymoon effect, the non-economic factors include Vietnam for Johnson, Watergate for Nixon, the Gulf War for Bush senior, the aftermath of the 911 attacks for Bush junior, the post-Katrina effect for Bush junior, the Trump effect and the "Biden slump." Since these effects were chosen by examining residuals, by definition they are all statistically significant. A final variable called the "Post-Millenium" effect reflects the fact that, even allowing separately for the deficits of Bush junior, Trump and Biden, average ratings were lower after 2000 than before 2000, presumably reflecting increased polarization.

Columns (3) and (4) duplicate columns (1) and (2) with the set of non-economic effects added. Not surprisingly the fit of the equations jumps markedly, with the R^2 rising from 0.22 in column (1) to 0.68 in column (3). The jump from column (2) to column (4) is even greater, from 0.16 to 0.72. Once these non-economic effects are taken into account, the advantage of the MCSI over the economic variables disappears, and in fact only unemployment and current inflation are significant. The best equation combines the MCSI with those two significant economic indicators as shown in column (5). MCSI is highly significant when joined with the two economic indicators, even though the R^2 rises only from 0.72 to 0.73. Note that the coefficient on MCSI drops by more than half in the transition from column (3) to column (5), indicating that

much of the information contained in the MCSI is already provided by the unemployment and inflation variables.

Figure 7. Actual vs. Predicted Approval Rating on Consumer Sentiment Index, Economic Variables, and Non-Economic Effects, 1956:Q1 – 2024:Q2
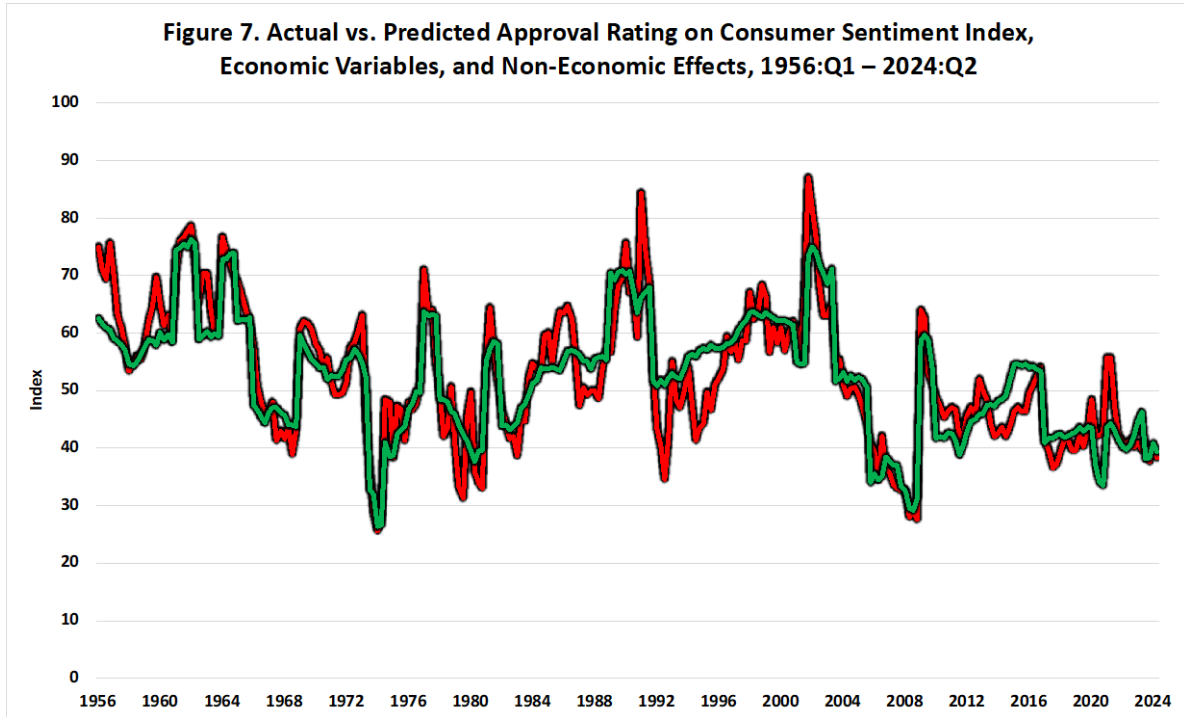
Figure 7 displays the actual and predicted values of the approval rating since 1956. Not surprisingly, since the non-economic effects were chosen on the basis of large errors in the predictions of the MCSI and economic indicators, the remaining errors are relatively small. There is a visible negative residual during 1992-96, the last year of the Bush senior Presidency and the first few years of Clintons first term.   Obama does slightly better than predicted in 2011-12 and slightly worse in 2014-16. Otherwise the combination of MCSI, the two economic indicators, and the set of noneconomic factors provides a relatively complete explanation of the variance in Presidential approval ratings since 1956.

The separate roles of the sets of explanatory variables are captured by Figure 8, which plots the contributions from Table 4, column (5). At the top is the combined contribution of the unemployment and current inflation indicators, which is always negative except briefly in 1999. The role of the two oil shocks of the 1970s in making unemployment and inflation worse together dominates the blue frame, with additional negative contributions coming from high unemployment in the 2008-09 recession and its aftermath, and from high inflation in 2022-23.

Figure 8. Contributions to Fitted Values of Presidential Approval Rating, 1956:Q1 – 2024:Q2
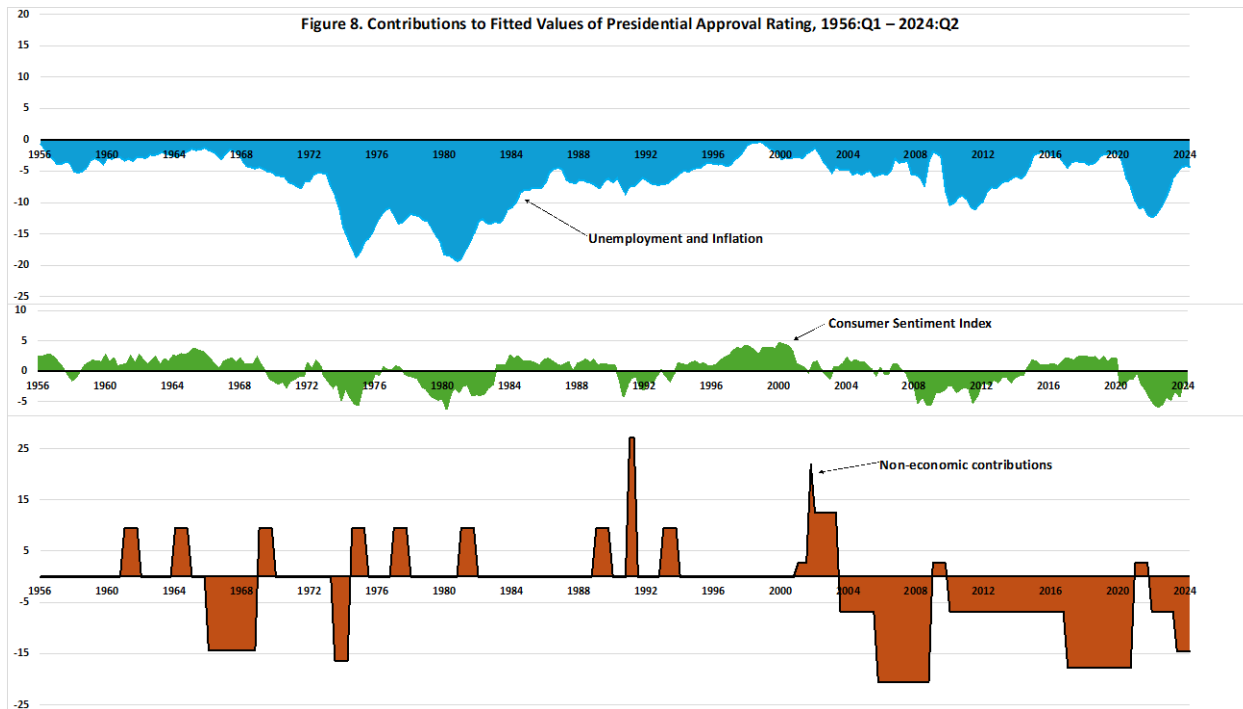
The green frame in the middle of Figure 8 shows the contribution of MCSI to approval, which is relatively small. The negative green areas largely mimic the negative blue areas above them albeit with a smaller magnitude. The MCSI contribution adds to the explanation in the small positive areas of the 1960s, mid-1980s, late 1990s, and 2016-19. Shown at the bottom in orange are the combined contributions of the non-economic factors. The honeymoon effect appears as a series of small positive spikes, with additional positive spikes at the time of the 1991 Gulf war effect and 2001-03 9/11 aftermath. Negative orange boxes indicate the contribution of the Vietnam war as a negative for Johnson's approval and a shorter negative Watergate interval for Nixon. There is a continuous negative orange area after 2000 representing the post-Millenium decline in average approval, together with extra negative orange boxes for the last term of Bush junior, for all of the Trump Presidency, and for Biden's last two years.

The previous literature on approval ratings is largely based on monthly rather than quarterly data and thus does not include changes in real GDP as an explanatory variable. An early paper by Norpoth (1984) studies a sample period extending from 1961 to 1980. He finds a significant effect of lagged inflation and a set of non-economic factors including Vietnam, Watergate, and an "inauguration" variable equivalent to our honeymoon effect. Also included is an "erosion" variable to capture the decline in the approval rating that typically occurs between a President's first and last year as shown above in Table 3. An update by Nickelsberg and Norpoth (2000) covers the later sample period of 1976-98 and supports the inauguration and erosion effects, as well as a role for the unemployment and inflation rates. Their equation includes the lagged dependent variable. Another paper by Gronke and Brehm (2002) for the 1955-93 sample period finds significant effects of inflation, unemployment, and a set of

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variables that includes Vietnam, Watergate, and a set of positive and negative events but not an allowance for a honeymoon or inauguration effect.

A paper by Berlemann and Enkelmann (2014) covers the 1953-2006 sample period. Significant economic variables are the unemployment and inflation rates. Also included is the government deficit, which is not significant in most of the displayed equations. All the equations include a set of specific events such as wars as well as a separate variable for each President, but not an overall allowance for a honeymoon or inauguration effect. A companion paper by Berlemann *et al.* (2015) provides similar results but adds government consumption having a negative impact on approval. They also find that unemployment has a nonlinear effect, with an increase in the unemployment rate depressing approval more than an equal decline in unemployment improves approval.

Adranji and Macri (2019) study 1973-2015 and add to the usual unemployment and inflation variables significant effects of the mortgage interest rate and the trade-weighted dollar exchange rate. Their study differs from the others by excluding both the lagged dependent variable and any non-economic effects. MacKuen *et al.* (1992) take an alternative approach and estimate for 1954-88 an equation for approval that includes the lagged value of the approval rating, thus providing most of the explanation of approval variance without the need for specific non-economic y variables. Also significant are inflation and the change in unemployment. The paper also includes an equation that adds the MCSI as an additional significant explanatory variable, thus providing a precursor of this paper in its attention to the interaction between the MCSI and Presidential approval. None of the other papers reviewed here includes the MCSI as an explanatory variable in an approval equation.

5. Regressions Explaining Electoral Votes

In this section we ask whether the MCSI and approval ratings, together or separately, help to predict the electoral vote outcome of 17 Presidential elections since 1956. We also allow the economic indicators to entire separately or together with MCSI and/or approval. Compared to the 274 quarterly observations in the MCSI and approval regressions reported above, here we have only 17 observations. In contrast to the treatment of approval ratings, we do not make any specific allowance for unusual outcomes in specific elections. Instead we search for an equation that both maximizes goodness of fit while minimizing the number of elections the outcome of which is incorrectly predicted.

Table 5 reports the regression results in which the number of electoral votes of the incumbent political party is the dependent variable. This differs from past research based on the popular vote share of the Democratic candidate. By focusing on the vote of the incumbent party, a simple "President" variable in the regressions can examine whether a President running for re-election has a significant electoral advantage over a candidate of the incumbent party who is either the Vice-President (Nixon, Humphrey, Bush senior, Gore) or a newcomer

(McCain and Hillary Clinton). Column (1) enters the President effect alone without any other explanatory variables. While the coefficient is a large 84 electoral votes, it is insignificant and the R^2 of the column (1) regression is only 0.02.

Table 5. Regression Response of Electoral Votes to Presidential Approval, Consumer Sentiment, and Economic Indicators, 1956 – 2020						
	(1)	(2)	(3)	(4)	(5)	(6)
President	83.7	61.0	108.8*	62.9	---	75.5
Approval Rating	---	8.0**	---	5.2**	5.6**	---
Consumer Sentiment Index	---	---	7.5**	---	---	---
Real Per-capita GDP Growth Rate minus 1.95	---	---	---	22.8*	22.7*	29.9**
Excess Inflation	---	---	---	-22.7+	-27.3+	-41.4*
Constant	250.3	-141.1	-427.1*	-2.7	21.4	254.0
Adjusted R^2	0.02	0.49	0.49	0.69	0.65	0.52
RMSE	137.6	100.0	99.4	77.6	82.0	96.4
Average Absolute Residual	105	71	78	55	59	69
Elections Missed			1960	1960	1960	
	1976	1976	1976			
	1980					
	1988	1988				
	1992					1992
		2000	2000	2000	2000	2000
		2016		2016	2016	
	2020					

+ indicates statistical significance at 10% level, * indicates statistical significance at 5% level, ** indicates statistical significance at 1% level.

The poor predictive power comes from the re-election losses of Ford, Carter, Bush senior, and Trump, with Carter's meager 49 electoral votes appearing to evaporate any consistent advantage of a President running for re-election. The large positive value of the coefficient reflects the landslide victories of the four Presidents running for re-election in 1956, 1964, 1972, and 1984, all of whom won 450 or more electoral votes.   The bottom section of Table 5 reports two measures of goodness of fit besides the R^2 and RMSE.   Also shown are the average absolute residual (105 votes in column 1) and the years of the elections that are predicted incorrectly, which are the four Presidential losses mentioned above plus the victory of then-Vice President Bush senior in 1988.

Columns (2) and (3) of Table 5 add alternatively the approval rating and the MCSI. Each is entered as the average of their values in the second and third quarter of each election year, minus their average values across all election years.   Both indexes are highly significant and appear to contain the same information relevant for election outcomes. In both equations one extra index point adds roughly 8 electoral votes. The R^2 and RMSE of the two equations are identical. The average absolute error in the approval equation (71) is slightly lower than for the MCSI equation (78), but it misses the outcomes of five elections compared to three for MCSI.

Experimentation revealed that only two of the five economic indicators add significantly to the fit of the column (2) approval equation, and as shown in column (4) these are the growth

of real GDP per capita and excess inflation, both of which have the correct signs and are significant respectively at the 5 and 8 percent levels.[3] This is the best equation of those displayed in Table 5, with a R^2 of 0.69, a RMSE of 78, and an average absolute error of 55. Only two election outcomes are predicted incorrectly for the years of 2000 and 2016, and these misses are very small. Gore's loss in 2000 was very close, as he won 266 electoral votes, only four short of the required 270 victory margin. For 2016 the equation predicts 270.6 votes for Hillary Clinton, only 2.6 above a prediction of a 268-vote loss.

Two other versions of the column (4) equation are shown in columns (5) and (6). The incumbent President effect is insignificant in column (4) and so is dropped in column (5). The statistical fit worsens slightly, and the average absolute error rises from 55 to 59 electoral votes. Also the outcome of the 1960 election is incorrectly predicted. Because the two equations in columns (4) and (5) provide a roughly equivalent explanation of the election outcomes, charts and tables showing actual and predicted values, as well as explanatory variable contributions, are provided below for both equations. The final equation in Table 5, shown in column (6), is the same as column (4) but drops the approval rating variable. As expected the fit is substantially worse although only two election outcomes are incorrectly predicted (1992 and 2000). The equations in columns (4) and (5) were rerun with the MCSI replacing the approval rating, but in each case the MCSI was insignificant and so these equations are not displayed in the table.

The best-known previous research on election outcomes is by Fair (1978, 2009). His tracking of election outcomes also includes unpublished releases for each Presidential and Congressional election, most recently in 2022. The equations differ from those presented here by explaining the two-party vote share of the Democratic Presidential candidate rather than the electoral college vote total of the incumbent party's candidate. The primary explanatory variables are the growth rate of real GDP per capita in the three quarters before the election, the average inflation rate in the first 15 quarters of the President's term, and the number of quarters in the term in which real GDP growth per capita exceeded 3.2 percent. There is no role for the approval rating. Since his sample period extends back to 1916, his equation also includes specific allowance for the two world wars and multi-term Presidents.

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[3] Real GDP per capita is entered as the four-quarter change ending in the third quarter of each election year, minus the postwar average of 1.95 percent per year.

Figure 9a. Actual vs. Predicted Electoral Votes on Approval Rating, Incumbency Advantage, and Economic Variables, 1956-2024 (predicted)
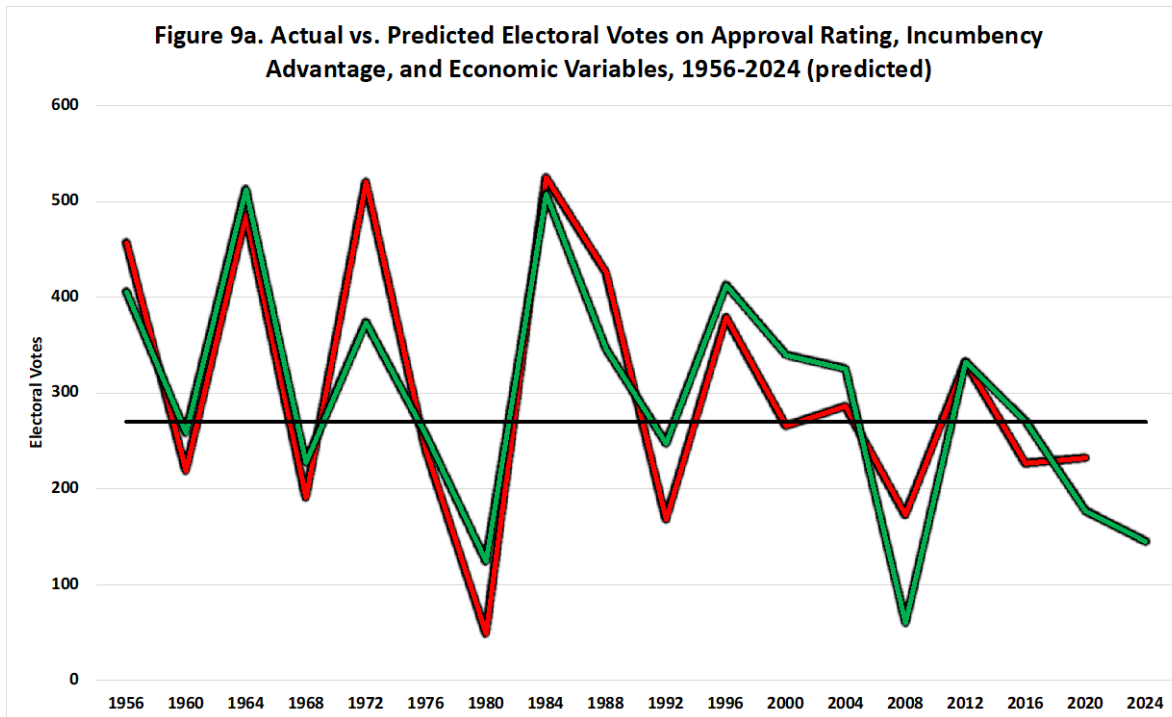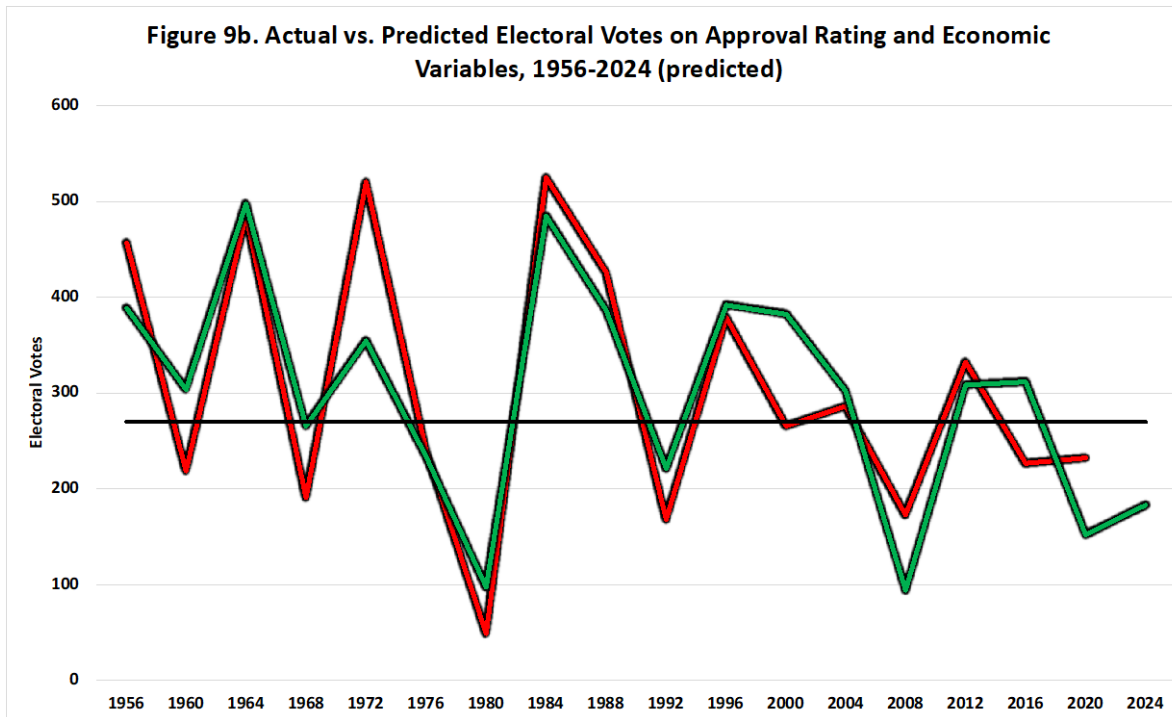

Figure 9a plots the actual and predicted values of the column (4) Table 5 equation that includes the President effect approval, and the two economic variables. Prior to the 2000 election the equation does a remarkably good job in matching the sharp ups and downs of the incumbent party's electoral vote outcome. The largest residual is in 1972, when Nixon's 520-vote landslide is underpredicted by 146 electoral votes. This is ironic in light of the usual interpretation that Nixon's 1972 victory was based on economics, both the 1971 imposition of price controls to tame inflation and the pressure on Arthur Burns (the Fed chair) to boost the growth of the money supply. The next largest pre-2000 residual is in 1992 when the equation predicts that Bush senior should have lost his re-election bid by only 22 electoral votes instead of the actual 102.

Two of the six election outcomes after 1996 are missed. Gore's 2000 loss cannot be explained, with his actual 266 votes falling short of the predicted 339 electoral votes. Hillary Clinton's actual total of 227 electoral votes also is well below the 271 that are predicted. An interesting aspect of the results is that in each election from 1996 to 2020 (except 2012 and 2016) the actual vote was closer to 270 than the predicted vote. This is particularly true in 2008 when McCain's 173 votes far exceeded the prediction of 60. Trump's 2020 loss is also overpredicted by 55 electoral votes. This transition from frequent landslides in the early years to much closer elections since 1996 is clear evidence of the red/blue state polarization of the electorate, which each party now being able to count on a reliable minimum of electoral votes from its most loyal states.

Figure 9b. Actual vs. Predicted Electoral Votes on Approval Rating and Economic Variables, 1956-2024 (predicted)

Since the incumbent President effect is insignificant in column (4) of Table 5, also presented in Figure 9b is a plot of actual and predicted values when that variable is removed as in column (5) of Table 5. Several of the landslide victories or losses are still correctly predicted, as in 1964, 1980, 1984, and 1988. But the Nixon loss in 1960 is missed (actual 219 versus predicted 303). Also Humphrey is predicted to have come close to victory in 1968 (actual 191 versus predicted 266). In general Presidents running for re-election do worse in Figure 9b than 9a, e.g., Trump, and non-Presidents do better, e.g., Hillary Clinton. Both Figures 9a and 9b plot the predicted value for 2024 – below we discuss those forecasts and possible reasons they might be too low.

Figure 10a provides a graph of the contributions to the predicted values of the best regression from Table 5, column (4). Shown in yellow at the top is the contribution of approval, i.e., its election-year value times its coefficient, and this alternates between positive and negative because the approval variable is entered into the regressions as the deviation from the mean (the mean itself is absorbed into the constant term). In assessing the role of approval, it is important to note that some of the non-election factors have no effect in election years. By definition this is true of the honeymoon effect, and also of the Watergate, Gulf war, and 9/11 effects. Approval makes its main positive contribution in 1956-64 and 1996-2000, while the main negative contributions occur in 1980, 1992, 2008, and 2020-24.

Figure 10a. Contributions to Electoral Votes, 1956-2024 (predicted)
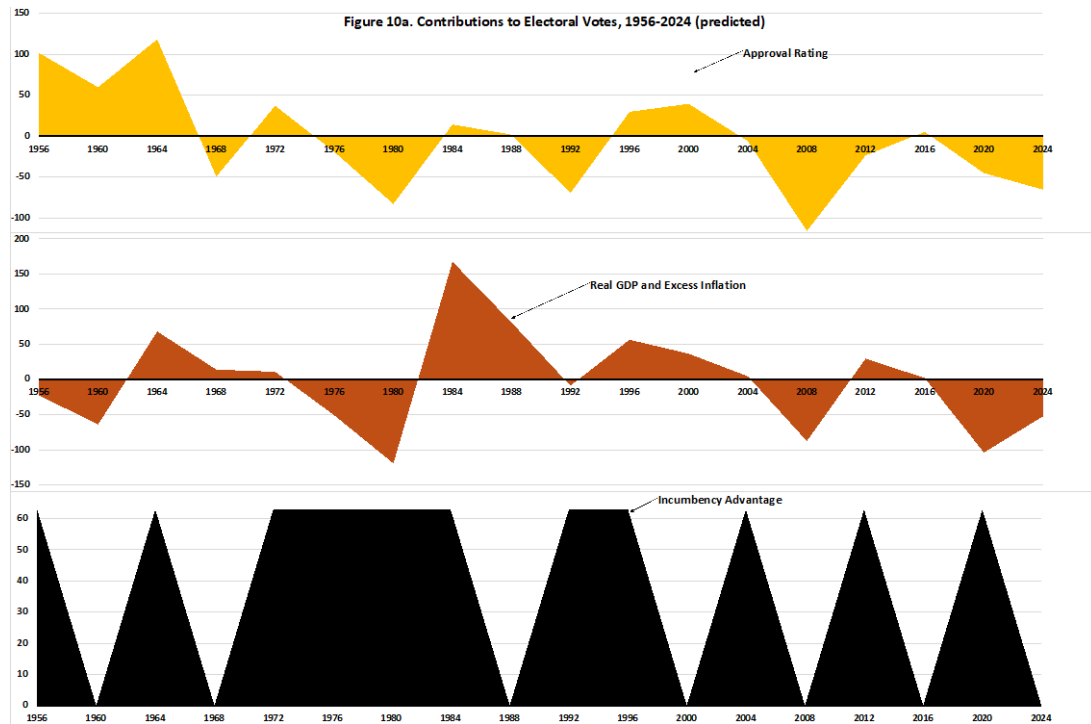
The orange triangles in the middle frame of Figure 10a plot the combined contribution of the two economic indicators, real GDP growth and excess inflation. The middle and top frames share similar movements but exhibit a few differences. The orange areas are not as positive as the yellow areas in the early years between 1956 and 1964. The biggest difference is in the Reagan re-election year of 1984, when the approval contribution in yellow is barely positive, while the combined economic contribution is a massive 168 electoral votes, of which 88 comes from rapid real GDP per capita growth and the other 80 comes from negative excess inflation. In contrast Carter's negative 119 point contribution is divided up into -108 votes for negative GDP growth and only -11 votes for positive excess inflation.

The bottom black areas in Figure 10a record the contribution of the incumbent President re-election effect. In contrast Figure 10b displays the contributions of approval and the economic indicators in the equation (Table 5, column 5) that drops the President effect. The yellow and orange areas in Figure 10a and 10b are almost identical, with the constant term adjusting in Figure 10b for the absence of the President effect/

Figure 10b. Contributions to Electoral Votes without Incumbency Advantage, 1956-2024 (predicted)
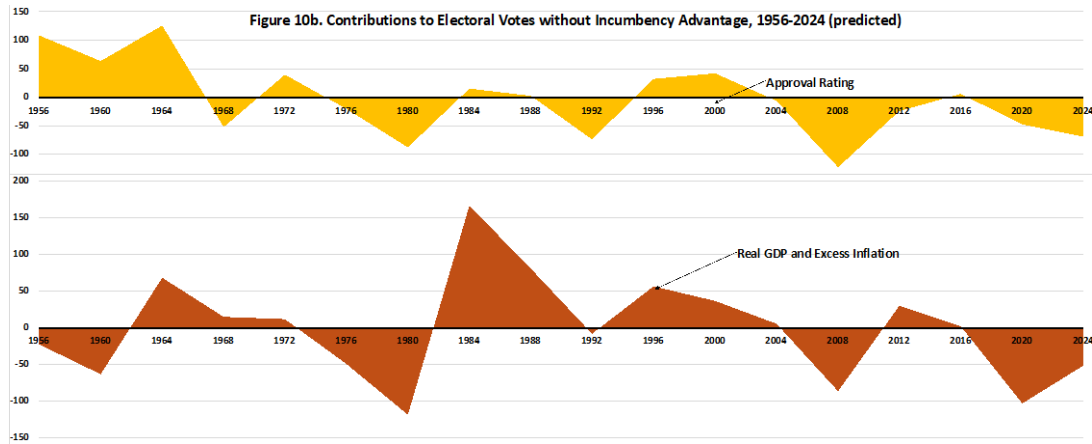
For reference Tables 6a and 6b exhibit the numerical contributions of each variable in each election. This provides the detailed background for the graphs in Figures 10a and 10b and allows readers to see the exact contribution of approval, real GDP growth, and excess inflation in each election.   For instance, the approval contribution in Table 6a varies from a high of +118 electoral votes for Johnson in 1964 to a low of -118 votes for McCain in 2008, because our regressions attach the approval rating of the incumbent President to that party's candidate even

					Contributions			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	Actual	Predicted	Residual	Incumbency	Approval	GDP Growth	Excess Infl	Constant
1956	457	405	52	63	102	-63	41	264
1960	219	259	-40	0	60	-37	-27	264
1964	486	513	-27	63	118	47	22	264
1968	191	228	-37	0	-49	51	-37	264
1972	520	374	146	63	37	51	-40	264
1976	240	256	-16	63	-19	44	-95	264
1980	49	124	-75	63	-82	-108	-11	264
1984	525	507	18	63	14	88	80	264
1988	426	346	80	0	2	28	53	264
1992	168	248	-80	63	-69	7	-16	264
1996	379	412	-33	63	30	19	37	264
2000	266	339	-73	0	40	20	17	264
2004	286	325	-39	63	-6	13	-8	264
2008	173	60	113	0	-116	-60	-28	264
2012	332	333	-1	63	-23	-4	34	264
2016	227	271	-44	0	6	-21	23	264
2020	232	177	55	63	-45	-86	-18	264
2024		145		0	-65	26	-78	264

Table 6a. Actual and Predicted Votes, Contributions of Incumbency Advantage, Approval Ratings, and Economic Indicators, 1956:Q1-2024:Q2

Table 6b. Actual and Predicted Votes, Contributions of Approval Ratings and Economic Indicators, 1956:Q1-2024:Q2						
				Contributions		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Actual	Predicted	Residual	Approval	GDP Growth	Excess Infl	Constant
1956	457	389	68	108	-63	40	303
1960	219	303	-84	63	-37	-27	303
1964	486	497	-11	126	47	22	303
1968	191	266	-75	-52	51	-37	303
1972	520	355	165	40	51	-40	303
1976	240	234	6	-20	44	-94	303
1980	49	97	-48	-88	-108	-11	303
1984	525	485	40	15	87	79	303
1988	426	386	40	2	28	52	303
1992	168	221	-53	-74	7	-16	303
1996	379	392	-13	32	19	37	303
2000	266	382	-116	42	20	17	303
2004	286	302	-16	-6	13	-8	303
2008	173	94	79	-123	-59	-27	303
2012	332	309	23	-24	-4	34	303
2016	227	311	-84	6	-21	23	303
2020	232	152	80	-48	-86	-17	303
2024		183		-69	25	-77	303

if he/she is the Vice-President or a newcomer. This may help explain why McCain did substantially better in 2008 than the equation predicts.

As noted above, the most negative GDP contribution was Carter's -108 votes in 1980. Next comes Trump's -86 votes in 2020, even larger than McCain's -60 in 2008. When the Presidential effect is omitted as in Table 6b, the excess inflation contribution ranges from a positive 79 votes for Reagan in 1994 (i.e., negative excess inflation) to a negative 94 votes for Ford in 1976.

Implications for the current election are shown in the bottom line of Tables 6a and 6b. The predicted electoral vote outcomes for the incumbent party's candidate are 145 electoral votes in Table 6a and 183 in Table 6b. Three issues can be raised about this result. First, the President effect included in Table 6a but not in Table 6b is statistically insignificant so should receive less weight. Second, is the low approval rating of the sitting President (38.5) relevant when the candidate is the Vice-President or a newcomer? Third, American politics has become more polarized since the 1990s, as the actual vote in most elections since 1996 has been closer to the magic 270 vote threshold than the predicted vote.

6. Conclusion

This paper examines the effect of a set of five economic indicators on the Michigan Consumer Sentiment Index, Presidential approval ratings, and electoral vote outcomes in 17 Presidential elections since 1956. Included is a set of forecasts for the 2024 Presidential election. While there is a substantial previous literature about economic effects on sentiment, approval, and election results, this paper is the first to study all three together. Economic indicators influence consumer sentiment, and there is at least a modest feedback from sentiment to real GDP growth.

Sentiment in turn influences Presidential approval ratings both by itself and in conjunction with several economic indicators. Most of the variation on approval ratings, however, depends on non-economic factors such as a "honeymoon effect" evident in relatively high ratings in each President's first year, and specific negative and positive events such as the Vietnam war, Watergate, the Gulf war, and the 9/11 attacks. Approval ratings have a separate impact on the electoral vote tally of Presidential elections beyond that of economic indicators. The electoral advantage of incumbent Presidents running for re-election is ambiguous, with an insignificant coefficient yet yielding the best equation in choosing each election winner.

The set of economic indicators includes the unemployment rate minus the NAIRU, the inflation rate of the personal consumption deflator, and the recent growth rate of real GDP per capita. All of these have been used in previous studies of sentiment, approval, and election outcomes. Two additional indicators are permutations of the inflation rate. The acceleration of inflation is measured by the difference between the four-quarter and 14-quarter moving average.

Inspired by the past few years is "excess inflation," defined as the 14-quarter moving average inflation rate minus the same average four years earlier. This indicator is strongly positive in 2023-24, as the cumulative Biden inflation rate greatly exceeded the cumulative Trump inflation rate. This helps to explain recent low readings of consumer sentiment and Presidential approval. Excess inflation is relevant not only currently but in the 1970s. Excess inflation turns negative when inflation exhibits a sustained reduction, and this helps explain the swift revival of sentiment and approval in the first few years after the end of the 1981-82 recession, as well as Reagan's landslide electoral college victory in 1984.

All five economic indicators – unemployment, current inflation, real GDP per capita growth, inflation acceleration, and excess inflation – enter significantly into the equation for consumer sentiment. A Granger causation test reveals also that there is reverse feedback from consumer sentiment to real GDP growth, suggesting that consumer sentiment contains a component independent of the recent behavior of the indicators.

This study goes beyond a listing of regression coefficients and significance values. Equation residuals are examined to identify time intervals when sentiment or approval is not

accurately predicted by the economic indicators. For instance consumer sentiment was 16 points lower than predicted in 2023-24, despite the presence of the excess inflation indicator in the sentiment equation. An earlier double-digit prediction error was in 1973, when sentiment collapsed faster in reaction to the first oil shock than the predicted value, which also collapsed but two quarters later than the actual values. Sentiment was also much lower than predicted during the Great Recession of 2008-09. The only multi-quarter large positive error was in the year 2000 at the peak of the late 1990s economic expansion and stock market bubble, when sentiment was more than 10 points higher than predicted by the equation. The Covid pandemic was a unique event that caused a sharp drop in real GDP and jump in the unemployment rate to a postwar record of 15 percent. As a result the predicted sentiment index dropped from 90 to 49 in between the first and second quarters of 2020, while the actual value dropped "only" from 96 to 74..

The consumer sentiment index helps to explain Presidential approval ratings, and the set of economic indicators provides an alternative explanation. But neither captures most of the variance of approval ratings; this instead is provided by a set of non-economic effects. Approval ratings are notable for being higher in the first year of a Presidency than in the last year. The transition from the last year of a Presidency to the first year of the next President on average creates an approval leap of 13 points. The record was +28 points from the last year of Bush to the first year of Obama, followed by +19 points from Carter to Reagan and +17 points from Ford to Carter. These transitions, labelled here as the "honeymoon effect," occur despite the similarity of economic conditions in the two adjacent years; for instance the unemployment rate was higher on average in 2009 than 2008. Trump was the only President to have a negative last year to first year transition, registering a decline of 13 points.

Non-economic factors influencing approval include the negative impact of the Vietnam war during Johnson's last three years (but not Nixon's term), the Watergate scandal in Nion's last year, while positive events included the short-lived Gulf war in early 1991, and the aftermath of the 9/11 attacks. On average approval ratings were 10 points lower after 2000 than before, taken as evidence here of increased red/blue state polarization. Even taking this post-2000 effect into account, ratings were uniquely low during the last three years of Bush junior, during all of Tump's term, and during most of Biden's term. The best approval equation combines the influence of this set of non-economic factors together with significant contributions of consumer sentiment, the unemployment rate, and the current inflation rate.

The equations for electoral vote results in Presidential elections use the electoral vote tally of the incumbent party as the dependent variable, rather than the popular vote share of the Democratic party as in some recent research. The most accurate equation combines a significant contribution from the approval rating of the incumbent President and growth in real GDP per capita with a marginally significant contribution from excess inflation. This equation also includes an allowance for when the candidate of the incumbent party is the sitting President

running for re-election, versus when the incumbent party's candidate is the Vice-President or a newcomer. While that President effect is insignificant, the equation fits better than when that variable is removed and predicts 15 out of 17 elections accurately instead of 14 out of 17.

Real GDP per capita was most rapid in 1984 and contributed an estimated 88 electoral votes to Reagan's landslide victory in conjunction with excess inflation, which was strongly negative in 1984 and contributed an additional 80 electoral votes. The role of real GDP was also positive in the four consecutive elections between 1964 and 1976, contributing about 50 electoral votes in each case. Negative real GDP growth contributed -108 electoral votes to Carter's loss in 1980, followed by -86 votes for Trump in 2020 and -60 votes for McCain in 2008. Recent discussions of Biden's victory over Trump in 2020 focus too much on Biden's perceived personal qualities relative to Trump and too little on the role of the pandemic recession and its aftermath.

Ford's loss in 1976 occurred in part because of record excess inflation, which subtracted 95 electoral votes from his total, as well as low approval at the end of his term. Excess inflation also contributed negatively to Humphrey's loss in 1968 in addition to Johnson's low approval rating, while negative excess inflation helped not only Reagan in 1984 but to a lesser extent Bush senior in 1988. Excess inflation is predicted to have a near-record negative electoral impact in 2024.

The contribution of approval ratings to the electoral vote outcome is measured by the regression coefficient times the deviation of the incumbent's approval rating from its average in the two pre-election quarters. Bar far the highest approval contributions were for Johnson in 1964 (118) and Eisenhower in 1956 (102), followed distantly by Eisenhower in 1960 (60), Bill Clinton in 2000 (40), and Nixon in 1972 (37). The record negative approval contribution was that of Bush junior in 2008 (-118), Carter in 1980 (-82), Bush senior in 1992 (-69), Johnson in 1968 (-49), and Trump in 2020 (-45). The collapse of the popularity of Bush senior from 84 in 1991:Q1 as a result of the Gulf war to a mere 42 in his re-election quarter of 1992:Q4 is remarkable but did not set a record. That distinction belongs to his son who registered an approval decline from 87 in 2001:Q4 after the 9/11 attacks to a record-low 28 in 2008:Q4, much lower than can be explained by the 2008-09 recession.

While growth in real GDP per capita in 2024 has been above average, the contributions of the incumbent President's popularity is low and the excess inflation contributes a strongly negative contribution of -78 electoral votes. The predicted electoral vote total is only 145 when the incumbent President effect is included and 183 when it is excluded. Three issues arise in assessing these results. First, the President effect is insignificant, so the 183 vote prediction may be more relevant. Second, historical evidence is mixed as to whether the incumbent President's approval rating is relevant when the candidate is the sitting Vice-President. While Johnson's 1968 unpopularity contributed to Humphrey's loss in 1968 and Reagan's popularity helps to explain Bush senior's strong 1988 victory, on the other hand Eisenhower's popularity did not

help Nixon in 1960 nor did Bill Clinton's popularity help Gore in 2000. The third issue is the increasing red/blue state polarization, which boosts the minimum number of electoral votes that a candidate can expect. A notable feature of the estimated equations is that in all elections since 1996 (except for 2012 and 2016) the actual vote total as closer to the 270 magic number than the predicted vote total. This occurred in 2000 when Gore's predicted vote total is too high and in both 2008 and 2020 when the McCain and Trump predicted votes are too low. There remains the negative predicted 2024 contribution of excess inflation. When voters respond to surveys that "the economy" is the most important issue of the election, the excess inflation variable captures what they have in mind.

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