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## PRESIDENTIAL APPROVAL AND GAS PRICES

### Sociotropic or Pocketbook Influence?<sup>1</sup>

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The democratic nature of American politics hinges on the relation between those who govern and those who are governed. This social contract, dating back to the writings of Hobbes and Locke (Locke, 1948; Hobbes, 2002), is the basis of our political system. And that social contract is founded on the notion that the legitimacy of government is based on the consent of the governed.

The American public's approval of their president's performance is an especially important component of system legitimacy. Beyond its normative importance, presidential approval is an important determinant of a president's power to govern. Public approval affects a president's ability to arouse popular support for his agenda and his ability to push members of Congress, in his own party and in the opposing party, to go along with his plans (Bond & Fleisher, 1990; Bond & Fleisher, 2000; Canes-Wrone, 2001; Neustadt, 1990). A president enjoying more popular support has greater potential to make legislative headway. Furthermore, approval ratings of a president predict the likelihood that the president or the president's party will win subsequent elections.

Given the importance of presidential approval as a normative democratic signal and as a determinant of a president's efficacy in policy making, understanding the determinants of presidential approval is critical. And this issue has been of great interest to political psychologists. During the last half-century, a number of factors have been heralded as important for understanding how individuals form opinions about presidential performance and how these judgments aggregate into approval figures for the nation. These factors include international affairs, rally events, honeymoon periods, economic conditions, and more.

The impact of economic conditions has been of special interest over the years and has been a matter of significant controversy in the scholarly literature.

Kramer's (1971) early work demonstrated that macro-economic indicators predicted election outcomes, and many scholars assumed that the mechanism was individuals' focus on their own pocketbooks. But direct tests of this assumption discredited it and demonstrated that individuals' evaluations of national political actors are affected instead by their perceptions of the nation's economy as a whole, dubbed "sociotropic" thinking (e.g., Alt & Lassen, 2013; Kinder & Kiewiet, 1979, 1981). Few Americans credit or blame the government for changes in their own personal economic circumstances. Therefore, most citizens do not evaluate the president based on the assumption that he has the potential to have notable impact on them, personally (Abramowitz et al., 1988). Instead, judgments about the national economy seem to shape political evaluations. Yet even here, voters were found to be very myopic, responding only to economic conditions over short periods of time rather than across a president's term in office (Achen & Bartels, 2004; Bartels, 2008).

Although there are many different (and sometimes divergent) indicators of the health of the nation's economy, past research on the relation between economic conditions and presidential approval has focused mostly on two statistics: the unemployment rate and the rate of price inflation. A citizen may learn about shifts in national unemployment or inflation rates from news coverage, and he/she may also make inferences about national rates based on his/her own personal employment experiences or experiences of people he/she knows who had a job, lost a job, or got hired (Sonderskov & Christiansen, 2013). National unemployment and inflation rates are routinely reported once a month, when new figures are released by federal statistical agencies. So unless a citizen is paying attention to the news that day, he/she may miss updates. This may explain why citizens do quite poorly at estimating the nation's unemployment rate (Ansolabehere et al., 2013; Conover et al., 1986; Holbrook & Garand, 1996).

But sometimes, e.g., when the unemployment rate broke the 10% mark in the early 1980s, media coverage of it was sustained, most likely calling it to the attention of many Americans. So the impact of macro-economic indications on presidential evaluations may increase with increased media attention to those statistics, in line with the priming hypothesis (Iyengar & Kinder, 1988). That is, when an economic indicator reaches especially bad levels, media coverage may spotlight the change and enhance its impact on presidential approval. Consistent with this notion of media influence, people's perceptions of the unemployment rate are significantly related to their media consumption patterns (Ansolabehere et al., 2012).

In contrast, most Americans can easily monitor retail gasoline prices because they are posted visibly at gas stations everywhere. And most Americans drive in cars (Chase 2011), so they may see or pay those prices regularly.<sup>2</sup> Indeed, purchases of motor fuel account for 5% of all consumer expenditures (Anderson et al., 2013, p. 383). Not surprisingly, then, perceptions of gas prices are not significantly affected by an individual's media usage (Ansolabehere et al., 2012).

Although such prices vary across regions of the country, their increases and decreases are largely a function of producer prices, meaning that fluctuations over time impact most regions similarly (“Gasoline Prices by Formulation, Grade, Sales Type”, 2014; “Petroleum Update: Gasoline and Diesel Fuel Update”, 2014). Thus, Americans are likely to get fairly uniform signals about the dynamics of gasoline costs.

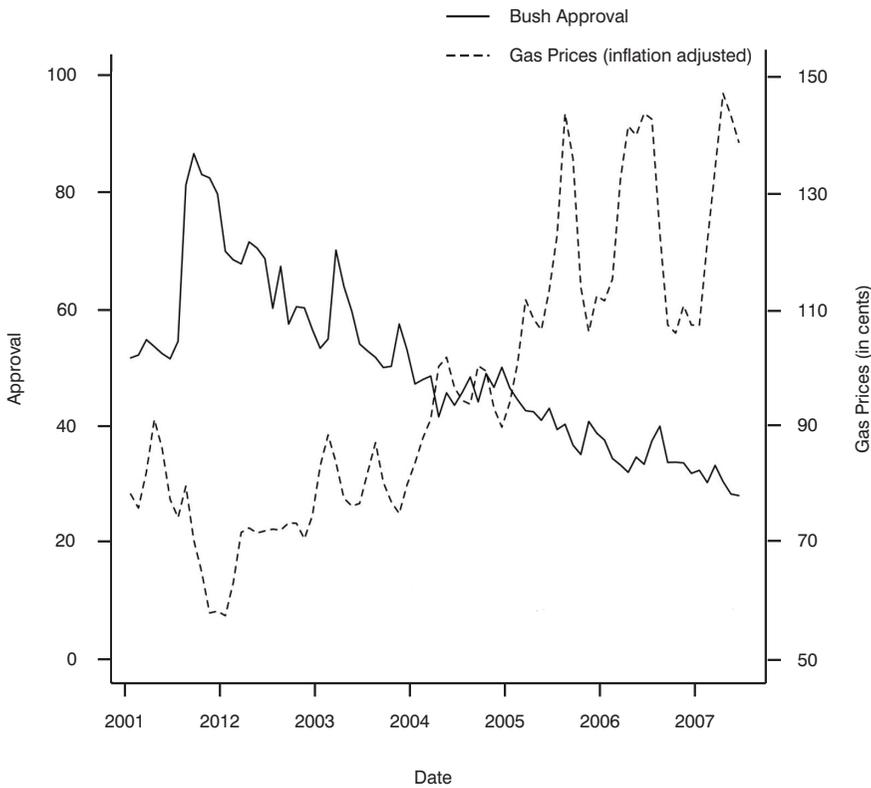
These dynamics are predictors of future economic conditions. For example, nearly all recessions in the modern history of the United States were preceded by sharp increases in the price of oil (Hamilton, 2011a, 2011b).<sup>3</sup> So Americans can readily infer that rising gas prices, though perhaps good for gasoline producers and retailers, are bad for individual and corporate consumers and signal relatively bad economic times ahead. And in fact, people seem to do just this. Specifically, people apparently use current gas prices to forecast future gas prices (Anderson et al., 2013) and to formulate perceptions of national economic conditions (Reeves & Gimpel, 2012).

Many observers have speculated that gasoline prices influence presidential approval (e.g. CNN, 2006; Walsh, 2011). And if people do use the price of gas to evaluate the president, they may do so in a sociotropic way (as indicators of the likely economic circumstances of the nation) or in a pocketbook way (as indicators of their own personal economic burdens). There is no requirement that such cognitive use of gas prices would be moderated by news media attention to gas prices, because people can and do observe those prices directly.

Consistent with this logic, rising gasoline prices coincided with dropping approval for George W. Bush’s over the course of his administration (see Figure 9.1). The same relation is apparent in the correlation between real (inflation adjusted) gas prices and presidential approval between 1977 and 2010:  $-.52$  (Wood, 2011).<sup>4</sup> Furthermore, majorities of the public have said that a president can take steps to reduce gas prices in the short term (Gallup/USA Today, 2008; Times/SRBI, 2005),<sup>5</sup> and people who personally suffer from high gas prices the most are especially likely to disapprove of the president’s performance (Mufson & Cohen, 2011). However, other observers have worried that the association between gas prices (and the economic burden they impose) with presidential approval may be spurious (e.g., Abramowitz, 2006).

To address this concern effectively, time series analysis is called for, controlling for the many known predictors of presidential approval and exploring the impact of gas prices. In this chapter, we report the results of just such analyses. Specifically, we describe tests of a multifaceted model of changes in presidential approval via a time series analysis of monthly data from January 1976 to July 2007. We gauged the extent to which gas prices influenced presidential approval directly and whether the impact of gas prices was moderated by the amount of media attention to those prices (as predicted by the priming hypothesis).

**FIGURE 9.1** Trends of G. W. Bush Approval and Gas Prices (February 2001–July 2007)



We begin below by presenting a more detailed review of theories of presidential approval and the potential impact of various posited predictors of it. Then we describe the data sources and methodology we used. Section 4 reports our results, and the chapter concludes by discussing implications and possible extensions of this work.

### A Review of Economic Voting

A rational individual can use many different pieces of information to assess presidential performance. One person might judge the president by his persuasiveness in public speaking and how the media portray him. Another person might use his or her assessment of bills that the president has shepherded through Congress. A third person might use perceptions of how other nations view the president. Or a person might use economic conditions, either his or her own economic position or the national economy.

Since the work of Mueller (1970) and Kramer (1971), a large body of work has indicated that presidential approval and congressional election results are influenced, in part, by a number of economic indicators, including inflation, real disposable income, and unemployment rates. There is less of a consensus, however, on whether voters use pocketbook or sociotropic factors as the basis for their political judgments. The key to answering this question may rest on who voters believe are responsible for changes in economic well-being.

The rational choice perspective of voting posits that individuals vote on the basis of a candidate's likely contribution to their utility (Downs, 1957). Although utility includes more than money, in practice, this self-interest has often meant that "pocketbook" issues are paramount. The pocketbook theory suggests that individuals base their political judgments on their own personal economic well-being, and how it has changed or is likely to change. These theories of self-interest seem plausible because of the ease of knowledge accumulation in this area. People know about their own financial situations in real time. Therefore, the information costs for pocketbook voting are small. In contrast, staying informed about the national economy seems to require a great deal of effort, perhaps more than most people are willing to devote to such a task.

Early literature on presidential approval and vote choice echoed this pocketbook theme (Kramer, 1971). Yet empirical tests focused mostly on aggregate measures of national economic conditions, despite the fact that the conceptual arguments were made at the individual level. The results obtained using aggregate measures, however, were compatible with a number of different individual-level models (Tufté, 1975). Scholars therefore began differentiating between personal economic conditions and national economic conditions.

The sociotropic model suggests that individuals make political judgments on the basis of national economic conditions rather than their own well-being. The difference between pocketbook and sociotropic evaluation can be thought of in terms of information used (Kinder & Kiewiet 1981, p. 132). It may be largely a question of sophistication—"pocketbook politics requires little in the way of political expertise" (Kinder & Kiewiet, 1981, p. 130), whereas sociotropic voting requires slightly more political sophistication. Nonetheless, most scholars believe that even sociotropic voting only requires rough evaluations of the national economy, particularly since media coverage can easily supply this knowledge.

Those advocating the sociotropic perspective have suggested that problems with the early pocketbook literature included competing yet unrecognized predictions regarding unemployment vs. inflation and a reliance on cross-sectional analysis (Kinder & Kiewiet, 1981). Furthermore, also threatening to the pocketbook perspective is evidence that few people hold the president responsible for their own economic well-being, consistent with literature on American political culture and its emphasis on individualism and self-reliance (Abramowitz et al., 1988). Personal economic grievances are generally

uncorrelated with collective economic judgments, and the former have little impact on congressional voting or evaluations of the president (Kinder & Kiewiet, 1979, 1981; Lau & Sears, 1981; Niemi et al., 1999).

The question of blame attribution has arisen in discussions of sociotropic models of presidential approval in other ways as well. For example, Lau & Sears (1981, p. 322) postulated that, "If the voter believes that rising inflation is due to factors beyond the president's control (energy shortages or OPEC)," then these sociotropic measures may not be related to presidential approval. And in fact, when voters do hold the president responsible for economic conditions, negative economic conditions translate into lower presidential approval (Peffley & Williams, 1985). Peffley & Williams (1985, p. 399) noted that responsibility includes three possibilities: "The president *caused* the conditions to occur; he is *morally or legally* responsible for them; or it is his *role* to correct them." Their empirical evidence offers support for each of these notions.

And some experimental evidence suggests that pocketbook voting may occur when an individual sees a direct connection between his or her economic circumstances and government policies (Sigelman et al., 1991). In general, however, the scholarly literature has come down on the side of sociotropic theories (Abramowitz et al., 1988; Kinder & Kiewiet, 1981, 1979; Lau & Sears, 1981; MacKuen et al., 1992). Interestingly, "Voters do not reward good economic performance as much as they punish mistaken policies" (Weatherford, 1986, p. 238). Thus, there may be an asymmetry in the operation of sociotropic thinking.

The connection between national economic conditions and presidential approval seems especially likely to be attributed to the news media. Given the limited knowledge that most Americans have about politics (Converse, 1964), media coverage of events seems especially likely to shape approval judgments. Brody (1991, p. 4) argued "that the American people form and revise their impressions of the quality of presidential performance on evidence contained in reports of politics and policy outcomes—political news—in the news media" (Brody 1991, p. 4). Similarly, Shah et al. (1999) argued that campaign news coverage provides the cues necessary for voters to make "rough evaluations" of the national economy, which can then be used as the criteria for sociotropic voting. Weatherford summed up the role of the media as follows:

The mass media provide the link between citizens and the world beyond the realm of personal experience, and as such, they are an indispensable source of information about economic conditions and government policies. Indeed, several of the most important studies of the influence of economic conditions on presidential popularity have been based on the assumption that the mass media provide the critical intermediate linkage in this multistage process.

(Weatherford 1986, p. 250)

It might seem that news media exposure is essential in order for sociotropic thinking to occur in a responsible way. That is, during most of the last 50 years, the only way that citizens could reliably learn about the state of the nation's unemployment or inflation rates (across all sectors of the economy) was through news stories. So in order for presidential evaluations to covary over time with those rates, as Kramer demonstrated, Americans seem most likely to have been learning about those rates from the media. Thus, real changes in economic conditions have had impact on presidential evaluations mediated by news coverage of those conditions.

However, this may be a misleadingly narrow portrayal of the sociotropic reasoning process, because of the literature's focus mostly on just two of the many indicators of national economic conditions: unemployment and inflation. Of course, people can learn about and think about the national economy in terms of other metrics as well, such as the performance of the stock market, the interest rates offered by banks on their checking accounts, and the prices people pay for retail goods such as gasoline. This is why our focus on gas prices has the potential to offer interesting insights into the psychology of presidential evaluations. Specifically, if gas prices drive presidential approval in part, that process need not involve the news media at all. People can and probably do learn about those prices directly at gas stations, so news coverage is not necessary.

But this is not to say that media coverage is necessarily irrelevant to the impact of gas prices on approval ratings. It is quite possible that this impact is moderated by news coverage. According to the news media priming hypothesis, extensive news coverage of gas prices (which may be spurred by unusually high prices) may cause Americans to choose to place more weight on those prices when evaluating the president. According to Miller and Krosnick (2000), this occurs because people perceive coverage of gas prices as a signal that news professionals believe that those prices are an important indicator for the nation. And citizens who trust the media follow the implication of that message by increasing the degree to which they use those prices to evaluate the president. Therefore, we might expect to see an interaction between gas prices and media attention to them, such that approval is depressed most by high prices when media attention is greatest. Thus, the role of the media would not be in affecting *perceptions* of gas prices but rather by increasing the weight that people choose to place on those prices when evaluating the president (see, e.g., Miller & Krosnick, 2000). We tested this hypothesis in various ways.

The presence or absence of this interaction can be viewed as signaling whether the impact of gas prices on presidential evaluations is pocketbook or sociotropic. If the impact of gas prices is the result of a pocketbook-focused evaluative process, then that would mean a citizen views those prices simply in terms of the economic burden they pose for him or her. The national importance of the issue is irrelevant to that reasoning process. Therefore, we should expect

to see no interaction of gas prices with media attention. But if the impact of gas prices is sociotropic, then a signal (via news media attention) that the issue is important for the country should enhance the degree to which citizens evaluate the president on that basis. So we would expect to see the interaction.

## Methodology

To assess if and how gas prices have affected presidential approval, we conducted a time series analysis using monthly data from January 1976 through July 2007. The dependent variable is monthly changes in presidential approval, measured by the percent of Americans answering “approve” to the questions, “Do you approve or disapprove of the way \_\_\_ is handling his job as president?” and variants of it.<sup>6</sup> Results were substantively similar when we used the percent approving of the president instead of the change in the percent approving.

To identify surveys that measured presidential approval, we searched the iPoll Databank maintained by the Roper Center for Public Opinion Research at the University of Connecticut. We searched their archive for all surveys done during the time period of interest with nationally representative probability samples of the American adult population. The number of polls in a single month ranged from 1 to 33. The smallest number of polls per month occurred during the Ford administration. The largest number of polls per month occurred in January 1998 during the Clinton administration. During the early years, only Gallup Organization surveys were available. But during the more recent years, data were collected by an array of survey firms in addition to Gallup. Tables 9.A1 and 9.A2 (in the appendix) list the survey firms whose data we analyzed. For each firm, we show their question wording, the date of the earliest poll of theirs that we used, the date of the latest poll of theirs that we used, and the number of polls that we used from the firm.

Three factors seem especially important to take into account when creating a monthly time series of presidential approval measurements in surveys: the temporal structure of approval (meaning the dependence of approval in one month on approval in the prior month), the number of respondents interviewed in each survey, and house effects. The more respondents were interviewed in a survey, the more precise its measurements are, and the smaller should be associated standard errors. The notion of house effects refers to the fact that between-firm differences in results are thought to be attributable at least partly to so-called “house effects”, presumably caused by differences between organizations in how they collect data.

A variety of statistical approaches for dealing with these issues have been used in the past. A Kalman filter, such as the samplermiser program (see Green et al., 1999), accounts for the dynamic structure of presidential approval over time (i.e., the temporal structure) and for variation in sample size from survey

to survey. By accumulating information from many surveys, the goal of this approach is to distinguish random sampling error from real changes in public opinion (Green et al., 1999). In our case, this technique allows us to estimate a single approval number for each month. We identified each poll in our sample by the number of days between a president's inauguration and the last date when interviewing was done for the poll. By modeling the structure of opinion over time across these surveys, the Kalman filter provides an estimate of approval on the 15th of the month (i.e., the date we selected to represent average approval in that month). This method weights the polls by sample size and by the distance from the 15th of the month (incorporating time lags between polls), also taking into account the strong serial dependence in the monthly approval ratings. It also provides a standard error of each month's estimate of approval. However, this approach does not take into account house effects.

A second possible approach is to use Jackman's (2005) Bayesian estimation procedure for pooling across surveys and estimating house effects. Although this procedure is intended to take into account all three of the components we care about, in practice, we are unable to estimate house effects, because we lack a "true" measure of approval to which to compare, which is required by the method. In his analysis of surveys measuring two-party vote shares in the 2004 Australian federal election, Jackman used election results as the "true" measure of vote shares and based his calculations of house effects on this measure. Since no equivalent measure of presidential approval exists, Jackman's procedure is not suitable here.

A final possible estimation method is to use a hierarchical model to weight by sample size and include random effects to represent survey firms. There are two problems with this approach. First, it cannot easily account for serial dependence in presidential approval that is not accounted for by survey firm random effects. Second, in some months, there were almost as many or as many survey firms as there were polls, so there are limited observations with which to estimate parameters.

We therefore chose the Kalman filter method to estimate monthly presidential approval using the program developed by Green et al. (1999). The primary drawback of this approach is the lack of measurement of house effects. Including various polling houses in the analysis should not bias our estimates if the mix of houses remains constant over time. However, this is not the case, because the number of survey houses increased over time, and in the earlier years, most polls were done by the Gallup Organization. Although there is a negative correlation between gas prices during a month and the number of survey houses who measured approval during that month ( $r = -.36$ ), including the number of survey houses per month as a predictor in the regression equations does not change the magnitude or significance of the gas prices variable. The resulting estimates of monthly approval and their standard error are presented in Figure 9.A1 (see the appendix).

To gauge gas prices, we used figures issued by the Energy Information Administration on U.S. city average retail price of unleaded regular gasoline, in cents. We adjusted these prices to correct for general inflation by dividing them by a consumer price index (the U.S. city average of all items other than food and energy), using 1982–1984 as the baseline (so that the average CPI across these three years is 100).

We also included a number of other predictors of presidential approval that have often appeared in the published literature. The first is the U.S. city average of food and beverages prices, thus capturing information about consumer prices for goods other than gasoline.<sup>7</sup> The second is the unemployment rate: the non-seasonally adjusted ratio of all persons over 16 years old who were unemployed and looking for a job divided by the number of persons over 16 years old who are in the labor force.<sup>8</sup>

Other predictors included dummy variables to identify times when presidential scandals occurred, when the Iran Hostage Crisis occurred, when the September 11th attacks occurred, when the first and second Gulf Wars occurred, and honeymoon periods just after a president was first elected. In addition, dummy variables identified each of the presidential administrations (with the Ford administration as the omitted comparison category). The presidential scandals included the Iran Contra Affair,<sup>9</sup> the White House Travel Office Firings (Travelgate),<sup>10</sup> Whitewater,<sup>11</sup> Filegate,<sup>12</sup> and the Valerie Plame Affair.<sup>13</sup> The September 11th dummy variable was coded “1” for September, October, and November 2001. The Iran Hostage Crisis dummy variable was coded 1 from November 1979 to January 1981. The Gulf War (*Desert Storm*) dummy variable was coded 1 from January and February 1991, and the Iraq War dummy variable was coded 1 from March to May 2003.<sup>14</sup> The honeymoon dummy variable was coded 1 for each of the first three months (February to April) of each new administration.

To measure the amount of media coverage of gas prices, we counted the number of articles (in 100s) in the *New York Times* and the *Washington Post* that included one or more of the following terms: gas(oline) price(s) and/or price(s) of gas(oline).<sup>15</sup>

Trends over time of the primary continuous variables are presented in Figure 9.A1 (see the appendix), along with the measure of presidential approval. As is apparent there, there is strong serial dependence in the presidential approval data. One issue of concern is whether the approval rate and gasoline prices have a so-called “unit root” in their time series representations, in which case spurious regression results becomes a concern. A second issue concerns how we should use the standard deviations generated from the Kalman filter in weighting the regression error. Finally, we must decide on the best way to account for dynamics, particularly for obtaining proper standard errors of the regression coefficients to use for inference and confidence intervals.

The standard deviations obtained from the Kalman filter provide a measure of how much confidence we should have in each monthly approval rate. Therefore, we weighted the squared residuals in our regressions by using the reciprocal of the variance of the approval rate. This weighting appears to help correct the errors for heteroskedasticity. But when we computed standard errors, we did not assume that the weights entirely removed heteroskedasticity, for a couple of reasons. First, the standard deviations generated by the Kalman filter are for the approval rates themselves, not the errors in the regression. Second, the error variance may be related to many of the other explanatory variables, such as the prices of food and beverages, the unemployment rate, or various events for which we controlled. We found that using the weights improved the precision of the regression estimates, which provides justification for using weighted least squares (WLS) as long as our standard errors are adjusted to allow for a mis-specified variance function (see Wooldridge, 2013, Section 8.4, for further discussion about computing robust standard errors for OLS and WLS).

A second reason for preferring WLS to OLS is that scaling the approval rate and gas prices by the approval standard deviation produces time series processes that do not appear to have unit roots. Therefore, we can be more confident that our weighted least squares estimates are not subject to spurious regression problems.

To test for unit roots, we used the version of the Dickey-Fuller statistic (Phillips and Perron 1988) that allows for general forms of serial correlation. Although we report results allowing for correlation in the errors up to 12 months apart, the findings are similar when we allow for up to 24 and 26 months of serial autocorrelation. For the weighted version of the approval rate, the estimated autocorrelation coefficient is .790, and the Phillips-Perron statistic is  $-7.04$ , which is well below the 1% critical value,  $-3.43$  (Wooldridge, 2013, p. 640). For the inflation adjusted gas price, the estimated root is .862, and the unit root  $t$  statistic is  $-4.61$ , another strong rejection of the unit root null.

Lastly, we must make a choice about how to account for the time series dependence in the approval rate when estimating the model predicting approval rates. The Phillips and Perron (1988) test shows that a unit root can be strongly rejected but that the weighted approval rates still manifest a fairly strong, positive serial correlation, as we would expect. One analytic option would be to use a purely static model, so that any relations of the approval rate with gas prices and other predictors is contemporaneous. Such an approach is justified when we rule out unit roots in the key variables or, if the variables do have unit roots, they satisfy a cointegrating relationship. We prefer a model that includes the lagged approval rate, which we call the “dynamic model,” for a couple of reasons. First, including a single lag appears to clean up the substantial serial correlation in the static equation. Second, inference in a dynamic model is more robust than in a static model, in the sense that the inference is the same if the series are mean reverting or have a unit root and are cointegrated. With static regression, the way

one performs inferences changes depending on which characterization holds (see Wooldridge, 1994).

In estimating the dynamic model, the change in the approval rating from one month to the next was the dependent variable, and the lagged approval rating was a predictor.<sup>16</sup> The other predictors were measured contemporaneously.<sup>17</sup> Because the prior month's approval rating is a predictor, we dropped the first observation of each presidency. Doing so prevents using the last month of one president's term to predict approval during the first month of the next president's term.

To check the robustness of the results, we estimated the parameters of equations in which the prices were subjected to a logarithmic transformation, and the obtained results are similar to those reported in the text (see Table 9.A3 in the appendix).

We also estimated static models in which the level of the approval was the dependent variable, and the lagged approval rate was not a predictor. This yielded much larger effects, because we did not hold the previous month's approval rating fixed when estimating the effects of gas prices and other variables.<sup>18</sup> For the technical reasons explained above, we have more confidence in the inference from the dynamic models.

## Results

When predicting change in presidential approval from month to month using contemporaneous values of the economic measures (gas prices, unemployment, and food and beverage prices), the lagged effect of approval has the expected negative sign, suggesting regression to the mean, which is consistent with other literature on presidential approval over the course of an administration (see row 1 in column 1 of Table 9.1).<sup>19</sup> Also as expected, the unemployment rate, food and beverage prices, and presidential scandals all have significant negative effects on approval, and the Iran Hostage Crisis, the Gulf War and the Iraq War, and September 11th all had positive effects. Surprisingly, the honeymoon period is not marked by a significant increase in approval.

Gas prices had a significant and negative effect on change in approval (see row 4 in column 1 of Table 9.1). A 10 cent increase in gas prices led to a .60 percentage point drop in approval. When using the logarithm of gas prices instead, a 10 percent increase in real gas prices lowered approval by about .72 percentage points (see Table 9.A3 in the appendix).

As expected, gas prices and media coverage are positively correlated ( $r = .43$ ,  $p < 0.001$ ), so when gas prices increased, so did media coverage of gas prices. But according to the regressions, volume of news coverage of gas prices was not itself a significant predictor of approval when controlling for gas prices (see row 16 in column 1 of Table 9.1). This disconfirms the claim that the simple association of

**TABLE 9.1** Weighted Least Squares Regression Parameter Estimates Predicting Change in Presidential Approval (1976–2007)

<i>Predictor</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Lagged Approval	-0.23*** (0.035)	-0.23*** (0.035)	-0.23*** (0.035)	-0.22*** (0.036)
Prices of Food and Beverages	-0.14*** (0.046)	-0.14*** (0.046)	-0.13*** (0.045)	-0.12*** (0.046)
Unemployment Rate	-1.37*** (0.41)	-1.38*** (0.41)	-1.37*** (0.41)	-1.34*** (0.41)
Gas Price	-0.060*** (0.016)	-0.057*** (0.018)	-0.055*** (0.016)	-0.055*** (0.016)
Presidential Scandal	-3.97*** (1.34)	-3.96*** (1.34)	-3.95*** (1.32)	-3.90*** (1.32)
Honeymoon Period	1.95 (2.84)	1.99 (2.87)	2.05 (2.85)	2.02 (2.82)
Gulf War	12.7*** (2.16)	12.5*** (2.14)	13.2*** (2.09)	13.3*** (1.93)
Iraq War	6.04 (4.46)	5.92 (4.46)	6.13 (4.51)	6.16 (4.57)
9/11	13.0** (6.41)	12.9** (6.42)	12.9** (6.40)	12.8** (6.50)
Iran Hostage Crisis	3.84** (1.69)	4.01** (1.67)	3.80** (1.71)	3.74** (1.69)
Clinton Administration	9.83** (3.81)	10.2*** (3.85)	8.57** (3.72)	8.30** (3.75)
Carter Administration	-1.49 (1.12)	-1.39 (1.14)	-1.47 (1.14)	-1.52 (1.13)
Reagan Administration	8.48*** (2.20)	8.52*** (2.21)	8.01*** (2.20)	7.85*** (2.23)
H. W. Bush Administration	8.84*** (3.26)	9.07*** (3.30)	8.06** (3.19)	7.81** (3.23)

<i>Predictor</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
B . W. Bush Administration	13.8*** (5.21)	14.2*** (5.24)	12.3** (5.12)	11.9** (5.17)
Number of News Stories (in 100s)	0.53 (0.48)	1.73 (1.67)		
Media x Gas Price		-0.012 (0.017)		
Change in Number of News Stories (in 100s)			0.29 (0.69)	2.35 (2.28)
Change in Number of News Stories x Gas Price				-0.020 (0.024)
Constant	36.3*** (6.88)	34.9*** (7.25)	35.0*** (6.85)	34.5*** (6.97)
N	373	373	373	373
R <sup>2</sup>	0.261	0.262	0.258	0.260

Note: Robust standard errors are in parentheses. The dependent variable is the change in presidential approval from the prior month. For Model 2, the count of media stories is centered about its mean in the interaction term so that the gas price coefficient is comparable across models.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

gas prices with presidential approval is mediated by media coverage of those prices, which causes changes in approval, rather than the prices themselves being the cause. The same conclusion is reached when examining change in media coverage of gas prices from month to month (see row 18 in column 3 of Table 9.1).

More importantly, media coverage volume did not interact significantly with gas prices in predicting approval (see row 17 in column 2 of Table 9.1). The same conclusion is supported when using change in media coverage of gas prices rather than using the number of news stories about gas prices (see row 19 in column 4 of Table 9.1). This suggests that the impact of gas prices on presidential approval does not depend on volume of media coverage of the topic. Moreover, the impact of gas prices on changes in approval does not substantially decline in magnitude when these interaction terms are added to the equation.

To gauge the robustness of this conclusion, we used several alternate measures of media coverage: (1) a count of the number of articles and that number

**TABLE 9.2** Change in Approval (1976–2007), WLS, Additional Media Specifications

<i>Predictor</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>
Lagged Approval	-0.23*** (0.035)	-0.23*** (0.035)	-0.23*** (0.035)	-0.23*** (0.035)	-0.23*** (0.035)	-0.23*** (0.036)
Prices of Food and Beverages	-0.14*** (0.047)	-0.14*** (0.046)	-0.13*** (0.045)	-0.13*** (0.045)	-0.14*** (0.046)	-0.13*** (0.046)
Unemployment Rate	-1.38*** (0.42)	-1.37*** (0.41)	-1.38*** (0.41)	-1.38*** (0.41)	-1.37*** (0.41)	-1.39*** (0.42)
Gas Price	-0.060*** (0.017)	-0.056*** (0.018)	-0.056*** (0.016)	-0.054*** (0.018)	-0.058*** (0.016)	-0.090** (0.038)
Presidential Scandal	-3.97*** (1.34)	-3.94*** (1.34)	-3.96*** (1.32)	-3.94*** (1.31)	-3.99*** (1.36)	-3.92*** (1.36)
Honeymoon Period	1.93 (2.85)	1.97 (2.83)	1.98 (2.79)	2.07 (2.72)	1.91 (2.88)	1.91 (2.85)
Gulf War	12.7*** (2.21)	12.6*** (2.19)	13.0*** (2.32)	12.8*** (2.38)	13.0*** (2.22)	13.1*** (2.22)
Iraq War	6.02 (4.47)	5.98 (4.49)	6.10 (4.49)	6.06 (4.53)	5.86 (4.47)	6.04 (4.47)
9/11	13.0** (6.42)	13.0** (6.41)	13.0** (6.37)	13.0** (6.37)	12.6** (6.37)	12.9** (6.36)
Iran Hostage Crisis	3.83** (1.69)	3.73** (1.79)	3.74** (1.72)	3.90** (1.82)	3.88** (1.69)	3.64** (1.69)
Clinton Administration	9.94** (3.91)	9.75** (3.91)	8.92** (3.74)	9.01** (3.78)	9.70** (3.90)	9.03** (3.87)

Carter Administration	-1.48 (1.12)	-1.48 (1.17)	-1.52 (1.14)	-1.49 (1.16)	-1.25 (1.16)	-1.27 (1.16)
Reagan Administration	8.53*** (2.24)	8.35*** (2.22)	8.17*** (2.17)	8.17*** (2.17)	8.50*** (2.28)	8.36*** (2.26)
H. W. Bush Administration	8.94*** (3.34)	8.75*** (3.37)	8.33*** (3.21)	8.38** (3.25)	8.89*** (3.34)	8.50** (3.31)
B. W. Bush Administration	14.0*** (5.35)	13.7** (5.30)	12.7** (5.12)	12.8** (5.15)	13.7** (5.34)	13.0** (5.30)
Number of News Stories	0.60 (0.81)	0.74 (3.17)				
Number of News Stories x Gas Prices		-0.0012 (0.035)				
Number of News Stories Squared	-0.043 (0.36)	0.61 (1.29)				
Number of News Stories Squared x Gas Prices		-0.0064 (0.014)				
Number of News Stories (> 75th %)			0.23 (0.73)	0.95 (2.73)		
Number of News Stories (> 75th %) x Gas Prices					-0.0067 (0.026)	
Number of News Stories (> 25th %)					0.68 (0.63)	-2.28 (2.97)

continued...

Table 9.2 continued...

<i>Predictor</i>	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>
Number of News Stories (>25th %) x Gas Prices						
Constant	37.0*** (7.08)	36.4*** (7.01)	35.6*** (6.79)	35.4*** (6.80)	35.5*** (6.92)	36.3*** (6.90)
N	373	373	373	373	373	373
R <sup>2</sup>	0.261	0.263	0.257	0.258	0.260	0.263

Note: Robust standard errors are in parentheses. The dependent variable is the change in presidential approval from the prior month. For Model 2, the count of media stories is centered about its mean in the interaction term so that the gas price coefficient is comparable across models.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

squared, to permit a quadratic relation; (2) a dummy variable coded 1 when the number of stories was greater than the 75th percentile of monthly media stories and 0 otherwise, to permit a step function; and (3) a dummy variable coded 1 when the number of stories was greater than 25th percentile of monthly media stories and 0 otherwise, permitting a different step function. None of the interactions of gas prices with these representations of media attention were statistically significant (see Table 9.2).

## Discussion

Analysis of changes in monthly presidential approval from 1976 to 2007 suggests that gas prices did exert an independent effect on presidential approval above and beyond traditional economic measures. As expected, an increase in gas prices led to a decline in approval. Because this effect is independent of the volume of news media coverage of gas prices, the effect seems to be a reflection of pocketbook thinking rather than sociotropic thinking. That is, gas prices did not have more powerful effects on approval when news media professionals signaled to the public that gas prices were an important challenge for the nation as a whole. Not only are public perceptions of gas prices uninfluenced by media coverage of them (Ansolabehere et al., 2012; Reeves & Gimpel, 2012), but the effect of gas prices on presidential approval is similarly independent of media coverage.

Consistent with the economic voting literature, contemporaneous values of unemployment and the prices of food and beverages had significant and negative impact on approval. Also, as expected, presidential scandals had negative effects on presidential approval. And as predicted, international rally events had significant and positive impacts on presidential approval. The Iran Hostage Crisis, the Gulf War, and the post-9/11 period all boosted presidential approval. The effects of the Gulf War and 9/11 events were much larger than that of the Iran Hostage Crisis, perhaps because of the apparent incompetence suggested by the Carter administration's failed attempt to rescue the hostages. These demonstrations are useful additions to the literature, because we have used a larger set of years than most other past investigations and employed different analytic methods, so the robustness of the observed effects is not surprising but is nonetheless reassuring, especially in the current period of concern about the replicability of scientific findings (see Makel et al., 2012; "Announcement: Reducing Our Irreproducibility" 2013).

Interestingly, the Clinton, Reagan, H. W. Bush, and G. W. Bush administrations all enjoyed higher levels of approval than did the Ford and administrations, even when controlling for all other predictors. It would be interesting to investigate the explanations for this in future research. It is tempting to attribute Ford's lower approval ratings to the fact that he was not elected and took the reins from Richard Nixon. And it is tempting to attribute Carter's low levels of approval

to the oil crisis that struck during his administration. But such post-hoc guesses are just that: guesses; so direct testing is merited.

Surprisingly, the honeymoon periods at the start of each administration did not evidence the expected statistically significant increase in approval ratings controlling for all other predictors. The weakness of the honeymoon effect may be due to the time period we analyze and the particular presidents in our series. Perhaps the 2000 post-election court case and contentious battle for the presidency meant that George W. Bush did not enjoy a honeymoon period, and this suppressed the test of that effect combined across presidencies.

Although our results are convincing with regard to the role of gas prices, there are a number of limitations with the data we used. For example, this analysis is done at the aggregate level, tracking the impact of gas prices and other real economic indicators on the nation's aggregate approval ratings. That is, we sought to predict changes over time in approval levels. Yet our interest here is in the impact of perceptions of gas prices on approval or disapproval by each individual citizen. Therefore, it would be interesting to supplement the current investigation with individual-level data analysis to explore the same hypotheses.

It would also be interesting for future work to explore whether the effects of gas prices are symmetric across increases and decreases. Macroeconomic research suggests that positive oil price shocks have impacts on the economy, but negative ones do not (Hamilton, 2011b). Likewise, political science research suggests that the effect of the economy on public evaluations is larger when conditions deteriorate rather than when conditions are consistently bad over time (Ebeid & Rodden, 2006). Both findings suggest hypotheses worth testing with regard to gas prices in particular.

Nonetheless, the research reported here suggests that the public does use gas prices when evaluating the president and that the president might benefit by making efforts to reduce such gas prices, particularly before elections. This highlights a mutually beneficial alignment of political incentives for candidates with the public interest of citizens. However, although the public believes that the president can take actions to reduce gas prices (Gallup/USA Today, 2008; Times/SRBI, 2005), the actual ability of the president to influence gas prices may be minimal. For example, such prices usually move in response to events that occur abroad, well beyond a president's control. Therefore, it may be unfair for the public to use gas prices as a standard for judging presidents. Nonetheless, the linkage we observed between gas prices and approval certainly gives presidents an incentive to do whatever they can to reduce those prices.

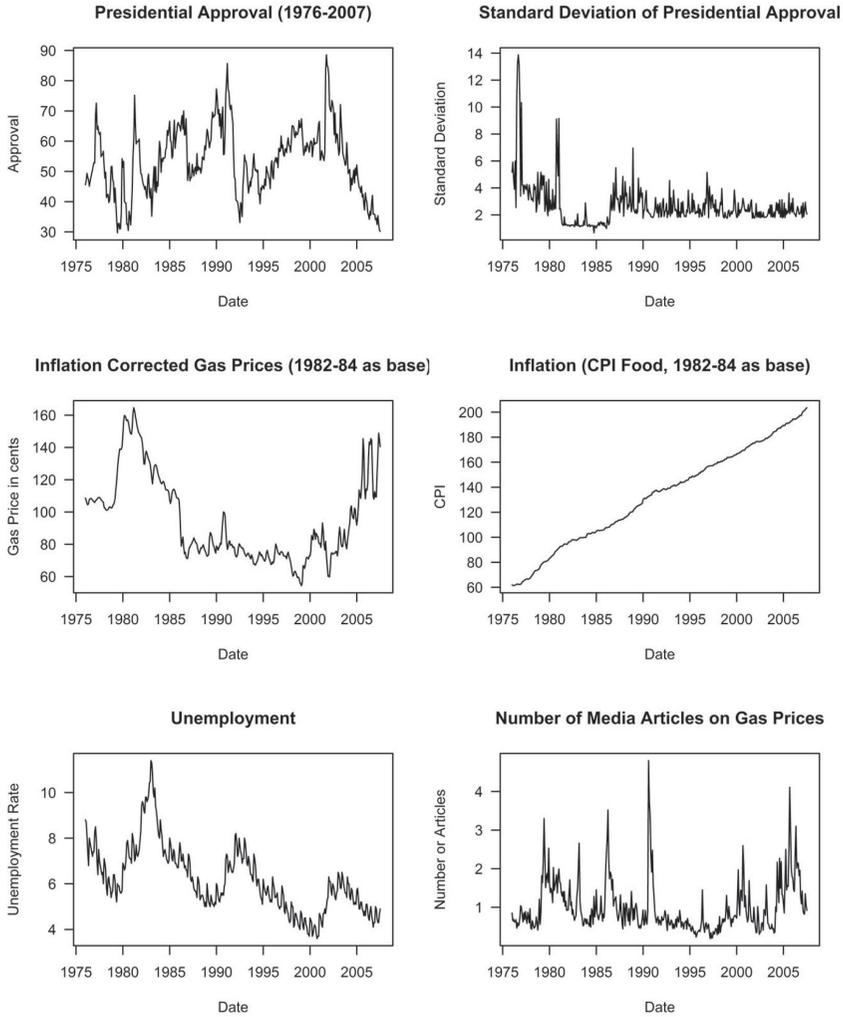
Finally, our findings are especially provocative because of their implications regarding the sociotropic vs. pocketbook distinction and regarding news media priming. We proposed that if gas prices affect presidential approval via a sociotropic reasoning process, then their impact should be moderated by media attention to gas prices. But this hypothesis was disconfirmed over and over

here. One implication of that result may be that gas prices influence presidential evaluations via a pocketbook reasoning process: people know what price they pay for gas and hold the president at least partly responsible for their gains or losses in this arena. Therefore, news media conferral of important on gas prices is not needed or consequential cognitively.

Interestingly, one might also view this finding as a failure to detect an instance of news media priming. That is, the priming hypothesis has been phrased generally, asserting that more media attention to any issue will increase its impact on presidential evaluations (e.g., Iyengar & Kinder, 1988). In their articulation of the theory, Iyengar and Kinder (1988) proposed that priming an issue will have no impact on presidential evaluations if the public does not hold the president responsible for performance in that domain. So one might be tempted to infer that our failure to find evidence of priming might be attributable to the public not holding the president responsible for gas prices. But if that were true, why would gas prices influence presidential evaluations at all? No answer seems readily obvious, so we are inclined to infer that the public does indeed hold the president at least partly responsible in this arena but does not require guidance from the news media about the national importance of gas prices when forming presidential evaluations. That is, when the public has ready access to prices that, in and of themselves, readily communicate the state of an economic indicator across the nation and are personally impactful, news media guidance is not needed. Thus, we may have identified another limiting condition of news media priming.

Finally, the absence of an interaction of gas prices with news coverage of them may reinforce the conclusion that media priming is not due to a mere increase in the cognitive accessibility of an issue that media coverage causes (e.g., Miller & Krosnick, 2000). Miller and Krosnick (2000) were the first investigators to explicitly test the presumption that news media coverage of an issue increases that issue's impact on presidential evaluations by increasing the accessibility of related knowledge in memory. Just as psychologists would expect, media coverage of an issue does indeed increase that accessibility immediately after exposure to news stories. But the increase in accessibility is not responsible for the increased impact of the issue sometime later, after time has passed and the accessibility fades. Instead, Miller and Krosnick (2000) showed, the mediator at work is judgments of the national importance of the issue—more news coverage leads to perceptions of greater national importance, which in turn increase the impact of an issue on presidential evaluations. If accessibility was in fact the mediator of news media priming, then our analysis should have produced evidence of moderation of the effect of gas prices on approval judgments. The absence of this moderation is therefore consistent with Miller and Krosnick's (2000) conclusion.

## Appendix



**FIGURE 9.A1** Trends of Key Variables (Source: Calculated by the authors)

**TABLE 9.A1** Presidential Approval Poll Summary

<i>Survey House</i>	<i>Question Wording</i>	<i>Entry Date</i>	<i>Exit Date</i>	<i>Number of Polls</i>
ABC News (also ABC News/ Washington Post beginning in 1981 and just Washington Post from Jan 1978)	Do you approve or disapprove of the way _____ is handling his job as President? (Occasionally—Do you approve or disapprove of the way _____ is handling his job as President? Is that approve/ disapprove strongly or somewhat?)	Jan 78	Jul 07	369
American Research Group	Do you approve or disapprove of the way _____ is handling his job as president?	Sep 01	Jul 07	70
CBS News (also CBS News/ New York Times)	Do you approve or disapprove of the way _____ is handling his job as President?	Apr 77	Jul 07	501
CNN: Opinion Research Corporation	Do you approve or disapprove of the way _____ is handling his job as president?	Apr 06	Jun 07	22
Gallup	Do you approve or disapprove of the way _____ is handling his job as President?	Jan 76	Jul 07	1022
Harris/Harris Interactive	In general, do you approve or disapprove of the way President (first name) _____ is handling his job as President?	May 01	Aug 06	30
IPSOS—Reid, Cook Poll	Overall, do you approve, disapprove or have mixed feelings about the way George W. Bush is handling his job as President?	Dec 01	Jul 07	171
Los Angeles Times	Do you approve or disapprove of the way _____ is handling his job as President? (If approve or disapprove) Is that (approve/ disapprove) strongly or (approve/disapprove) somewhat?	Apr 81	Jun 07	118
Market Strategies	Do you approve or disapprove of the way _____ is handling his job as President? (If approve/disapprove, ask: Would that be strongly (approve/disapprove) or just somewhat (approve/disapprove)?)	Feb 90	Feb 99	11

continued...

Table 9.A1 continued...

<i>Survey House</i>	<i>Question Wording</i>	<i>Entry Date</i>	<i>Exit Date</i>	<i>Number of Polls</i>
NBC News (also NBC News/ Wall Street Journal)—Survey Organization is Hart and Teeter Research Associates	In general, do you approve or disapprove of the job _____ is doing as president?	Jun 88	Jun 07	180
Princeton Survey research Association	Do you approve or disapprove of the way _____ is handling his job as President?	Jan 91	Jul 07	365
Roper Organization	Do you approve or disapprove of the way _____ is handling his job as President?	Nov 81	Dec 87	10
Schulman, Ronca, & Bucuvalas	In general, do you approve or disapprove of the way President _____ is handling his job as President?	Jul 04	Apr 07	33
T.I.P.P.—Technometrica Institute of Policy and Polling	In general, do you approve or disapprove of the way _____ is handling his job as president, or are you not familiar enough to say one way or the other?	Feb 01	Sep 04	38
Wirthlin Group	Do you approve or disapprove of the way _____ is handling his job as President?	Jun 91	Sep 01	41
Yankelovich Clancy Shulman	In general, do you approve or disapprove of the way _____ is handling his job as President?	May 82	Feb 01	163

**TABLE 9.A2** Miscellaneous Polls Used in Calculating Average Approval

Survey House	Number of Polls
America's Place In The World Survey	1
Campaign '92	1
Civic Services	1
Early January Political Communications Poll	1
Foreign Policy And Party Images Poll	2
Gordon S. Black Corporation	6
Greenberg Quilan	1
Health Pulse Of America	2
K.R.C. Research	1
Marttila and Kiley	3
Media Studies Center, Roper Center Unanchored Voter Poll	1
Media Survey	1
Mental Health Survey	1
Merit Report	1
National Earth Day Environment Poll	1
National Survey For R.N.C., N.R.C.C.	1
New Democratic Electorate Survey	1
Opinion Research Corporation	2
Peter D. Hart Research Associates	1
Pew	2
Quinnipiac University	5
New Models National Brand Poll	4
Scripps Howard News Service, Ohio University Poll	1
Social Trust And Volunteerism Survey	1

**TABLE 9.A3** Change in Approval (1976–2007), WLS, Logged Prices of Food and Beverages and Gas Prices

<i>Predictor</i>	<i>Model 1</i>	<i>Model 2</i>
Lagged Approval	-0.24*** (0.037)	-0.24*** (0.037)
Log of the Price of Food and Beverages	-19.0*** (6.54)	-19.2*** (6.51)
Unemployment Rate	-1.41*** (0.42)	-1.40*** (0.42)
Log of Gas Price	-7.18*** (1.76)	-6.99*** (1.84)
Presidential Scandal	-3.79*** (1.36)	-3.79*** (1.35)
Presidential Honeymoon	1.79 (2.73)	1.83 (2.77)
Gulf War	12.9*** (2.20)	12.7*** (2.19)
Iraq War	6.39 (4.46)	6.25 (4.46)
9/11	13.2** (6.50)	13.1** (6.52)
Iran Hostage Crisis	4.86** (1.91)	5.06*** (1.90)
Clinton Administration	13.1** (5.32)	13.5** (5.27)
Carter Administration	-0.048 (1.27)	0.083 (1.28)
Reagan Administration	12.2*** (3.55)	12.3*** (3.55)
H. W. Bush Administration	12.8*** (4.79)	13.1*** (4.77)
B. W. Bush Administration	16.7** (6.60)	17.1*** (6.55)
Number of News Stories (in 100s)	0.56 (0.48)	6.69 (8.05)

<i>Predictor</i>	<i>Model 1</i>	<i>Model 2</i>
Number of News Stories x Gas Price		-1.33 (1.78)
Constant	134*** (33.4)	127*** (36.0)
N	373	373
R <sup>2</sup>	0.257	0.259

Note: Robust standard errors are in parentheses. The dependent variable is the change in presidential approval from the prior month. For Model 2, the count of media stories is centered about its mean in the interaction term so that the gas price coefficient is comparable across models.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### Notes

- 1 The authors wish to thank Allison Denker for her work in starting this project and gathering the first round of data, Daniel Blocksom and the Political Psychology Research Group for gathering and proofing the data, and Richard Carson for pointing us toward economics research in this area. Jon Krosnick is University Fellow at Resources for the Future.
- 2 The number of times per week that people drive cars and the number of times they notice gas prices are positively correlated with the accuracy of their perception of gas prices (Ansolabehere et al., 2012).
- 3 The causal relation between the oil shocks and recessions, however, is less clear, as is the degree to which this relation is linear (Hamilton, 2011b; Kilian, 2009).
- 4 However, when gas prices are low (i.e. less than US\$2/gallon), this correlation is essentially zero.
- 5 The Gallup/USA Today poll (2008) asked, “Do you think there are—or are not—steps a president can take that would reduce gas prices significantly in the short term?” 68 percent of respondents answered affirmatively. The Time/SRBI poll (2005) asked, “How much do you think a President can do to keep gas prices down?” 39 percent of respondents said “a great deal,” and another 36 percent of respondents said “some.”
- 6 Some survey organizations asked the question, “Do you approve or disapprove of the way \_\_\_\_\_ is handling his job as President? (If approve or disapprove) Is that (approve/disapprove) strongly or (approve/disapprove) somewhat?” For these polls, we summed the responses for approve strongly and approve somewhat to get overall approval.
- 7 The correlation between inflation adjusted gas prices and food and beverage inflation is -0.41.
- 8 All measures of inflation and unemployment were collected from the Bureau of Labor Statistics website.
- 9 The Iran-Contra Affair dummy was coded as 1 from November 1986, when the scandal broke, until March 1987, when President Reagan apologized in a nationally televised press conference.
- 10 The Travelgate dummy was coded 1 for May 1993.
- 11 The Whitewater dummy was coded 1 from April 1994 until August 1994.
- 12 The Filegate dummy was coded 1 for June 1996.

- 13 The Valerie Plame Affair dummy was coded 1 from July 2003 to September 2003, when Novak asserted that no one in the Bush administration leaked the information.
- 14 Although the Iraq War continued in some forms for a more prolonged period, we coded the variable 1 when President Bush made his “Mission Accomplished” speech in May 2003.
- 15 Although we focus on the New York Times and Washington Post, we also ran the analysis with just the New York Times, since previous research suggests that that publication is a reasonable proxy for gauging changes over time in attention to issues in a variety of American news media outlets (Baumgartner & Jones, 1993; Terkildsen et al., 1998). The results were similar to those reported in the text. The media counts were obtained using Lexis Nexis.
- 16 Change in approval is measured as presidential approval<sub>t</sub> – presidential approval<sub>t-1</sub> where t indexes months.
- 17 Using change in approval as the dependent variable with a lagged approval rate as a predictor yields the same results as using the level of approval as the dependent variable with lagged approval as a predictor: the coefficient on the lagged approval changes, but the coefficients on the other explanatory variables are identical.
- 18 For instance, the effect of gas prices on the level of presidential approval is -.22 (p < 0.001).
- 19 Formal tests for unit root imply statistically significant mean reversion.

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