

On the Meaning & Measurement of Mood

James A. Stimson

Abstract: Public policy mood, a concept now more than twenty years old, is the measure of left/right preferences over policy choices in American politics. In this essay, I comment on the theoretical need for such a measure and discuss the strategy for estimation. I produce the measure itself for the years from 1952 to 2011. Then I take on the question of how many dimensions of such operational ideology exist. I find two, which is far from novel. But unlike much previous work, my own included, the present analysis utilizes prior theoretical information about the content of the dimensions in order to interpret them. I find the conventional two dimensions, economic and cultural, to be very highly correlated. A final section explores the thermostatic properties of mood.

For about as long as we have interpreted politics, and certainly for as long as we have collected data on mass preferences, we have found it convenient to think of political choices as arrayed on a single dimension, left to right. We have done so – often in lieu of any evidence on the point – because it seemed to make sense. We have observed that, for at least some people, preferences appear to be encapsulated in neat little bundles that we term *ideologies*. And where such bundles exist, as they commonly do for the most visible actors on the political stage, there is great economy in ignoring all the complexities and specificities about preferences over a myriad of issues, and instead treating ideology as a single coherent dimension.

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Much political theory begins with the idea that preferences may be usefully encapsulated into unidimensional ideology. This is particularly true in the work of Anthony Downs¹ and all those who have followed his lead into rational accounts of politics. That hypothetical left/right dimension is ubiquitous in studies accounting for political behavior of all kinds.² Theory thus creates a demand for a measure of unidimensional preferences. That demand has been satisfied with two sorts of relatively crude

proxies. One approach is to find a single issue – for example, government responsibility for providing jobs – and assume that it captures much of the wider meaning of left and right. A second approach is to measure preferences according to self-identification: that is, how survey respondents identify themselves in ideological terms. Both approaches are just proxies, the first capturing only a portion of the wider meaning of ideology, the second introducing huge distortions arising from both failed and downright false perceptions.³

What is needed is a direct measure, one that covers the full range of political preferences in play and that is based on actual preferences and not an inference from self-identification. That direct measure is *public policy mood* (or *mood* for short). How to develop such a measure and what it means are the focus of this essay.

In a more perfect world, survey organizations would know what kinds of preferences are worthy of being measured and would set out to measure each of them every year. This is an impossible demand. It asks commercial organizations to acquire data for which there are no customers, and it asks all organizations to measure issues that are not yet known to be relevant to politics. In that unobtainable perfect world, we would have variables (each possible preference question) and cases (each year for analysis). Thus, the latent dimensions underlying the data could be extracted by principal components analysis, an old and robust method.

In the real – and very imperfect – world of public opinion research, most opinion queries are posed once and then never again. These surveys are worthless for understanding change over time. A smaller, but nonetheless substantial, set has been posed more than once, over the course of as few as two years to as many as twenty-five (as in the case of the uniquely valu-

able General Social Survey series). Those queries posed most often are themselves capable of being aggregated (simply by averaging) into a series covering about forty years (but with many cases interpolated). However, critics worry that the content of these queries, mostly about government spending issues, may not be representative of the full left/right discourse.

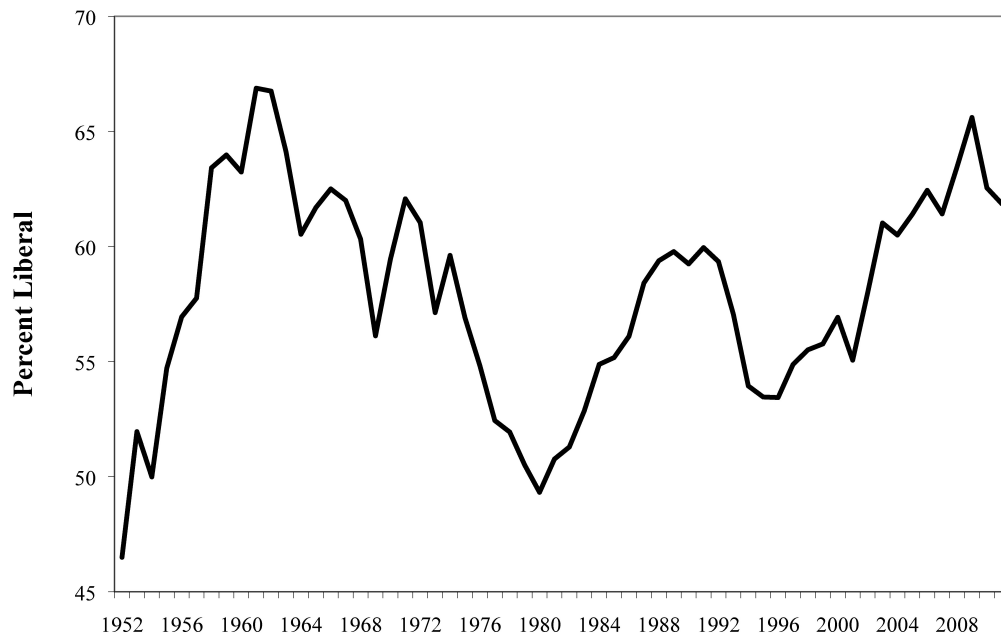
A useful estimate would span sixty years or so – yielding data rich enough to permit estimation – and would be broadly representative of the controversies that have been important to ideological discourse. That requires an entirely different approach. The dyad ratios algorithm is one such approach.⁴ Abandoning the shared variance concept, which is central to principal components analysis but unworkable with the available data, it leverages ratios between dyads of the same issue preference question at multiple points in time to build an alternative estimation strategy that does not require variance estimation.

This estimation method, too detailed to describe here, is strongly analogous to principal components analysis, even though it does not utilize the fundamental mathematics of shared variance estimation. It does all the same things: it solves for latent dimensions, estimates correlations or loadings, estimates shared variance, and produces as many “factor scores” as there are dimensions. And these outcomes and outputs all have similar interpretations.

Figure 1 displays that first dimension of ideology for a sixty-year span. A careful perusal of the figure reveals three features: (1) that estimated mood corresponds loosely to popular expectations of distinctive political eras; (2) that it tends to forecast election outcomes, with liberal moods yielding Democratic wins and conservative moods Republican wins⁵; and (3) that it tends to move in a direction contrary to the distinctive ideology of the party in power.

Figure 1
Public Policy Mood (Liberalism), 1952 – 2011

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Source: Figure created by author.

Many observers believe that the American political issue space is two-dimensional. The first dimension entails controversies over the proper scope of government in the domestic sphere, whether it should do more or less, spend more or less, and tax more or less. In the private economy, it involves the controversy between the rights of ownership and management on the one hand versus those of labor on the other. This dimension is often called *economic*, although the label does not capture the full range of issue controversies. On top of the economic dimension are sets of controversies about social and cultural issues, broadly defined, including questions about religion in public life, the use of government to enforce

conventional sexual behaviors, and equal rights for women and gays.

The two sorts of issues are clearly different. The former has to do with the extension or retraction of the welfare state and the structure of economic opportunity. The second takes in traditional or non-traditional beliefs about culture and the role of the state in regulating religiously derived beliefs about proper behavior. To say that the two sorts of issues are different, however, does not mean that they are completely unrelated. Both the ideological left and the ideological right in the United States take distinctive positions on *both* issue sets. And standard left and right definitions of both imply that they must have something in common.

Using purely statistical criteria, one can solve for the number of longitudinal dimensions of public opinion. Almost always, the answer is two. That is, more than one dimension is required to account for all of the common variance, and two are sufficient to do so. But the dimensions observed statistically do *not* correspond to the economic and social dimensions commonly postulated. Neither of the statistically derived dimensions taps the two expected dimensions. The first captures economic controversies, but it also includes numerous cultural issues that do not belong. The second is generally a meaningless amalgam of stray and unrelated issues that does not correspond at all to our understanding of social and cultural concerns.

These are general patterns, observed over the years and under a wide variety of estimation assumptions. Table 1 presents the loadings of various topics on the estimated first dimension for 1952 to 2011. The highest loading topic (although not by much) is gun control – not a conventional “economic” issue. The dimension also includes items about the war on drugs, crime, capital punishment, and another gun issue. Most other dimension-defining issue controversies are from the economic/scope-of-government-activity rubric, which defines conventional liberal and conservative positions.

The estimated second dimension is a mishmash of stray issues that appear to have nothing in common with one another (see Table 2). Not a single one of the four strongest loading issues fits a conventional understanding of cultural issues. This analysis would seem to disconfirm the widely shared idea that there are economic and cultural dimensions to American politics.

How can this be? Is the problem that almost everybody who comments on issues in American politics is wrong? Or

is something not quite right about estimating common dimensions extracted by statistical criteria? It is indeed the latter. Principal components – and the dyad ratios algorithm that is modeled on it – employ explicitly orthogonal rules. They assign all the variance associated with an estimated underlying dimension to that dimension and then go on to explain what is left after that common variance has been removed from the data.

If one assumes that it is more normal for people to take the same side on both issue dimensions (left on both or right on both), then the solution to the estimation problem is apparent: the two political parties help out by giving relatively clear cues on both dimensions. Yet what is fascinating is the opposite pattern (left on one and right on the other); it is the sort of thing that keeps pundits fully employed. Part of the fascination derives from the fact that such patterns are uncommon. These exceptional cases are interesting precisely because they do not appear often.

Left on both or right on both is the norm. That assumption, which, as I discuss below, is an empirical fact, suggests a solution to dimensional estimation. If the two dimensions are correlated, then they will run afoul of the orthogonal estimation rules. The first estimated dimension will contain the economic issues *and* the positively correlated part of the cultural dimension. In turn, the orthogonal second dimension will not cover the scope of the social/cultural domain because a large part of that issue set will have been removed from the data matrix by assignment to the first dimension. There is no independent second dimension to be found because much of it was already misassigned to the first dimension. Instead, one will find what has repeatedly been seen in longitudinal dimensional analyses – namely, junk. The second dimension will consist of scraps of correlated variance

Table 1

The First Dimension of Mood: Topics and Loadings

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Topic	Years	Loading
Gun Control	18	0.93
Education	15	0.92
Fight Drugs	18	0.90
Environment	19	0.85
Spending, Crime	18	0.84
Spending, Environment	18	0.80
Approve Unions	27	0.79
Wealth Equality	20	0.73
Spending, Crime	27	0.68
Help Poor	19	0.68
Spending, Health Care	18	0.68
Help Poor	21	0.67
Minority Aid	15	0.67
Help Blacks	19	0.65
Consumer Protection	14	0.65
Fight Drugs	27	0.64
Spending, Military	29	0.63
Capital Punishment	45	0.62
Environment	21	0.61
Privacy	14	0.60
Help Poor	17	0.60
Health Care	17	0.59
Government Waste	16	0.57
Spending, Health Care	30	0.57
Employment	16	0.57
Spending, Cities	30	0.54
Spending, Cities	31	0.53
Gun Control	21	0.50

The table includes all items with loadings over 0.50 of those available in fourteen or more years. Some 229 different survey series contributed to the estimates. Source: Table created by author.

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Table 2
The Second Dimension of Mood: Topics and Loadings

Topic	Years	Loading
Gun Control	21	0.65
Urban Renewal	17	0.63
Health Care	17	0.53
Minority Aid	16	0.50

The table includes all items with loadings over 0.50 of those available in fourteen or more years. Some 229 different survey series contributed to the estimates. Source: Table created by author.

that have the common property of being unrelated to economic issues.

The solution to this problem is first to admit that the two dimensions are correlated – highly correlated, in fact. Thus, although there may be a second independent dimension, it is not the social and cultural dimension of political issues. How, then, can we observe what we think to be true about American politics, that it has two dimensions, but not two *independent* dimensions? The answer is to impose some prior structure on the solution, rather than letting it work independently. That prior structure is the assumption that economic and cultural dimensions both exist and are correlated.

The secret to uncovering a correlated second dimension is to find a second dimension that is not forced to be independent of the first. If nature has joined the two, then attempting to separate them by statistical criteria of independence is unwise. Once the dimensions are defined, the axes of the solution can be rotated in such a way as to maximize their interpretability as economic and cultural. This necessarily implies that the rotation must not enforce orthogonality. Instead, each axis must be rotated separately, without constraining the second to be independent of the first (at 90 degrees).

To provide a more accurate picture of the dimensionality of everyday American politics, it is useful to set aside statistical criteria for an adequate solution in lieu of those driven by theory. In our 2012 book *Ideology in America*, my coauthor Christopher Ellis and I begin with the assumption that there are economic and cultural dimensions to political discourse and that they are related to one another, if imperfectly. To impose our understanding on the data, we consider what “economic” and “cultural” mean in common usage. This allows us to isolate particular issue series that can serve as criteria for our substantive understanding. We use those criteria to force a dimensional solution to fit what we believe we know, rather than let statistical maximization criteria dominate the solution.

How do we obtain criterion variables? We can go a long way just by simple classification of the content of series. A series concerning whether government should do more or less to provide health care, for example, is plainly “economic” in the common popular and scholarly usage. A series about whether or not children in public schools should be required to say prayers is plainly cultural.

But the outcome should not depend too much on such judgments. Thus, we follow

a two-step procedure to select criterion variables. In the first step we sort issues, from their face content, into economic and cultural categories.⁶ Second, we perform dimensional analyses within issue sets to find clusters of series that are both of the right type (from their face content) and are strongly correlated with the obtained latent dimension in each domain. We select as criterion series those that (1) are available for many years, (2) have the correct face content, and (3) are tightly intercorrelated with other issues from the same set.

With criterion variables in hand, we proceed to a two-dimensional solution, defined, as above, by statistical criteria. This solution is orthogonal, meaning that the two obtained dimensions are perfectly independent. And the orthogonal second dimension is, as always, uninterpretable. Next, we separately rotate the reference axes to maximize fit with the criterion variables. This step gives us an interpretation that should align with our understanding about the two dimensions and provide information about the fact of their intercorrelation.

Figure 2 shows the two-dimensional result. To position the issues in space, the figure uses the obtained loadings for ninety-six issue series that are available for ten or more years. Open circles represent issues from the economic domain; solid circles represent those from the cultural domain. There are two notable facts about the data. One is that economic and social items are very much intermixed, not cleanly separated. The second is that the space is unevenly filled by data points. Most of the data points cluster on the right side of the graph.

These patterns illustrate why separation by statistical criteria does not work well. Ultimately, the two issue sets are closely related to one another. Imposing the statistical criterion of independence is an

attempt to separate what nature – that is, American political culture – has joined. The figure shows that a second *independent* dimension is not supported by the data.

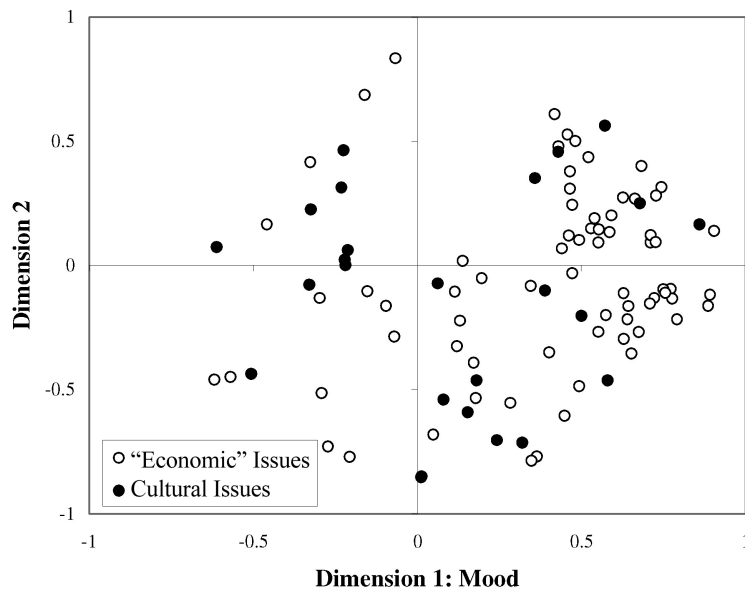
To make sense of this conundrum – and to make it square with what we think we know about American political discourse – we now independently rotate the two axes. Here, *independently* implies that the constraint of orthogonality has been removed, allowing the axes to be mutually correlated to the degree that is necessary to maximize their alignment with criterion variables. As Figure 3 shows, moving the *x* (economic) axis a mere 5 degrees (clockwise) maximizes its fit with the economic criterion variables.⁷ This result is expected because the first dimension of the unrotated solution should be closely related to the largest chunk of systematic variance.

When we free up the second dimension and let it rotate to the point where it best fits the cultural issues set, we learn something important. The second dimension is aligned, by definition, with the first at 90 degrees. When it is free to rotate, it moves 58 degrees in a clockwise direction to align at 32 degrees relative to the original *x*-axis. That leaves the two dimensions, now with meaningful economic and cultural interpretations, strongly associated with one another. The connection between the statistical concept of correlation and the geometry of angles is given by $r = \cos(\theta)$, where θ is the angle of separation of the two axes (37 degrees) expressed in radians (0.646), giving a result of $r = 0.799$.⁸

The rotation result confirms what the eye can see in Figures 2 and 3. While we can think of economic and cultural domains as clearly separable (and we see that they are, at least to some extent), they are far from completely distinct in the view of the American electorate. It remains meaningful to think that differ-

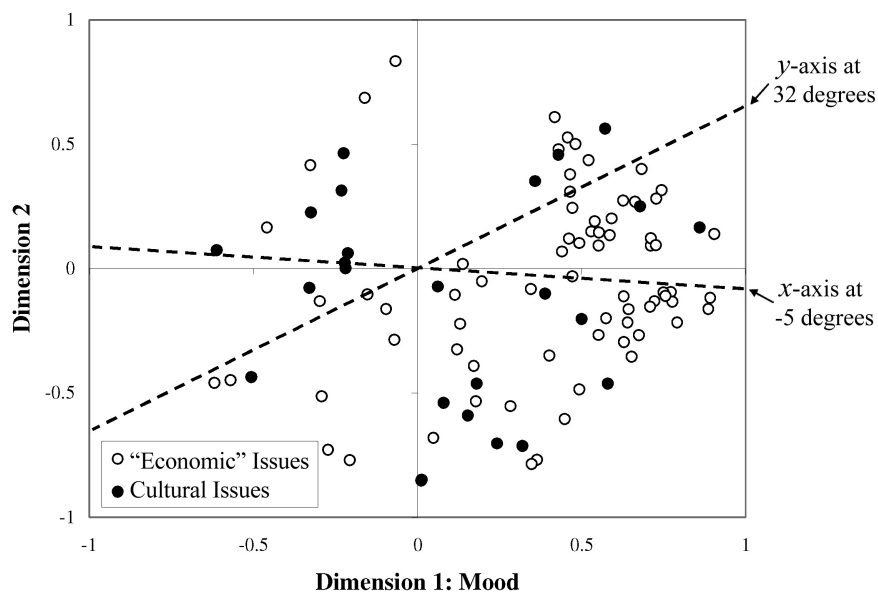
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On the Figure 2
Meaning & Locating Issue Series in Two-Dimensional Space
Measurement of Mood



Source: Figure created by author.

Figure 3
Locating Issue Series in Two-Dimensional Space : Rotated



Source: Figure created by author.

ent considerations might move different sorts of voters, and that different citizens will arrange preferences on these two dimensions in different ways. But the independence of the two domains is so small that the separable effects are not likely to be large.

We conclude that the two-dimensional idea is correct for our longitudinal understanding. But the two dimensions are correlated, not independent. Now I take up the question, what moves mood? What accounts for a nation that is sometimes relatively liberal and sometimes relatively conservative?

To explain the highs and lows of preferences for more or less government, an immediate starting point is Christopher Wlezien's theory of thermostatic politics.⁹ In Wlezien's conception, citizens determine their own preferences, at least in part, relative to what government is doing. Electorates, or at least portions of them, judge when governments have gone too far. If electorates demand more of something (for example, health care reform) and government delivers more than was demanded (or even exactly what was demanded), then many citizens who demanded "more" government action will come to prefer "less."¹⁰ Given that each party has a noncentrist policy tendency, with Democrats to the left and Republicans to the right, the public tends to act in reverse of the policies associated with each. When Democrats (or Republicans) are in control, the public gets more liberalism (or conservatism) than it wants and begins to demand less. The electorate is still operationally liberal on average, but the magnitude of that liberalism depends in part on what government is doing.

In Wlezien's view, public opinion is mainly relative: a matter of "more" or "less" rather than absolutes. While I believe that public preferences are a bit

more complicated than this – that an electorate, for example, that generally calls for more government action rather than less is, on balance, operationally liberal – public preferences do have a strong relativistic component. Survey questions that ask whether government should "do more" or "do less" than it is currently doing illustrate this relativistic conception explicitly.

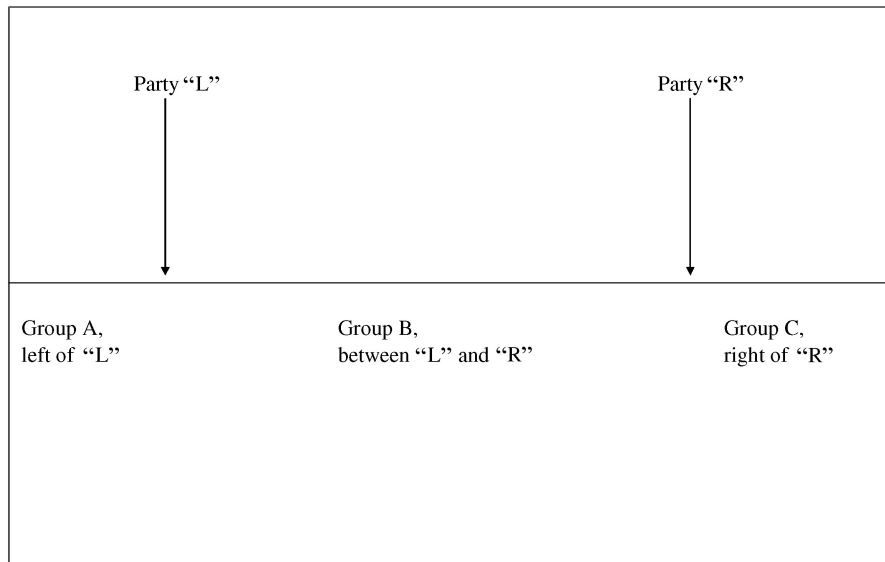
Public policy mood moves in the direction opposite to control of the White House, and does so quite systematically. It tends to reach high points in either the liberal or conservative directions in the years in which out parties regain control. And then it moves steadily away from the winning and controlling party. As shown in Figure 1, highs for conservatives (lows in the graph) occur in the presidential election years 1952 (Eisenhower), 1980 (Reagan), and 2000 (George W. Bush); and highs for liberals occur in 1960 (Kennedy), 1964 (Johnson), 1992 (Clinton), and 2008 (Obama). After those highs, opinion moves contrary to the party in power.

To understand this process, scholars have found it useful to disaggregate.¹¹ Figure 4 positions the two political parties and three groups of voters in left/right unidimensional space. The figure identifies a party of the left on the left side, a party of the right on the right side, and three groups of voters. Group A is left of Party "L"; Group B has preferences between the two parties; and Group C is to the right of Party "R."

The model makes the following assumptions about group dynamics: Group A prefers more leftist policies than it ever gets from either party. Therefore, it is never satisfied and will continuously advocate more leftist policies. Group C is the conservative counterpart; preferring more rightist policies than it ever gets from either party, it will continuously advocate more rightist policies. Group B, between

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Figure 4
A Simple Conception of Party and Voter Spaces in Left and Right



Source : Figure created by author.

the two parties, provides all the dynamics of the thermostat. The typical policies of L are more leftist than it prefers. It will therefore advocate rightist adjustments when L is in power. When R is in power, by contrast, it will always advocate leftist adjustments to R's conservative policies.

The electorate as a whole is a mix of the three groups. But because only Group B changes in response to party control, it forms the longitudinal signal for the entire electorate. Thus, the whole electorate acts, *on average*, as if it were entirely composed of Group B.¹² What is crucial in this simple account is that even if no voter ever changes preferences (in an absolute sense), relative changes of opinion will regularly follow changes in party control. Thus, a thermostatic response is always to be expected.¹³

What is the evidence for the thermostatic response? The first item of interest is year-to-year differences in estimated

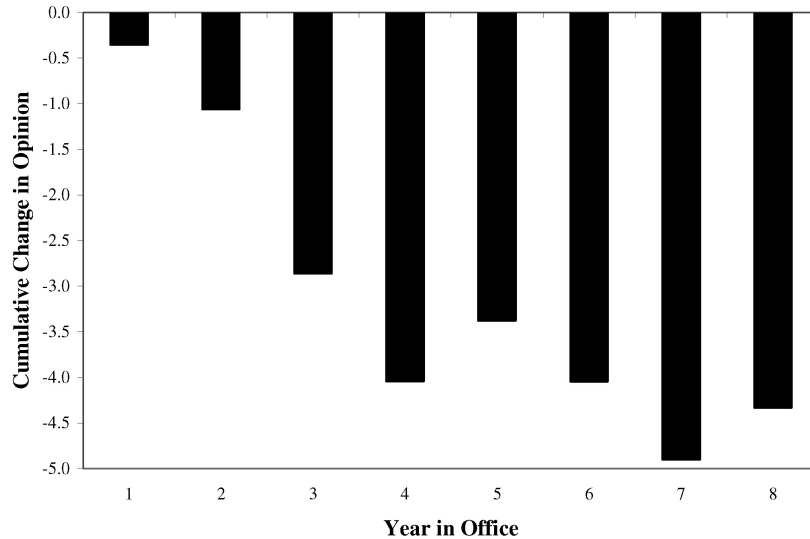
mood, which reveal the size and direction of movement in opinion. That opinion must then be reflected so that it is always expressed in the direction of the current president, rather than measuring liberalism as Figure 1 does. The expected outcome is movement away from the position of the president. Thus, if change in opinion is scored to account for the direction of the president, the effect should, on average, be negative.

The creation of a simple variable, scored 1 for Democrats in office or -1 for Republicans in office, controls for the expected direction. A regression of first differences in mood on the party control dummy produces a coefficient of -0.538, which is statistically significant (at $p < 0.05$).¹⁴ This means that for each year in office, a president can expect to see public opinion move 0.54 points in the wrong direction. Were it only a single-year effect, that would not be very strong. But when the typical span of party control of the White

Figure 5

Cumulative Loss of Support for the President's Ideological Position : An Average Across Presidents Eisenhower to Bush (II)

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Source: Figure created by author.

House is eight years, eight times that effect is large enough to move opinion most of the way in its practical range. Thus, a president elected in a wave of liberalism can expect to leave office in eight years with a more conservative than average mood; and, equally, a president elected by conservatism can expect to leave liberal public opinion as his or her legacy of time in office.

Figure 5 captures this effect by averaging the actual first differences, reflected in the appropriate direction by party control. A simple average of eight-year effects, the graph averages over the entire fifty-eight-year experience, excepting only the last

four years of the Reagan-Bush (I) twelve-year span.

My conclusion is simple: public opinion moves because of basic thermostatic response. Much political commentary, failing to take this fact into account, ends up looking to mystical and exotic sources to explain the commonplace. And much of that commentary sees the changes of the moment as harbingers of a future in which the political landscape will be fundamentally different than it currently is. But the changes of the moment will be reversed as quickly as they came, as the public reacts against the ideological direction of the party in power.

ENDNOTES

¹ Anthony Downs, *An Economic Theory of Democracy* (New York: Harper, 1957).

² Some also add a second social or cultural dimension to the story. I deal with that complication below.

- ³ Christopher R. Ellis and James A. Stimson, *Ideology in America* (New York: Cambridge University Press, 2012).
- ⁴ James A. Stimson, *Public Opinion in America: Moods, Cycles, and Swings* (Boulder, Colo.: Westview Press, 1991).
- ⁵ See Robert Erikson's essay in this volume for a discussion of mood as a predictor of political outcomes.
- ⁶ The economic issues category primarily includes concerns over size and scope of government, particularly with regard to taxing, spending, and redistribution. Again, though, this dimension also includes other long-standing controversies in American politics, particularly those related to race. The cultural domain is narrower and includes attitudes toward traditional behavioral norms, religion, immigration, homosexuality, and abortion choice.
- ⁷ The solution criterion is maximum average correlation with the set.
- ⁸ This correlation of dimensions is large in part because it is pure, free from the stochastic errors that usually attenuate observed correlations.
- ⁹ Christopher Wlezien, "The Public as Thermostat: Dynamics of Preferences for Spending," *American Journal of Political Science* 39 (4) (1995): 981–1000.
- ¹⁰ This model of opinion-policy feedback has been shown to be fairly general and pervasive, applying across levels of government (Martin Johnson, Paul Brace, and Kevin Arceneaux, "Public Opinion and Dynamic Representation in the American States: The Case of Environmental Attitudes," *Social Science Quarterly* 86 [1] [2005]: 87–108); types of citizens (Christopher R. Ellis, Joseph Daniel Ura, and Jenna Ashley-Robinson, "The Dynamic Consequences of Nonvoting in American National Elections," *Political Research Quarterly* 59 [2] [2006]: 2–27; Paul M. Kellstedt, David A.M. Peterson, and Mark D. Ramirez, "The Macro Politics of a Gender Gap," *Public Opinion Quarterly* 74 [3] [2010]: 477–498); policy areas (Stuart Soroka and Christopher Wlezien, *Degrees of Democracy* [Cambridge: Cambridge University Press, 2010]); and Western democracies (Will Jennings, "The Public Thermostat, Political Responsiveness and Error-Correction: Border Control and Asylum in Britain, 1994–2007," *British Journal of Political Science* 39 [4] [2009]: 847–870; Stuart Soroka and Christopher Wlezien, "Opinion Representation and Policy Feedback: Canada in Comparative Perspective," *Canadian Journal of Political Science/Revue canadienne de science politique* 37 [3] [2004]: 531–559; John Bartle, Sebastian Dellepiani, and James A. Stimson, "The Moving Centre: Policy Preferences in Britain, 1950–2005," *British Journal of Political Science* 41 [2010]: 259–285; James A. Stimson, Vincent Tiberj, and Cyrille Thiébaud, "The Evolution of Policy Attitudes in France," *European Union Politics* 13 [2] [2012]: 293–316).
- ¹¹ Alberto Alesina and Howard Rosenthal, *Partisan Politics, Divided Government, and the Economy* (Cambridge: Cambridge University Press, 1995).
- ¹² This model, like Wlezien's, does not need to make the assumption that the public has an exact preferred level of policy in mind, or that it knows exactly what the federal government is doing or how much it is spending in various issue domains. Rather, it simply assumes that some citizens are broadly cognizant of the ideological direction in which federal policy is moving and has the capacity to react accordingly. For a more in-depth discussion of this point, see Soroka and Wlezien, *Degrees of Democracy*, chapter 1.
- ¹³ To make this logic even tighter, I could add an assumption that the parties actually enact part of their ideological program. Otherwise voters would have nothing to react to. But the same theoretical result emerges by merely assuming that voters *think* that Democrats are liberal and that Republicans are conservative.
- ¹⁴ The same basic result emerges, with or without a constant in the model.