

Advances in Public Opinion and Policy Attitudes Research

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There has been much advancement in the field of public opinion research in the past few years, particularly with respect to the formation of policy attitudes in response to elite rhetoric, the translation of policy information into attitudes, and the biological foundations of policy attitudes. Much of the progress made in these areas of study can be attributed to the increased use of innovative, experimental methods and new data sources. Nonetheless, unresolved issues persist, such as whether there is an identifiable genetic basis of policy attitudes and the extent to which cultural versus partisan orientations drive opinions. This review will discuss both new findings in the field and identify areas that require further research.

KEY WORDS: public opinion, policy attitudes, elite influence, political trust, partisanship, risk perception, big data analytics

Introduction

The scholarly study of public opinion has a rich history and established findings. The existing research provides valuable insights into the origins, structures, and measurement of policy attitudes (for a helpful review, see Mullinix, 2011). Persistent questions, however, remain with respect to the causes of opinion change, the relationship between public opinion and democratic accountability, the influence of biological traits on opinion formation, and the linkages between public opinion and policy change. This review focuses on the ways in which emerging research sheds light on these critical issues.

An overarching trend that is immediately evident upon a review of recent research is the increased reliance on experimental and unstructured data for empirical analysis. It is clear that the advent of easy-to-use survey software (e.g., Qualtrics) and online labor markets (e.g., Amazon Mechanical Turk) has greatly lowered the costs associated with conducting survey experiments. Further, political scientists are just beginning to capture and analyze the wealth of textual information published daily on the Internet. As this field of study advances, unstructured data is likely to serve as a much-needed supplement to traditional surveys as a means of measuring public opinion.

In the policy studies literature, several theoretical frameworks have been developed to explain the policymaking process, such as the Advocacy Coalition Framework (ACF) (Sabatier & Jenkins-Smith, 1993) and Narrative Policy Framework (NPF) (Jones & McBeth, 2010). Both of these frameworks identify specific processes through which opinion influences policy formation. The ACF, for example, explains that shared beliefs are the fundamental building blocks of advocacy coalitions (Sabatier, 1988). This review, however, is focused most heavily on opinion formation, change and measurement and less on the ways in which these attitudes function in the policy process.

This review examines recent work in seven evolving areas of public opinion research. First, we discuss new findings regarding the influence of political elites on policy opinions. This section determines that, although party cues matter, their effect is heavily moderated by factors such as the availability of policy information and the presence of alternative source cues. Second, the review considers the dynamics of mass partisanship over time. Partisanship appears to function not simply as the outcome of policy opinions, but as a fundamental predisposition that influences opinions across the spectrum of issues. Third, we review new developments in understanding how citizens process information and form opinions during political campaigns and policy debates. We next turn to a discussion of the biological foundations of political behavior, and relatedly, how personality traits connected to trust and risk influence policy opinions. We then examine the impact of opinion in a specific policy area, climate change, and consider how Punctuated Equilibrium Theory provides a framework for understanding the interplay between public opinion and policymaking. Last, we conclude with an overview of new sources of public opinion data, such as weblogs, microblogs, and social networking websites.

Elite Influences on Mass Opinion

Much of the recent literature on public opinion examines the relationship between elite and mass opinion. The theoretical motivation for this work stems from the principle of democratic accountability. Elected officials are influenced by the policy preferences of their constituents owing to their desire for reelection (Miller & Stokes, 1963). The literature on spatial voting similarly predicts that legislators will reflect the preferences of the median voter (Black, 1958; Downs, 1957). Empirical evidence, however, reveals a substantial divide between the preferences of voters and elected officials (Gerber & Lewis, 2004).

One of the foremost challenges with quantifying the distance between voters and representatives is measuring policy preferences at appropriate units of analysis. In particular, it is quite difficult to measure opinion at the congressional district level. Most surveys are not large enough to be disaggregated into 435 districts. To address this problem, Warshaw and Rodden (2012) develop a model that employs data from several surveys and the U.S. Census to generate estimates about district-level opinion on policy issues such as same-sex marriage, abortion, environmental

protection, and stem cell research. The model outperforms presidential vote shares (a measure typically used to gauge district-level opinion) in predicting the outcomes of ballot referenda. This new model allows researchers to examine more closely the extent to which congressional representatives, and even state representatives, are responsive to the policy preferences of their constituents.

Bafumi and Herron (2010) examine the responsiveness of members of Congress by comparing ideal points. Using survey responses, the authors calculate the ideal point for the median Democratic and Republican voter in each state.¹ These numbers are compared to the ideal points of House members and senators from those states. The results indicate that both House members and senators tend to be more extreme than partisan voters, though the disparities are largest among House members.² Further, when there is a change in the party of the elected official, the new member is likely to be just as extreme, but in the opposite direction; the authors term this phenomenon "leapfrog representation." An extreme legislature (relative to voters) raises normative concerns about the efficacy of voting as a means of democratic accountability and the influence of donors on public policymaking.

Extremism among elites also has significant implications for our understanding of the opinion formation process. There is a growing debate in the current literature, for example, over the influence of party cues on policy preferences. It is firmly established in the extant research that citizens, on average, have limited political knowledge (Delli Carpini & Keeter, 1996) and volatile opinions (Converse, 1964). As a result, citizens rely on cues as information shortcuts (Popkin, 1994). Although parties have long been thought to serve as a dominant cue, emerging research identifies a set of circumstances that blunt the influence of parties and other political leaders. In fact, much of this research finds that policy content is at least as persuasive as source cues.

For example, Bullock (2011) finds that when individuals are presented with a substantial amount of information about a policy proposal, the effect of party cues diminishes. Druckman, Peterson, and Slothuus (2013) also uncover evidence of the importance of policy substance. When experiment participants were presented with a weak argument and strong argument, the effect of party cues was negligible; respondents were more likely to support the policy proposal with the strong argument (even if that proposal was endorsed by the respondent's opposing party). Likewise, in a comparison of the effects of source cues and group beneficiary cues, Nicholson (2011) finds that groups dominate. When respondents were presented with policies that either harmed a disliked group (e.g., the KKK) or benefited a liked group (e.g., veterans), support was high regardless of the policy's sponsor. This suggests that policy content outweighs source cues with easy-to-understand issues.

Hayes and Guardino (2011) take a slightly different approach to the debate over source cues in their examination of the effect of foreign political elites on public opinion. Using opinion data about the Iraq War, the authors demonstrate that Democratic and Independent citizens expressed opposition to the war in response to views voiced by foreign officials. This research is among the first to quantify the relative influences of foreign and domestic political elites.

New research, however, does not wholly discredit the influence of party cues. There remain many situations in which party cues dominate. In short, a growing number of studies detail the “conditional nature of elite influence” (Nicholson, 2012, p. 52; see also Eshbaugh-Soha & Linebarger, 2013). Out-party cues, for example, appear to have a far greater influence than in-party cues. Nicholson (2012), using experimental evidence gathered during the 2008 election, demonstrates that Republicans were less likely to express support for immigration and foreclosure policy proposals when told that Barack Obama supported the measures. Democratic respondents likewise expressed lower levels of support when told that John McCain was in favor of these policies. The results thus suggest that party cues tend to polarize policy opinions.

Additional factors that moderate the influence of party cues include the strength of the arguments being advanced about a policy proposal and the level of partisanship among political elites. In a non-polarized environment (i.e., experimental participants were told that partisan disagreement on the issue was low), citizens resort to party cues only when they are presented with arguments of equal strength from either side of the political spectrum (Druckman et al., 2013). In a polarized environment, however, citizens are likely to follow party cues, even when their party offers a weak argument.

In sum, recent research on the influence of political elites on policy opinions suggests that citizens are not blind followers of party cues, or at least not all the time. When the issues are relatively easy, substantive information is available, the arguments coming from both sides are relatively equal in strength, and the opinions of foreign elites are publicized, the cues of party elites diminish. Out-party cues and elite polarization, in contrast, amplify party cues. Future research should continue to explore these and other moderating factors.

Mass Partisanship and Policy Attitudes

In addition to devoting more attention to elite polarization, recent scholarship examines how polarization in the public has evolved over time. Much of the current literature focuses on the public’s policy positions and finds that they have become increasingly extreme (Abramowitz, 2010; Tesler, 2012). New research moves beyond policy attitudes and examines affective partisanship. Iyengar, Sood, and Lelkes (2012) find that both Republican and Democratic identifiers increasingly rate each other lower on the classic thermometer scale. Interestingly, whereas affective orientations toward members of “out-party” racial and religious groups have continuously improved since the 1960s, the opposite is true with respect to members of “out-party” partisans. The authors attribute this polarization to the negativity of modern political campaigns (Geer, 2010) and the abundance of targeted news sources (Baum & Groeling, 2008).

The increased polarization of the mass public is noteworthy because of the active role partisanship plays in shaping one’s political attitudes and behaviors. Although debate persists regarding whether partisanship is the cause or effect of opinions and

actions, emerging work provides strong support for the notion “that partisanship is an active force changing how citizens behave in and perceive the political world (Gerber, Huber, & Washington, 2010, p. 720).

One group of works examines the pervasiveness of perceptual bias, namely the extent to which one’s partisanship shapes the retention of political information and use of that information in forming attitudes. Jerit and Barabas (2012), for example, use a combination of observational data, content analysis data, and experimental data to test for perceptual bias across a wide range of policy issues.³ This work builds upon previous research that focuses on how partisanship shapes economic and candidate evaluations (e.g., Bartels, 2002; Burden & Hillygus, 2009; Tilley & Hobolt, 2011). The authors find that partisans demonstrate a much higher level of political knowledge with respect to factual questions that “cast their party in a positive light.” Further, partisans demonstrate a significantly lower level of political knowledge when asked factual questions that imply something negative about their party. This effect is magnified by news coverage; among issues receiving a high level of news coverage, perceptual bias is heightened. The results therefore demonstrate that partisans accrue accurate policy information when it aligns with their political predispositions and is discussed in the media.

The causal effect of partisanship, however, extends beyond the absorption of political information. In the past few years, scholars have shown that partisanship drives the formation of opinions and the decision to participate in politics. This work aligns with the notion that partisanship is a “psychological identification” or “affective orientation” that remains fixed over time (Campbell, Converse, Miller, & Stokes, 1960). Partisan identities, like race or religion, affiliate citizens with a stable social group. These attachments are formed “relatively early in adulthood” and are “enduring features of citizens’ self-conceptions” (Green, Palmquist, & Schickler, 2002). Partisanship can therefore be viewed as a political orientation that is causally *prior* to opinions and behavior.

To document this phenomenon empirically, Gerber et al. (2010) conducted an experiment in which unaffiliated registered voters were mailed information prior to an election that reminded them that only registered Republicans and Democrats could vote in each party’s upcoming primary.⁴ Among voters who received the mailing, many were more likely to (1) identify as partisans on a post-treatment survey, (2) register as partisans, and (3) exhibit political attitudes similar to those expressed by strong partisans. In sum, the results demonstrate that, by activating a citizen’s latent partisanship, the citizen thinks and behaves like a “typical” partisan.

Highton and Kam (2011) build upon this work in their research on the causal effect of partisanship on race, economic, and cultural issue orientations over time. The authors find that the causal effect of partisanship is not unidirectional. An analysis of the Political Socialization Panel Study (1965–1997) reveals that, during the period of 1973–1982, partisanship exerted a causal effect on opinions. From 1982–1997, however, the causality runs in the opposite direction; in the later period, issue positions drive partisanship. Read in conjunction with other work in this area, it is clear that partisanship can influence opinions and behaviors, but that causality often flows in both directions.

It is important to note, however, that ideology and partisanship are not the only belief systems that structure policy preferences. Gastil, Braman, Kahan, and Slovic (2011), for example, argue that one's cultural orientation (defined as adherence to values such as individualism and egalitarianism) can have an equally, if not stronger, influence on preferences than traditional liberal and conservative predispositions (p. 711). In a similar vein, Ripberger, Song, Nowlin, Jones, and Jenkins-Smith's (2012) work demonstrates that even those with low levels of political knowledge demonstrate familiarity with the values associated with cultural theory, and that they rely upon these values to formulate coherent policy preferences. To advance this area of research, scholars should consider how individuals negotiate between their ideological and cultural orientations. What are the conditions under which one orientation dominates over the other?

Information Processing During Campaigns and Policy Debates

Another area of public opinion that continues to receive much attention is information processing. In particular, scholars have begun to address the relative dearth of studies that explore the temporal component of information effects. While a substantial literature employs cross-sectional data to examine the effect of information, frames, and competing messages on attitudes, scholarship on the *dynamics* of these effects is scarce. This is deeply problematic, as campaigns and national discussions in the real world are multi-week phenomena. Recent research makes use of experimental and panel data to measure information effects over time.

The conclusion from these recent studies is that information effects decay over time, but that there are several factors that moderate the decay. Using a 12-week panel experiment, Mitchell (2012) finds that policy information is subject to a "rapid displacement model." In a campaign, citizens negotiate between three types of information: persistent information (such as their partisan attachments), transient information (namely new information about candidates and issues), and past information (about candidates and issues). Persistent information constrains attitudes within a set range, but within that range, new information affects opinions while old information is largely irrelevant. Chong and Druckman's (2010) work corroborates this finding, as they determine that the influence of frames related to the renewal of the Patriot Act and urban growth, even strong ones, decay quickly over the course of a few weeks. Taken together, new work in this area firmly establishes the transient effects of messaging on political and policy attitudes.

Nonetheless, it is evident that information effects are real, even if they are short-lived. In today's media environment, citizens are consistently exposed to policy-relevant messages from a wide array of sources. Although there is a strong literature that explains how individuals cope with myriad considerations when asked to express an opinion (Chong, 1993; Feldman & Zaller, 1992; Zaller, 1992), new work extends the empirical rigor of this field by examining the effect of competing messages over time. Chong and Druckman (2010) find that exposure to concurrent competing messages yields negligible effects—they cancel each other out. On the

other hand, when individuals are exposed to competing messages sequentially, more weight is given to the more recent message when expressing a policy preference.

Beyond focusing on the direction of individuals' preferences in response to competing messages, we can also consider the ambivalence of these preferences—to what extent are citizens attracted to opposite sides of an issue or political contest? While others have demonstrated the positive link between attitude strength and level of ambivalence (Greene, 2005; Keele & Wolak, 2008; Rudolph & Popp, 2007), recent research examines the variation in ambivalence over time. Through an analysis of ambivalence during the 2008 election, Rudolph (2011) finds that ambivalence fluctuates in response to political information, but the effects are heterogeneous. Most Americans experience some degree of ambivalence at the beginning of election season, and this ambivalence tends to decay as the campaigns progress. Strong partisans, however, experience a far higher rate of decay than weak partisans and Independents, which suggests that individuals with firm prior attitudes are more likely to process incoming information in such a way that it confirms or aligns with previously held beliefs.

Druckman, Fein, and Leeper's (2012) recent work in this area provides additional evidence that, when presented with policy information over time, competing frames received at the same time cancel each other out whereas, in the case of sequential messages, the most recently received message exerts the strongest influence over opinion. Interestingly, however, the authors uncover a primacy effect when experiment participants were encouraged to conduct their own searches for additional information after receiving an initial message. This scenario—the presentation of a message and subsequent participant-driven search for information—results in attitude stability rather than decay. In the real world, citizens receive information both as a captive audience (e.g., campaign commercials) and as a result of their own initiative (e.g., Internet searches). It is therefore difficult to know whether the primacy or recency effect of information is more dominant in reality.

In addition to focusing on the temporal characteristics of information processing during campaigns and policy debates, recent work advances our understanding of how citizens navigate the clutter of politically relevant arguments made in the context of these discussions. Tilley and Hobolt (2011) examine the ways in which partisanship functions as a "perceptual screen" when individuals evaluate policy outcomes and attribute responsibility for those outcomes. In a campaign, voters are bombarded with contradictory information about the policy performance of the incumbent. When faced with information that contradicts their political predispositions, partisans can either ignore facts that contradict their initial evaluation of the incumbent's performance (selective evaluation) or adjust their perception of who is responsible (selective attribution). The authors find support for both processes, but far stronger evidence in favor of selective attribution—partisans adjust their interpretation of the facts such that their attribution of responsibility aligns with their political predispositions. Arceneaux (2012) likewise studies how voters process competing information and determines that the most persuasive messages are those that "evoke loss aversion via a fearful response—even in the face of a counterargument" (p. 271).

Biological Foundations of Political Attitudes: A New Version of Nature vs. Nurture?

To date, much of social science research has assumed that the behavior and attitudes of individuals largely reflect environmental factors. The possibility that underlying biological or genetic factors may be determinants of political attitudes and opinion formation has only recently begun to be explored by researchers (Hatemi, Dawes, Frost-Keller, Settle, & Verhulst, 2011).

A thorough review of research prior to 2011 conducted by Hatemi, Dawes, et al. (2011) assesses the findings thus far on the genetic sources of differences in the political attitudes and preferences of individuals. The two basic behavioral genetic techniques used in these studies are: (1) twin and kinship research designs to estimate the amount of variation in political attitudes due to genetic and environmental factors; and (2) molecular genetic approaches to identify specific genetic variants related to a trait of interest. Hatemi, Dawes et al. (2011) explain that political scientists are now developing a more integrated approach to understanding political behavior that incorporates “elements of genes and environment into a unified theoretical approach that more precisely identifies the behavioral precursors and enable[s] a richer understanding of how distinct behaviors are related to each other” (Hatemi, Dawes, 2011, p. 68).⁵

Research on the relationship between genes and political behavior, as Smith et al. (2012, p. 8; see also, Hatemi, Gillespie, et al., 2011) note, indicates that “biology plays a critical role in shaping social, economic, and political attitudes and behavior . . . [s]o while there may be no gene for a specific issue preference or ideological orientation, the biological systems built by genes seem to play an important role in mediating political attitudes.” According to the authors, twin studies consistently find that between 40–60 percent of the variation in adult political orientations is heritable (Smith et al., 2012). Using the first twin study devoted primarily to political variables, in which they surveyed 1,349 individuals including 596 complete twin pairs from the University of Minnesota Twin Registry (MTR), they assess the relative influences of genetic and environmental factors on the ideological similarities within sets of twins. The findings indicate that 60 percent of the variance in political attitudes is attributable to “broad sense heritability” and less than 5 percent to the shared environments of twins.

Hatemi, Gillespie, et al.’s (2011) results are drawn from the first genome-wide analysis of liberal and conservative political attitudes; the study employs DNA samples of 13,000 respondents collected in conjunction with a 50-item sociopolitical attitude questionnaire. Whereas previous studies quantified the overall genetic influence on political attitudes, this research attempts to identify genetic markers that can be further tested for their association with particular political traits. The goal is to “identify specific genes that contribute to the genetic influence on political preferences” and, by doing so, take a preliminary step toward locating genes that account for the heritability found in twin and kinship studies (Hatemi, Gillespie, et al., 2011, p. 2). This study advances our understanding of the biological components of political ideology and the findings suggest that more attention

should be devoted to identifying the genetic loci that influence information processing and cognition.

The complexity of the interplay between the biological and environmental factors that influence an individual's political ideology, opinions, and actions is all the more evident to those most engaged in this area of research. A number of commonalities emerge through a review of recent work and suggest a consensus that heritable core predispositions influence political attitudes (Funk et al., 2012; Kandler, Bleidorn, & Riemann, 2012; Verhulst, Eaves, & Hatemi, 2012; Verhulst, Hatemi, & Eaves, 2012). It is not that specific attitudes are inherited, but that core predispositions, which include values and personality traits, are inherited, and these are then influenced by life experiences and other environmental factors (Funk et al., 2012; Kandler et al., 2012; Smith et al., 2012; Verhulst, Eaves, et al., 2012).

Also using the Minnesota Twin Registry (MTR), Funk et al. (2012) find that political predispositions constitute a dimension of personality that is distinct from the "Big Five" personality traits (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism). Using the top-down/bottom-up theory of attitude formation as a framework for assessing social and environmental factors (top-down) and genetic (bottom-up) pathways for different political attitude dimensions, Verhulst, Eaves, et al. (2012) disentangle a bit further the influences of genetic and environmental on political ideology and attitudes (see also Jost, Federico, & Napier, 2009). This research finds a "remarkably different" development of political attitudes at the genetic level than at a shared or unshared environmental level of analysis and that "ideology exists in different forms at different levels of analysis" (Verhulst, Eaves, et al., 2012).

Given the complexity of the political ideology construct, along with the resulting political attitudes, it follows that their influence on public opinion will similarly need to be disaggregated. Work in this area is tackling head on the issue of correlation versus causation between personality traits and political ideology, and the extent to which the relationship between these two phenomena is a function of a fundamental, underlying genetic factor (Verhulst, Eaves, et al., 2012). As Hatemi, Dawes, et al. (2011, p. 81) conclude, "The more we learn about how genes lead us into environments, affect our interpretations of the exogenous environments we encounter, and how our social environments may change our genetic expression, the more we can contribute to the discipline at large about which environments matter and why." The answer to the nature versus nurture debate is, once again, that both matter; the unresolved issues are how and in what ways.⁶

Political Trust and Risk Perception: How Both Influence Public Opinion

A thick literature examines the related issues of trust and risk in opinion formation, and recent work provides further insights. Hetherington and Husser (2012), using a media content analysis and survey data collected from 1980 through 2004, find that political trust influences public opinion on salient issues. Specifically, prior to the 9/11 attacks in 2001, political trust impacted preferences for redistribution

policies and race-targeted programs. After 9/11, the impact ceased for these issues and political trust instead affects defense and foreign policy preferences. The salience of an issue through media coverage of a contemporary event can increase political trust and thereby boost support for government action in a policy area. As Hetherington and Husser's (2012) work demonstrates, this is because once priming shifts to another area of public concern, so does the public's trust and support for government action in that area.⁷

Another significant finding in this work is that the public trusts certain parts of the government more than others. Hetherington and Husser (2012) note that, while prior work underscores the relevance of political trust to domestic policy attitudes, their research indicates that trust can impact foreign policy preferences as well. Further, the authors suggest that trust can impact both the liberal and conservative ends of the political spectrum, as domestic issues are considered primarily of value to "policy liberals" while foreign policy issues are seen as more beneficial to conservatives (Hetherington, 2005; Hetherington & Husser, 2012). This is more of a conjecture than an empirical finding that builds upon the existing argument that the effects of political trust on policy preferences are heterogeneous (Popp & Rudolph, 2011; Rudolph, 2009; Rudolph & Popp, 2009; see also Eckles & Schaffner, 2011). The key takeaway point from this area of research is that individuals "can and do have more than one meaningful belief about an issue or an object, with different presentations of it unlocking different evaluations" (Hetherington & Husser, 2012; see also Feldman & Zaller, 1992; Zaller & Feldman, 1992; and Kellstedt, 2000).

Eckles and Schaffner (2011) expand upon this work through their finding that mentions of risk prime individuals to express lower levels of support for military interventions than they would otherwise. In their research, which uses data from the 2008 Cooperative Congressional Election Study, they find that priming less risk-tolerant individuals to consider the risk of potential military intervention in Darfur lowered support for that policy, while the same prime increased uncertainty for the risk-tolerant individuals. The implication is that, when individuals are not told by elites (or others) of the risks associated with an intervention, surveys of their opinion on the intervention register more support than they would if such information was available (see also Berinsky, 2009; and Aldrich, Gelpi, Feaver, Reifler, & Sharp, 2006).

Another noteworthy study focuses on the intergenerational transmission of risk and trust (Dohmen, Falk, Huffman, & Sunde, 2012). Somewhat contrary to the research on the biological foundations of political attitudes reviewed above, Dohmen et al. (2012) find that socialization is important to the transmission process with respect to an individual's willingness to trust and take risks. More consistent with the findings from the genetic influences literature, they find that parental characteristics strengthen the socialization process and its impact.

Given that fear is a genetically informed trait, it is not surprising that individuals differ in their underlying fear dispositions. Hatemi, McDermott, Eaves, Kendler, and Neale (2013) find that this variation has implications for out-group political preferences (see also, Kam & Simas, 2010). Using a sample of 29,682 kinships, this study finds that people with a higher degree of social fear hold more negative opinions toward out-groups, as measured by attitudes toward immigration and segregation.

The authors conclude that “*social* fear might serve as a foundation for some part of the edifice of certain aspects of political ideology” and this “helps explain one of the ways in which emotion undergirds more complex cognitive structures” (Hatemi et al., 2013).

An important line of research on the impact of risk attitudes on policy views and political participation has been undertaken by Cindy Kam at Vanderbilt University and her colleague Elizabeth Simas at the University of Houston (Kam, 2012; Kam & Simas, 2010, 2012). Using the 2008–2009 American National Election Study panel and an Internet survey conducted in 2011, Kam (2012) finds that risk-accepting individuals are more likely to engage in political life because it offers novelty and excitement.

Previously, Kam and Simas (2010) found that risk-accepting individuals are less susceptible to framing effects, and frames therefore exert minimal influence on the policy preferences of these individuals. This means that individuals’ risk orientations are consequential not only in determining their policy views, but also their susceptibility to framing and priming effects (Kam & Simas, 2010). More recently, Kam and Simas (2012) demonstrate that risk-accepting voters are more willing to support candidates characterized by uncertainty and change, such as challengers in U.S. House races. They conclude that risk-accepting individuals are more willing to “gamble” on challengers, who are usually less experienced and represent a departure from the status quo; this accords with Kam’s (2012) finding that novelty and excitement are motivators of political participation for risk-accepting citizens.

Punctuated Equilibrium Theory and Climate Change

The seminal work on Punctuated Equilibrium Theory (PET) by Baumgartner and Jones (1993/2009) continues to motivate research on how information is used to effect policy change.⁸ Shanahan, Jones et al. (2011) emphasize that the focus of PET research is not on finding direct casual links between policy entrepreneurial activity and public opinion, and recent work in this area indicates that attempts to influence public opinion are actually best understood as efforts to focus public attention on an issue (see Jones & Jenkins-Smith, 2009).

There is a continued need to further unpack the role of the media in policy change, as it has both a first-order and second-order role in the policy process (see Shanahan, McBeth, et al., 2011; and also Shanahan, McBeth, Hathaway, & Arnell, 2008; Jones & McBeth, 2010; and Jones & Jenkins-Smith, 2009). Shanahan, McBeth, et al. (2011) utilize a quasi-experimental design with 194 students who were surveyed about a controversial snowmobile policy for Yellowstone Park. The treatment consisted of two different media accounts that reflected divergent policy narratives from advocacy groups. The researchers found that media policy narratives influence public opinion in two ways: (1) they “preach to the choir” for those in agreement with the narratives’ opinions; and (2) they “convert” when read by those with divergent views, as they can overpower the cultural beliefs and policy views of the individuals and thereby instigate a change in opinion on a controversial issue (Shanahan, McBeth, et al., 2011).

The application of PET and related frameworks can help scholars better understand change in a wide range of substantive policy areas, including climate change. One recent study of telephone survey data from the United States and Canada regarding attitudes toward climate science and climate policy finds that support for the carbon taxation policy option is highest in the two Canadian provinces (British Columbia and Quebec) that have successfully implemented a carbon tax (Lachapelle, Borick, & Rabe, 2012). The researchers surmise that this is because public opinion in these provinces supported the adoption of a carbon tax policy, but it is also possible that acceptance of the policy followed the passage of the carbon tax laws. The same phenomenon occurred with respect to support for cap and trade policy, which is highest in the Canadian provinces (British Columbia, Manitoba, Ontario, and Quebec) that are most active in negotiating a multi-government initiative, the Western Climate Initiative (WCI). The researchers acknowledge, however, that further research is needed to explore the impact of individual or systemic factors, such as risk perception, trust, political ideology, new information, and economic conditions on the relationship between public opinion and policy views in this area (Lachapelle et al., 2012; see also Borick & Rabe, 2010; and Brulle, Carmichael, & Jenkins, 2012).

A promising effort in this area is Brulle et al.'s (2012) comprehensive examination of factors influencing U.S. public opinion on climate policy from 2002–2010. The authors examine five factors (extreme weather events, public access to accurate scientific information, media coverage, elite cues, and movement/countermovement advocacy) that have been theorized to influence public opinion with respect to climate policy.⁹ Of the five factors, their time-series analysis indicates that elite cues, and particularly partisan battles over climate change, exert the most influence over public opinion. This tracks with previous findings that when elites agree, the public does tend to be in agreement as well; when elites disagree, polarization in the mass public follows and individuals turn to other factors when determining their policy positions (see McCright & Dunlap, 2011).

Brulle et al. (2012) find that media coverage has a significant influence on policy opinions, but it is largely a function of elite cues and economic factors; weather extremes do not have a large effect and scientific information has only a minimal impact on changing public opinion.¹⁰ The researchers suggest that additional research should determine the impact of second-order media effects, such as how the framing in mass media coverage of an issue like climate change influences levels of public concern (as their study only examines first-order media impacts as measured by the quantity of coverage of climate issues). The authors relate their findings to the literature on policy moods, which refers to the idea that there is an aggregate “policy mood” regarding the favorability toward governmental action for any given policy issue (Brulle et al., 2012; see also Atkinson, Baumgartner, Coggins, & Stimson, 2011; Stimson, 1999, 2004; and Enns & Kellstedt, 2008). One of the key contributions of this work is the use of a relatively long time series data set, which permits the analysis of policy attitude change.

Additional research is needed on the extent to which policy narratives lead to policy opinion change and the interplay between policy opinions, genetic predis-

positions, and individual traits (such as risk perception and political trust). This area of research lies at the intersection of political science, biology, psychology, and sociology. The greatest insights into the complexities of human political opinions and behavior are most likely to be gained from this type of cross-disciplinary work.

New Methods of Measuring Opinion: Big Data and Analytics

For the past half century, the study of public opinion has largely relied on observational and experimental survey research. The exponential use of online media, however, serves as an additional source of empirical evidence. More and more individuals express politically relevant opinions on weblogs, micro-blogs (e.g., Twitter) and social networking websites (e.g., Facebook), which presents opinion researchers with an untapped treasure trove of information.¹¹ While the majority of analysis of this textual information is currently being undertaken by computer scientists, political scientists are slowly beginning to leverage this massive source of unstructured data to answer a wide variety of interesting questions (see, for example, King, Pan, & Roberts, 2013).

Analyses of social media postings allow researchers to gain purchase on questions related to aggregate-level public opinion. For example, we can use social media postings to learn about the national policy agenda. Issue salience is typically measured with a survey question that asks respondents to name the country's most important problem.¹² As an alternative, researchers can instead examine Internet search queries. Scharkow and Vogelgesang (2011) compare the salience of issues during the 2005 German general election as measured by traditional surveys and Google Insights for Search. The results reveal a strong correlation.

Sentiment analysis (and relatedly, election prediction) is a second aggregate-level use of social media analysis. It is becoming relatively easy for researchers to gather and store posts made to social media websites. Both Facebook and Twitter have APIs that facilitate the scraping of these posts. Text mining techniques can then be used to measure the sentiment of the posts. Sentiment is typically considered to have two dimensions: positivity/negativity and strength. Both are often measured using dictionary-based lexicons, such as OpinionFinder.¹³ A sentiment analysis of one billion Twitter posts by O'Connor, Balasubramanyan, Routledge, and Smith (2010) reveals a correlation between social media posts related to consumer confidence and presidential job approval and traditional polling on these issues. Tumasjan, Sprenger, Sandner, and Welp (2010) examine 104,003 tweets and find that "despite the fact that the Twittersphere is not a representative sample of the German electorate, the activity prior to the election seems to validly reflect the election outcome."

At the moment, analysis of social media postings is best used as an alternative to surveys for measuring aggregate trends. This is because there is no easy way to link postings with the background characteristics of the users. As social media websites continue to develop new technologies for making their data accessible by researchers, this information may become available.

Using unstructured data to measure public opinion holds many advantages over traditional survey research. Surveys are notoriously subject to a host of challenges, such as social desirability bias, recall problems, low response rates, question wording effects, constrained answer choices, and topic limitations. The use of social media postings as a means of gauging public opinion mitigates many of these problems, as the opinions expressed by users are unsolicited and, often, content-rich. (O'Connor et al., 2010). Further, this approach to opinion measurement is far less expensive than large-scale surveys.

Nonetheless, those who have begun to explore social media analysis urge researchers to proceed with caution. First, the extent to which social media users represent the opinion distribution of non-social media users is unclear. Further, even among users, there is inequality in participation. A small percentage of users accounts for a large number of postings (Tumasjan et al., 2010). It is therefore evident that the majority of content produced by users represents a very small percentage of the citizenry.

A second area of concern with using social media output as indicators of public opinion is measurement issues. A content analysis of micro-blogs and social network posts misses much of the content that is exchanged, as many of these postings contain links to the key substance—should researchers incorporate the texts accessed through links into the analysis, and if so, how? Moreover, how should researchers deal with “retweets”—presumably a retweet represents an opinion held by the “retweeter,” but should the message be counted twice? And what about postings that are automatically generated; many news organizations automatically release social media postings that contain article headlines. In short, future research will need to grapple with serious methodological issues when devising measurement strategies.

Beyond simply measuring opinion with social media, some scholars have begun to examine whether social media use affects opinion formation. The preliminary evidence, however, is quite pessimistic. Conover et al. (2011) examine 250,000 tweets during the 2010 U.S. midterm election and find that the “retweet network” is highly partisan; right and left identifiers are unlikely to interact. This conclusion is echoed by Sunstein (2008), who argues that social media do not serve as a forum for the kind of cross-cutting political deliberation as conceived by democratic theorists such as Hayek and Habermas. Baumgartner and Morris (2010) take a different tack, as they look to see whether social media increases political knowledge and participation among young citizens. The authors find that “virtually all of the data point in the same direction, namely, that the potential for [social network] Web sites to increase youth political engagement has not yet been realized” (p. 38).¹⁴

Conclusion

Despite the significant advances made, there are still many areas of public opinion research that require further study. For example, the debate over memory processing remains very much unresolved. It is still unclear whether individuals, for example, sift through previously stored information to arrive at considered evalua-

tions (the memory-based model) or rely on the most recent information to update an existing evaluation (the on-line model). To better understand opinion change and the nature of political persuasion, we need to develop a more robust model of information processing.

Relatedly, there is still much unknown about the origins of policy opinions. Owing to advances in our understanding of the human genome, the nurture versus nature debate would benefit from additional research (though scholars should keep Charney and English's [2013] concerns in mind). There are also lingering questions regarding the extent to which cultural orientations versus ideological and partisan orientations drive policy opinions. A firmer understanding of the causes of policy opinions, particularly the conditions under which certain factors are influential and others less so, will provide a stronger foundation on which to study persuasion and advocacy.

And finally, additional research is needed to identify the conditions under which shifts in public opinion lead to policy change. Although clear correlations between public opinion and policymaking are evident, the directions of the causal arrows, and the strengths of these relationships, are unclear. The influence of public opinion on both the behavior of individual elected officials and the institutions in which they operate is fertile ground for further study. Perhaps we can make inroads in this area by tapping into the wealth of unstructured public opinion data that is ripe for the picking.

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Notes

1. An ideal point is a position in a unidimensional policy space. Voter ideal points are calculated using survey responses about respondents' positions on roll call votes. The ideal points for members of Congress are calculated using their actual roll call votes (Bafumi & Herron, 2010).
2. A similar pattern emerges at the state level. Lax and Phillips (2012) demonstrate that there is a "democratic deficit" at the state level, in that state governments only translate opinion majorities into public policies approximately 50% of the time.
3. The authors identified 205 domestic and foreign policy-related factual questions across 43 surveys.
4. Participants in the experiment were registered voters who were not officially registered with a party but expressed a preference for a party on a survey.
5. The "unpacking" of gene-environment relationships to understand political behavior more thoroughly is only just beginning. For more research on the relationships between genes, personality and political attitudes, see Hatemi and McDermott (2011); Hatemi, Dawes, et al. (2011); Hatemi et al. (2013); Smith et al. (2012); Verhulst, Eaves, et al. (2012); and Verhulst, Hatemi, et al. (2012).
6. Not all scholars in this area agree that advancing the field of "genopolitics" is a worthwhile endeavor. Charney and English (2013) dispute the assumption that the genome is a fixed, unchanging template that determines political orientations and attitudes (p. 393). The authors argue, "Genopolitics relies on a naive conception of the genome uninformed by some basic principles of genetics and by discoveries in molecular genetics over the past 50 years" (p. 393).

7. Priming refers to “changes in the standards that people use to make political evaluations” (Iyengar & Kinder, 1987, p. 63; see also Eckles & Schaffner, 2011; and Berinsky, 2009).
8. For recent work in this area, see Jones and Baumgartner (2012).
9. Brulle et al.’s (2012) data consist of 74 separate surveys that cover a nine-year time period. For additional recent research on public opinion on climate change, see Kellstedt, Zahran, and Vedlitz (2008); Marquart-Pyatt et al. (2011); Pidgeon and Fischhoff (2011); Weber and Stern (2011); Spence, Poortinga, Butler, and Pidgeon (2011); Sterman (2011).
10. Somewhat in contrast with this finding, Egan and Mullin (2012) show that direct exposure to extreme weather causes individuals to reassess their opinions on global warming, though the effect decays fairly rapidly.
11. In addition to examining social media content, some scholars have studied Internet search terms as another means of measuring public attention to political issues (Ripberger, 2011).
12. Alternatively, some scholars use content analyses of newspapers to construct measures of issue salience.
13. Newer methods of sentiment analysis instead employ supervised or unsupervised learning techniques (Stieglitz & Dang-Xuan, 2012).
14. See also Hoffman, Jones, and Goldwaite Young (2013) for an examination of the motivations that drive online political engagement.

References

- Abramowitz, Alan. 2010. *The Disappearing Center: Engaged Citizens, Polarization, and American Democracy*. New Haven, CT: Yale University Press.
- Aldrich, John, Christopher Gelpi, Peter Feaver, Jason Reifler, and Kristin Thompson Sharp. 2006. “Foreign Policy and the Electoral Connection.” *Annual Review of Political Science* 9 (1): 477–502.
- Arceneaux, Kevin. 2012. “Cognitive Biases and the Strength of Political Arguments.” *American Journal of Political Science* 2 (56): 271–85.
- Atkinson, M., F. Baumgartner, K. Coggins, and J. Stimson. 2011. “Mood and Agendas: Developing Policy-Specific Conceptions of Mood.” Paper presented at the Annual Meetings of the Midwest Political Science Association, Chicago.
- Bafumi, Joseph, and Michael C. Herron. 2010. “Leapfrog Representation and Extremism: A Study of American Voters and Their Members of Congress.” *American Political Science Review* 104 (3): 519–42.
- Baum, Matthew, and Tim Groeling. 2008. “New Media and the Polarization of American Political Discourse.” *Political Communication* 25: 345–465.
- Bartels, Larry. 2002. “Beyond the Running Tally: Partisan Bias in Political Perceptions.” *Political Behavior* 24 (2): 117–50.
- Baumgartner, Frank, and Byron Jones. 1993/2009. *Agendas and Instability in American Politics*, 2nd ed. Chicago: University of Chicago Press.
- Baumgartner, Jody, and Jonathan Morris. 2010. “MyFaceTube Politics: Social Networking Web Sites and Political Engagement of Young Adults.” *Social Science Computer Review* 28 (1): 24–44.
- Berinsky, Adam. 2009. *In Time of War: Understanding American Public Opinion from World War II to Iraq*. Chicago: University of Chicago Press.
- Black, Duncan. 1958. *The Theory of Committees and Elections*. Cambridge: Cambridge University Press.
- Borick, C., and Barry Rabe. 2010. “A Reason to Believe: Examining the Factors that Determine Individual Views on Global Warming.” *Social Science Quarterly* 91 (3): 777–800.
- Brulle, Robert, Jason Carmichael, and J. Craig Jenkins. 2012. “Shifting Public Opinion on Climate Change: An Empirical Assessment of Factors Influencing Concern over Climate Change in the U.S., 2012–2010.” *Climate Change* 114: 169–88.
- Bullock, John G. 2011. “Elite Influence on Public Opinion in an Informed Electorate.” *American Political Science Review* 105 (3): 496–515.

- Burden, Barry, and D. Sunshine Hillygus. 2009. "Polls and Elections: Opinion Formation, Polarization and Presidential Reelection." *Presidential Studies Quarterly* 39 (3): 619–35.
- Campbell, Angus, Philip E. Converse, Warren E. Miller, and Donald E. Stokes. 1960. *The American Voter*. Chicago: Chicago University Press.
- Charney, Evan, and William English. 2013. "Genopolitics and the Science of Genetics." *American Political Science Review* 7 (2): 382–95.
- Chong, Dennis. 1993. "How People Think, Reason, and Feel about Rights and Liberties." *American Journal of Political Science* 37 (3): 867–99.
- Chong, Dennis, and James Druckman. 2010. "Dynamic Public Opinion: Communication Effects over Time." *American Political Science Review* 104 (4): 663–79.
- Conover, M. D., J. Ratkiewicz, M. Franciso, B. Goncalves, A. Flammini, and F. Menczer. 2011. "Political Polarization on Twitter." *Proceedings of the 5th International Conference on Weblogs and Social Media*.
- Converse, Philip E. 1964. "The Nature of Belief Systems in Mass Publics." In *Ideology and Discontent*, ed. David E. Apter. New York: Free Press, 206–59.
- Delli Carpini, Michael X., and Scott Keeter. 1996. *What Americans Know about Politics and Why It Matters*. New Haven, CT: Yale University Press.
- Dohmen, Thomas, Armin Falk, Dustin Huffman, and Uwe Sunde. 2012. "The Intergenerational Transmission of Risk and Trust Attitudes." *Review of Economic Studies* 79: 645–77.
- Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper and Row.
- Druckman, James, Jordan Fein, and Thomas Leeper. 2012. "A Source of Bias in Public Opinion Stability." *American Political Science Review* 106 (2): 430–54.
- Druckman, James, Erik Peterson, and Rune Slothuus. 2013. "How Elite Partisan Polarization Affects Public Opinion Formation." *American Political Science Review* 107 (1): 57–79.
- Eckles, David, and Brian Schaffner. 2011. "Risk Tolerance and Support for Potential Military Interventions." *Public Opinion Quarterly* 75 (3): 533–44.
- Egan, Patrick J., and Megan Mullin. 2012. "Turning Personal Experience into Political Attitudes: the Effect of Local Weather on Americans' Perceptions about Global Warming." *Journal of Politics* 74 (3): 796–809.
- Enns, P., and P. Kellstedt. 2008. "Policy Mood and Political Sophistication: Why Everybody Moves Mood." *British Journal of Political Science* 38: 433–54.
- Eshbaugh-Soha, Matthew, and Christopher Linebarger. 2013. "Presidential and Media Leadership of Public Opinion on Iraq." *Foreign Policy Analysis*, doi:10.1111/fpa.12015.
- Feldman, Stanley, and John Zaller. 1992. "The Political Culture of Ambivalence: Ideological Responses to the Welfare State." *American Journal of Political Science* 36 (1): 268–307.
- Funk, Carolyn, Kevin Smith, John Alford, Matthew Hibbing, Nicholas Eaton, Robert Krueger, Lindon Eaves, and John Hibbing. 2012. "Genetic and Environmental Transmission of Political Orientations." *Political Psychology* 33: 1–15.
- Gastil, John, Don Braman, Dan Kahan, and Paul Slovic. 2011. "The Cultural Orientation of Mass Political Opinion." *PS: Political Science and Politics* 44 (4): 711–14.
- Geer, John G. 2010. *Fanning the Flames: The News Media's Role in the Rise of Negativity in Presidential Campaigns*. Working Paper, Joan Shorenstein Center on the Press, Politics, and Public Policy, Harvard University.
- Gerber, Alan, Gergory Huber, and Ebonya Washington. 2010. "Party Affiliation, Partisanship and Political Beliefs: A Field Experiment." *American Political Science Review* 104 (4): 720–44.
- Gerber, Elizabeth R., and Jeffrey B. Lewis. 2004. "Beyond the Median: Voter Preferences, District Heterogeneity, and Political Representation." *Journal of Political Economy* 112: 1364–83.
- Green, Donald, Bradley Palmquist, and Eric Schickler. 2002. *Partisan Hearts and Minds: Political Parties and the Social Identities of Voters*. New Haven, CT: Yale University Press.
- Greene, Steven. 2005. "The Structure of Partisan Attitudes: Reexamining Partisan Dimensionality and Ambivalence." *Political Psychology* 26 (5): 809–22.

- Hatemi, Peter, Christopher Dawes, Amanda Frost-Keller, Jaime Settle, and Brad Verhulst. 2011. "Integrating Social Science and Genetics: News from the Political Front." *Biodemography and Social Biology* 50: 67–87.
- Hatemi, Peter, Nathan Gillespie, Lindon Eaves, Brion Maher, Bradley Webb, Andrew Heath, Sarah Medland, David Smyth, Harry Beeby, Scott Gordon, Grant Montgomery, Ghu Zhu, Enda Byrne, and Nicholas Martin. 2011. "A Genome-Wide Analysis of Liberal and Conservative Political Attitudes." *Journal of Politics* 73 (1): 1–15.
- Hatemi, Peter, and Rose McDermott, eds. 2011. *Man is by Nature a Political Animal*. Chicago: University of Chicago Press.
- Hatemi, Peter, Rose McDermott, Lindon Eaves, Kenneth Kendler, and Michael Neale. 2013. "Fear as a Disposition and an Emotional State: A Genetic and Environmental Approach to Out-Group Political Preferences." *American Journal of Political Science* 57 (2): 279–93.
- Hayes, Danny, and Matt Guardino. 2011. "The Influence of Foreign Voices on U.S. Public Opinion." *American Journal of Political Science* 55 (4): 831–51.
- Hetherington, Marc J. 2005. *Why Trust Matters: Declining Political Trust and the Demise of American Liberalism*. Princeton, NJ: Princeton University Press.
- Hetherington, Marc, and Jason Husser. 2012. "How Trust Matters: The Changing Political Relevance of Political Trust." *American Journal of Political Science* 56 (2): 312–25.
- Highton, Benjamin, and Cindy Kam. 2011. "The Long-Term Dynamics of Partisanship and Issue Orientations." *Journal of Politics* 73 (1): 202–15.
- Hoffman, Lindsay H., Philip Edward Jones, and Dannagal Goldwaite Young. 2013. "Does My Comment Count? Perceptions of Political Participation in an Online Environment." *Computers in Human Behavior* 29 (6): 2248–56.
- Iyengar, Shanto, and Donald Kinder. 1987. *News that Matters: Television and American Opinion*. Chicago: University of Chicago Press.
- Iyengar, Shanto, Gaurav Sood, and Yphtach Lelkes. 2012. "Affect, Not Ideology: A Social Identity Perspective on Polarization." *Public Opinion Quarterly* 76 (3): 405–31.
- Jerit, Jennifer, and Jason Barabas. 2012. "Partisan Perceptual Bias and the Information Environment." *Journal of Politics* 74 (3): 672–84.
- Jones, Bryan, and Frank Baumgartner. 2012. "From There to Here: Punctuated Equilibrium to the General Punctuation Thesis to a Theory of Government Information Processing." *Policy Studies Journal* 40 (1): 1–19.
- Jones, Michael, and Hank Jenkins-Smith. 2009. "Trans-Subsystem Dynamics: Policy Topography, Mass Opinion, and Policy Change." *Policy Studies Journal* 37 (1): 37–58.
- Jones, Michael, and Mark McBeth. 2010. "A Narrative Policy Framework: Clear Enough to Be Wrong?" *Policy Studies Journal* 38 (2): 329–53.
- Jost, J. T., C. Frederico, and J. L. Napier. 2009. "Political Ideology: Its Structure, Functions, and Elective Affinities." *Annual Review of Psychology* 60: 307–37.
- Kam, Cindy. 2012. "Risk Attitudes and Political Participation." *American Journal of Political Science* 56 (4): 817–36.
- Kam, Cindy, and Elizabeth Simas. 2010. "Risk Orientation and Policy Frames." *The Journal of Politics* 72 (2): 381–96.
- . 2012. "Risk Attitudes, Candidate Characteristics and Vote Choice." *Public Opinion Quarterly* 76 (4): 747–60.
- Kandler, Christian, Wiebke Bleidorn, and Rainer Riemann. 2012. "Left or Right? Sources of Political Orientation: The Roles of Genetic Factors, Cultural Transmission, Assortative Mating, and Personality." *Journal of Personality and Social Psychology* 102 (3): 633–45.
- Keele, Luke, and Jennifer Wolak. 2008. "Contextual Sources of Ambivalence." *Political Psychology* 29 (5): 653–73.
- Kellstedt, Paul. 2000. "Media Framing and the Dynamics of Racial Policy Preferences." *American Journal of Political Science* 44 (2): 245–60.

- Kellstedt, Paul, P. Zahran, and A. Vedlitz. 2008. "Personal Efficacy, the Information Environment, and Attitudes toward Global Warming and Climate Change in the United States." *Risk Analysis* 28 (1): 113–26.
- King, Gary, Jennifer Pan, and Margaret Roberts. 2013. "How Censorship in China Allows Government Criticism but Silences Collective Expression." *American Political Science Review* 107 (2): 1–18.
- Lachapelle, Erick, Christopher Borick, and Barry Rabe. 2012. "Public Attitudes toward Climate Science and Climate Policy in Federal Systems: Canada and the United States Compared." *Review of Policy Research* 29 (2): 334–57.
- Lax, Jeffrey R., and Justin H. Phillips. 2012. "The Democratic Deficit in the States." *American Journal of Political Science* 56 (1): 148–66.
- Marquart-Pyatt, Sandra, Rachael Shwom, Thomas Dietz, Riley Dunlap, Stan Kaplowitz, and Sammy Zahran. 2011. "Understanding Public Opinion on Climate Change: A Call for Research." *Environment* 53 (4): 38–42.
- McCright, Aaron, and Riley Dunlap. 2011. "The Polarization of Climate Change and Polarization in the American Public's Views of Global Warming, 2001–2010." *The Sociological Quarterly* 52 (2): 155–94.
- Miller, Warren E., and Donald W. Stokes. 1963. "Constituency Influence in Congress." *American Political Science Review* 57: 45–46.
- Mitchell, Dona-Gene. 2012. "It's About Time: The Lifespan of Information Effects in a Multiweek Campaign." *American Journal of Political Science* 56 (2): 298–311.
- Mullinix, Keven J. 2011. "Lingering Debates and Innovative Advances: The State of Public Opinion Research." *Policy Studies Journal* 39 (1): 61–76.
- Nicholson, Stephen P. 2011. "Dominating Cues and the Limits of Elite Influence." *Journal of Politics* 73 (4): 1165–77.
- . 2012. "Polarizing Cues." *American Journal of Political Science* 56 (1): 52–66.
- O'Connor, Brendan, Ramnath Balasubramanyan, Bryan Routledge, and Noah Smith. 2010. "From Tweets to Polls: Linking Text Sentiment to Public Opinion Time Series." *Tepper School of Business Paper* 559.
- Pidgeon, N., and B. Fischhoff. 2011. "The Role of Social and Decision Sciences in Communicating Uncertain Climate Risks." *National Climate Change* 1: 35–41.
- Popkin, Samuel. 1994. *The Reasoning Voter: Communication and Persuasion in Presidential Campaigns*. Chicago: University of Chicago Press.
- Popp, Elizabeth, and Thomas Rudolph. 2011. "A Tale of Two Ideologies: Explaining Public Support for Economic Interventions." *Journal of Politics* 73 (3): 808–20.
- Ripberger, Joseph T. 2011. "Capturing Curiosity: Using Internet Search Trend to Measure Public Attentiveness." *Policy Studies Journal* 39 (2): 2011.
- Ripberger, Joseph T., Geoboo Song, Matthew C. Nowlin, Michael D. Jones, and Hank C. Jenkins-Smith. 2012. "Reconsidering the Relationship between Cultural Theory, Political Ideology, and Political Knowledge." *Social Science Quarterly* 93 (3): 713–31.
- Rudolph, Thomas. 2009. "Political Trust, Ideology, and Public Support for Tax Cuts." *Public Opinion Quarterly* 73 (1): 144–58.
- . 2011. "The Dynamics of Ambivalence." *American Journal of Political Science* 55 (3): 561–73.
- Rudolph, Thomas, and Elizabeth Popp. 2007. "An Information Processing Theory of Ambivalence." *Political Psychology* 28 (5): 563–85.
- . 2009. "Bridging the Ideological Divide: Trust and Support for Social Security Privatization." *Political Behavior* 31 (3): 331–51.
- Sabatier, Paul A. 1988. "An Advocacy Coalition Framework of Policy Change and the Role of Policy-Oriented Learning Therein." *Policy Sciences* 21 (2–3): 129–68.
- Sabatier, Paul A., and Hank C. Jenkins-Smith (eds). 1993. *Policy Change and Learning: An Advocacy Coalition Approach*. Boulder, CO: Westview Press.
- Scharkow, Michael, and Jens Vogelgesang. 2011. "Measuring the Public Agenda using Search Engine Queries." *International Journal of Public Opinion Research* 23 (1): 104–13.

- Shanahan, Elizabeth, Mark McBeth, and Paul Hathaway. 2011. "Narrative Policy Framework: The Influence of Media Policy Narratives on Public Opinion." *Politics and Policy* 39 (3): 373–400.
- Shanahan, Elizabeth, Mark McBeth, Paul Hathaway, and Ruth Arnell. 2008. "Conduit or Contributor: The Role of Media in Policy Change Theory." *Policy Sciences* 41 (2): 115–38.
- Shanahan, Elizabeth, Michael Jones, and Mark McBeth. 2011. "Policy Narrative and Policy Processes." *Policy Studies Journal* 39 (3): 535–61.
- Smith, Kevin, John Alford, Peter Hatemi, Lindon Eaves, Carolyn Funk, and John Hibbing. 2012. "Biology, Ideology, and Epistemology: How Do We Know Political Attitudes Are Inherited and Why Should We Care?" *American Journal of Political Science* 56 (1): 17–33.
- Spence, A., W. Poortinga, C. Butler, and N. F. Pidgeon. 2011. "Perceptions of Climate Change and Willingness to Save Energy Related to Flood Experience." *Nature Climate Change* 1: 46–49.
- Sterman, John. 2011. "Communicating Climate Change Risks in a Skeptical World." *Climate Change* 108 (4): 811–26.
- Stieglitz, Stefan, and Linh Dang-Xuan. 2012. "Social Media and Political Communication: A Social Media Analytics Framework." *Social Network Analysis and Mining*, doi:10.1007/s13278-012-0079-3.
- Stimson, James. 1999. *Public Opinion in America: Moods, Cycles, and Swings*, 2nd ed. Boulder, CO: Westview Press.
- . 2004. *Tides of Consent: How Public Opinion Shapes American Politics*. New York: Cambridge University Press.
- Sunstein, Cass. 2008. "Neither Hayek nor Habermas." *Public Choice* 134: 87–95.
- Tesler, Michael. 2012. "The Spillover of Racialization into Health Care: How President Obama Polarized Public Opinion by Racial Attitudes and Race." *American Journal of Political Science* 56 (3): 690–704.
- Tilley, James, and Sara B. Hobolt. 2011. "Is the Government to Blame? An Experimental Test of How Partisanship Shapes Perceptions of Performance and Responsibility." *Journal of Politics* 73 (2): 316–30.
- Tumasjan, Andranik, Timm O. Sprenger, Philipp G. Sandner, and Isabell M. Welp. 2010. "Predicting Elections with Twitter: What 140 Characters Reveal about Political Sentiment." *Proceedings of the Fourth International Association for the Advancement of Artificial Intelligence Conference on Weblogs and Social Media*.
- Verhulst, Brad, Lindon Eaves, and Peter Hatemi. 2012. "Correlation not Causation: The Relationship between Personality Traits and Political Ideologies." *American Journal of Political Science* 56 (1): 34–51.
- Verhulst, Brad, Peter Hatemi, and Lindon Eaves. 2012. "Disentangling the Importance of Psychological Predispositions and Social Constructions in the Organization of American Political Ideology." *Political Psychology* 33 (3): 375–93.
- Warshaw, Christopher, and Jonathan Rodden. 2012. "How Should We Measure District-Level Public Opinion on Individual Issues." *Journal of Politics* 74 (1): 203–19.
- Weber, Elke, and Paul Stern. 2011. "Public Understanding of Climate Change in the United States." *American Psychologist* 66 (4): 315–28.
- Zaller, John. 1992. *The Nature and Origins of Mass Opinion*. Cambridge: Cambridge University Press.
- Zaller, John, and Stanley Feldman. 1992. "A Simple Theory of the Survey Response: Answering Questions versus Revealing Preferences." *American Journal of Political Science* 36 (3): 579–616.