How swayable is public opinion? Can people be easily influenced by the latest political argument they hear? Or do they usually hold firm? In the political science literature, one can trace two very different lines of argument.

On the one hand, it is well-known that answers to survey questions can be influenced by subtle aspects of how the question is framed (Druckman 2004) and how the question is exactly worded (Aldrich and McGraw 2011). With online survey experiments, researchers can manipulate responses with small variations in the presentation of political statements (Mutz 2011). From such facts, one might think that people routinely shift their opinions and will change again in response to the next political argument they learn. The depiction is a public that is open-minded, perhaps even to a fault.

On the other hand, consider the growing evidence that our political views are captive to our hardwired political predispositions. Especially in terms of partisanship and ideology, one’s political views are conditioned by one’s early political environment or perhaps one’s personality characteristics (Gerber et al. 2011) or genetic makeup (Alford, Funk and Hibbing 2005). When attitudes can be traced to one’s permanent traits or even one’s genes, they obviously are resistant to change.

So how open are citizens to political persuasion? Both interpretations presented above are correct. People do have political predispositions that influence their political responses and these predispositions rarely change. Yet at the same time, citizens are malleable in the short term as their responses to survey questions are sensitive to the stimuli that affect them at the moment. The distinction is that short-term influences have a short-half life. For predicting people’s political views in the future, their current long-term disposition is the most important. In terms of today’s survey response, the challenge is to separate the long-term component from the short-term influences.

**Philip Converse’s nonattitude model**

(ANES) panel of citizens who were interviewed over the three election campaigns of 1956, 1958, and 1960. His analysis painted a dismal picture for those expecting a rational, active citizenry. Perhaps his most alarming finding was that while people changed their response to a question when asked more than once, their shifts of response followed a pattern as if they were generally responding randomly. The view quickly spread in the world of public opinion analysis that many people who answer questions by public opinion researchers are making up answers on the spot, and perhaps had no real opinions at all.

After analyzing turnover patterns from the 1950s panel, Converse (1964) proposed that virtually all respondents who change their position over time hold no true convictions but instead express random responses or “nonattitudes.” The compelling evidence for infrequent true change is that response instability varies little with the time between surveys. Whether the two surveys were conducted two years apart or four years apart mattered little. Each comparison yielded about the same amount of response turnover. If people were actually changing their minds, observed opinions would be more stable over the briefer time interval.

If the nonattitude thesis is correct, most observed response change is random error, as if changers are simply flipping coins. Just as coins can be flipped heads one time and tails the next, they can also be flipped consistently heads or tails both times. Thus a further implication of the nonattitudes thesis is that many consistent responses are random responses that appear stable only by chance. On one notorious issue from the 1950s panel, the abstract “power and housing” question (whether “the government should leave things like electric power and housing for private businessmen to handle”), Converse reached a startling conclusion (1964: 293). He estimated that less than 20 percent of the adult public held meaningful attitudes on this issue even though about two-thirds ventured a viewpoint on the matter when asked in a survey.

Consider the stylized example where the pattern of responses over three waves of a survey show the following pattern, where responses are either liberal (L) or conservative (C) (Table 28.1).

At first glance, this pattern might suggest that many respondents were truly changing their views, just as we might imagine how open-minded and attentive citizens would behave. However, notice that people who switch responses from “liberal” to “conservative” or from “conservative” to “liberal” between waves 1 and 2 are equally likely at wave 3 to switch once again as they are to maintain their wave 2 position. This pattern is exactly what would be expected if respondents were flipping coins. Coin-flippers would be equally divided into eight equally probable categories based on their three flips over three interviews. Given that the coin-flippers are found equally in the six groups where the respondent changed their reported opinion (as if flipping coins as heads, heads, tails, for instance), another 10 percent would be coin-flippers within the 20 percent who respond liberal three times and another 10 percent within the

<table>
<thead>
<tr>
<th>Wave 1</th>
<th>Wave 2</th>
<th>Wave 3</th>
<th>Proportion with this pattern (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberal</td>
<td>Liberal</td>
<td>Liberal</td>
<td>20</td>
</tr>
<tr>
<td>Liberal</td>
<td>Liberal</td>
<td>Conservative</td>
<td>10</td>
</tr>
<tr>
<td>Liberal</td>
<td>Conservative</td>
<td>Liberal</td>
<td>10</td>
</tr>
<tr>
<td>Liberal</td>
<td>Conservative</td>
<td>Conservative</td>
<td>10</td>
</tr>
<tr>
<td>Conservative</td>
<td>Liberal</td>
<td>Liberal</td>
<td>10</td>
</tr>
<tr>
<td>Conservative</td>
<td>Liberal</td>
<td>Conservative</td>
<td>10</td>
</tr>
<tr>
<td>Conservative</td>
<td>Conservative</td>
<td>Liberal</td>
<td>10</td>
</tr>
<tr>
<td>Conservative</td>
<td>Conservative</td>
<td>Conservative</td>
<td>20</td>
</tr>
</tbody>
</table>
20 percent who respond conservative three times. So by this interpretation, only 10 percent are true liberals and another 10 percent are true conservatives. The implication would be that few people hold meaningful positions but those who do are steadfast in their beliefs.¹

Many have found the implications of Converse’s nonattitudes explanation quite disturbing. In a democracy, public officials presumably respond to the policy preferences of the public, enacting these preferences into law. But if people generally lack coherent preferences or don’t even hold preferences at all, why should elected officials heed their views? Indeed, if survey responses are largely nonattitudes, why should anyone take public opinion polls seriously? Fortunately, there are ways to avoid such a pessimistic assessment.

The “measurement error” explanation

An obvious implication of the nonattitudes explanation is that the seemingly random element to survey responses is the fault of the respondents themselves, as if their lack of political sophistication is to blame. People have not thought about the political question or they do not prefer to engage, but they would prefer the interviewer to not see them as politically ignorant. So they just make something up as their answer. If so, the assumption is that when people give unstable responses to opinion questions the reason is a lack of the political sophistication necessary to form crystallized opinions.

In fact, contrary to this prediction of nonattitude theory, response instability varies little if at all with measures of political sophistication or political knowledge (Achen 1975; Erikson 1979; Feldman 1989). The disturbing level of instability found for surveys of the general public is also found for subsamples representing the sophisticated and informed. If even politically sophisticated individuals respond with a seeming random component, what is to blame? It probably is not a lack of capability on the part of those being interviewed.

For this reason, a measurement error explanation has been proposed to account for response error (Achen 1975; Erikson 1979). This explanation does not challenge the evidence that most response instability represents error rather than true change. However, by the measurement error explanation, the “blame” for the response instability is placed not so much on the capabilities of the respondents as on the survey questions themselves. Even the best survey questions produce some instability from respondents who hold weak or ambivalent attitudes about policy issues. Some inherent limitations in the survey enterprise make measuring attitudes an imprecise task. These include ambiguities in question wording, single-item indicators, the problem of investigator-defined responses to closed-ended questions that may not be congruent with the way respondents think about issues, and the problem of respondents having to give immediate answers to perhaps 100 or more questions with virtually no opportunity for reflection or considered judgment. Thus it is the inherent limitations of the survey method that mostly explain response instability, not the inherent limitations of the respondent.

An explanation based on response probability

John Zaller and Stanley Feldman offer a “theory of the survey response” that provides a more general explanation for response instability and incorporates the findings of both the nonattitudes and the measurement approaches (Zaller and Feldman 1992; Zaller 1992). From this perspective, respondents do not hold fixed, stable attitudes on many issues, but they do have propensities to respond one way or another. The answer they give, however, depends on the considerations that come to mind when a question is asked. A consideration is simply anything that affects how someone decides on a political issue, one way or another. For example, when
one is asked for an opinion on universal health insurance, considerations may include higher
taxes, sick people unable to get medical care, and government bureaucracies. The actual survey
response depends on the considerations that are accessible when the question is asked. Assuming
the considerations listed were of equal importance, the respondent would oppose universal
health insurance as two considerations point in that direction versus one that points to support.

But the considerations that come to mind at one point in time may not be the same as at
another. Usually, for our hypothetical respondent, the considerations that come to mind induce
opposition to universal health care. But perhaps she recently saw a TV news story about a hard-
working man paid poverty-level wages who could not afford medical treatment for his bedridden
wife. When asked the universal health care question, that consideration may be at the top
of the head and induce support for universal health care. But the news story will eventually be
forgotten, and considerations that induce opposition will again predominate. Thus, for many
issues, responses are probabilistic. There is a propensity to come down on one side of an issue,
but the probability is something greater than zero and less than 1.0.

Even though the opinions expressed on an issue may vary, the underlying attitudes that give
rise to them may be quite stable. Suppose our hypothetical individual has a 70 percent prob-
ability of choosing the conservative response on national health insurance, and further assume
that this places her at the eightieth percentile of conservatism on the issue (the respondent is
more conservative than 80 percent of citizens). Within a period of two to four years, our
respondent should still be near the same eightieth percentile. Stimuli in the environment might
cause minor variations in probabilistic responses – for example, a liberal national mood swing
might lower everybody’s probability of a conservative response. But our hypothetical respond-
ent would still be more conservative than 80 percent of citizens.

We are left with a paradox. On the one hand, latent attitudes would tend to be stable over
time as described above. On the other hand, any particular survey response would be problem-
atical. Given this dilemma, how can we improve the measurement of political opinion? One
solution is to ask multiple questions of respondents on similar issues and record their average
response. When using multiple items to measure a general attitude, such as one’s degree of
support for government to help people, response stability increases significantly, suggesting that
our supposition about latent attitudes is correct (Ansolabehere, Rodden and Synder 2008).

**An example: opinion on diplomacy versus use of force, 2004**

A useful example for illustration is a question the National Election Survey asked its respondents
in Fall 2004, both during the Bush vs. Kerry presidential campaign and after in a post-election
panel wave. This was at the height of the controversial Iraq War. The question is as follows:

Some people believe the United States should solve international problems by using
diplomacy and other forms of international pressure and use military force only if
absolutely necessary. Suppose we put such people at “1” on this scale.

Others believe diplomacy and pressure often fail and the US must be ready to use
military force. Suppose we put them at number 7.

And of course others fall in positions in-between, at points 2, 3, 4, 5, and 6. Where
would you place YOURSELF on this scale, or haven’t you thought much about this?

Here, we collapse the responses as pro-diplomacy (1, 2, or 3), in-between (4) or pro-force
(5, 6, or 7). Table 28.2 shows the $3 \times 3$ grid of responses on the two questions. Even with the
forewarning of our previous discussion, the degree to which responses are inconsistent might
The stability of political attitude

Table 28.2 Response turnover on diplomacy vs. use of force in international affairs, Fall 2004

<table>
<thead>
<tr>
<th></th>
<th>Wave 2 (November or December)</th>
<th>Wave 1 (September or October)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diplomacy</td>
<td>In-between</td>
</tr>
<tr>
<td>Diplomacy</td>
<td>27.8</td>
<td>8.1</td>
</tr>
<tr>
<td>In-between</td>
<td>5.1</td>
<td>8.8</td>
</tr>
<tr>
<td>Force</td>
<td>5.9</td>
<td>9.2</td>
</tr>
</tbody>
</table>

Data source: American National Election Study.

Note
N = 901 (weighted). Cell entries are percentages of those offering an opinion in both waves.

surprise. A full 25 percent of respondents declined to offer an opinion in at least one of the two waves, indicating that they could not engage in the debate on diplomacy versus force. But of the remaining 75 percent who chose a position on the 1–7 scale both times, barely half (52 percent) took a consistently “liberal” position favoring diplomacy (1, 2 or 3) or a consistently “conservative” pro-force position (5, 6 or 7) in both survey waves. Thirty-eight percent took the middle route of parking at the “4” middle position at least once, while 10 percent seemingly switched sides from wave 1 to wave 2. How should we interpret this result?

One temptation is to see this table as evidence of the public’s incapability of offering a rational judgment on foreign policy. Perhaps people do not really hold meaningful viewpoints on matters of war and peace and are just not capable of responding well to complicated questions of diplomacy and the use of force.

But there is another aspect to the response inconsistency that should be considered. The question asks the public to choose from two competing actions (diplomacy and force) where the appropriate answer can depend on the circumstances. The question has no context to guide the respondent. A respondent might think “well, diplomacy is good if it works, but sometimes our government must resort to a threat of force.” The question asks the respondent to decide which consideration the government should weight more heavily. It is plausible that many survey respondents shift from one survey to the next in the weight they assign to diplomacy and force, depending on which considerations pop into their head at the moment.

Does Table 28.2 show the residue of random responding or are the gradations of opinion response generally meaningful? An important clue is whether different levels of consistency can be found as a function of the respondent’s level of information. The ANES rates respondents on an information scale whereby they are asked to identify the jobs held by four individuals – the US Vice President, the Prime Minister of the United Kingdom, the Chief Justice of the United States, and the Speaker of the US House. For instance, 2004 respondents were given the name “Dick Cheney.” If the respondent said he was the Vice President, that was coded as the correct answer. Let us identify the 2004 respondents as “informed” if they could correctly identify at least three of the four individuals, and “uninformed” if they could identify no more than one (those in the middle with two correct identifications are set aside).

Table 28.3 compares the response turnover by the high- and low-information voters. Let us focus again on the percentage who are consistently liberal (pro-diplomacy) or consistently conservative (pro-force). Although the low-information voters are less consistent, the differential is modest – 49 percent consistent among low-information voters versus 59 percent consistent among high-information voters. Even among highly-informed voters, a question about diplomacy versus force can generate very wobbly answers.

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The next question is, do these wobbly answers have much predictive power? We obtain a positive answer by assessing how well these wobbly answers predict support for President Bush in 2004 at the height of the Iraq War. It turns out that diplomacy- vs.-force attitudes are among the strongest predictors of voting for President Bush or John Kerry, particularly when the diplomacy- vs.-force responses for the two survey responses are combined. The pattern is shown in Figure 28.1. Note that it is not just the extreme positions on diplomacy-vs.-force matter. The various gradations of the average position on the diplomacy-vs.-force seven-point scale matter for predicting the vote. These wobbly answers are good predictors of how Americans voted in 2004. The results would be even crisper if somehow we could measure latent opinion on diplomacy-vs.-force perfectly.

Table 28.3 Response turnover on diplomacy vs. force, by information of respondent

<table>
<thead>
<tr>
<th>Wave 2</th>
<th>Wave 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diplomacy</td>
</tr>
<tr>
<td>Low-information respondents</td>
<td></td>
</tr>
<tr>
<td>Diplomacy</td>
<td>27.9</td>
</tr>
<tr>
<td>In-between</td>
<td>9.0</td>
</tr>
<tr>
<td>Force</td>
<td>9.8</td>
</tr>
<tr>
<td>High-information respondents</td>
<td></td>
</tr>
<tr>
<td>Diplomacy</td>
<td>30.9</td>
</tr>
<tr>
<td>In-between</td>
<td>2.9</td>
</tr>
<tr>
<td>Force</td>
<td>3.7</td>
</tr>
</tbody>
</table>

The next question is, do these wobbly answers have much predictive power? We obtain a positive answer by assessing how well these wobbly answers predict support for President Bush in 2004 at the height of the Iraq War. It turns out that diplomacy- vs.-force attitudes are among the strongest predictors of voting for President Bush or John Kerry, particularly when the diplomacy- vs.-force responses for the two survey responses are combined. The pattern is shown in Figure 28.1. Note that it is not just the extreme positions on diplomacy-vs.-force matter. The various gradations of the average position on the diplomacy-vs.-force seven-point scale matter for predicting the vote. These wobbly answers are good predictors of how Americans voted in 2004. The results would be even crisper if somehow we could measure latent opinion on diplomacy-vs.-force perfectly.

Figure 28.1 Bush percentage of two-party vote in 2004 as a function of the respondent’s mean position on the diplomacy versus force scale

The stability of political attitudes

Modeling opinion over time

How much do political opinions change over time? We define the over-time correlation as the correlation between a specific attitude as measured for one point in time and the same attitude as measured for the same individuals at a different time. To separate the over-time correlation of observed opinions (measured with error) and the over-time correlation of latent opinion (unobserved, no error) requires at least three readings of opinion with the time intervals between times 1 and 2 being roughly equal to that between times 2 and 3. By applying a set of reasonable assumptions, the degree of stability of latent opinion depends on the degree to which the correlation between observed readings of opinion decays as a function of the length of time between readings.

Consider two possible extremes. First, suppose the over-time correlation is constant no matter how much time lapses between readings. If so, all observed change in reported opinion would be attributed to measurement error, as if the latent attitude remains constant (as in our discussion of Converse’s “power and housing” example). At the other extreme, suppose the correlation between observations decays exponentially with the time interval between readings: the correlation at times 1 and 3 were to equal the product of the correlation between observations at times 1 and 2 and the correlation between observations at times 2 and 3. Then the attribution would be that latent opinion equals observed opinion without error. The truth would be somewhere in between.

Much of the modeling of opinion over time has been performed on US party identification, a 1–7 scale from “Strong Democrat” (1) to “Strong Republican” (7). Changes in latent party identification are infrequent. For political attitudes in general, the observed over-time correlation decays only slightly as a function of the time between measurements. This makes sense only if, over many years, people’s latent attitudes change little. Shifts from one survey to the next represent mainly short-term response shifts with only slight movement in terms of latent attitudes or dispositions.

Examples

As examples, let us consider the over-time correlations for three political attitudes. Two are the standard political items of party identification and ideological identification, each on a seven-point scale. The third is the respondent’s position on the standard ANES policy question of whether the government should guarantee jobs and a good standard of living.

For this exercise we use three waves of a panel survey with respondents answering at three points in time. Using three time points allows us to not only observe the actual correlations but also estimate the correlations among the latent values of the attitudes (as discussed above). Further, Table 28.4 shows the results for two panel surveys. One is an ANES panel for the years 1992, 1994, and 1996. The other is the Jennings-Niemi Political Socialization Study (Jennings and Niemi 1982), in which the same respondents were interviewed as adults in 1973, 1982, and 1997—a 24-year range (respondents had first been interviewed when high-school seniors in 1965).

Consider first the observed correlations in the top panels of Table 28.4. One sees three patterns in the correlations of attitudes over the three-waves. First, the correlations are largest for party identification and smallest for the jobs question, with ideological identification in between. This is consistent with our earlier discussion. Second, compared to waves 1 to 2 or waves 2 to 3, the over-time correlations tend to be smaller between waves 1 and 3, although not by as much as one might think. The slight decay of the correlations with the time gap indicates some
slow change in latent attitudes. A third pattern is that the correlations are smaller, as we would expect, for the longer time gaps in the Political Socialization Survey than over the four years of the ANES study. Over nearly a quarter century, people do change, even in terms of their latent opinion.

The bottom panels of Table 28.4 show the estimated correlations among the latent attitudes, using the Wiley and Wiley (1970) methodology. For the short span of two or four years, the estimated over-time correlations are high—trending into the 0.90s and in a few cases even exceed their natural ceiling of 1.00 (the exact estimates are only approximations). The lesson is that, over a span of a few years, people’s underlying latent attitudes rarely change. Shifts in observed responses are mere short-term variation of no lasting consequence.

For the Political Socialization Panel spanning 24 years, the latent correlations are smaller than over four years, which we would expect. Latent political attitudes do shift or erode over time. Still, attitudes of young adults in 1973 did generally carry over into middle age in 1997. This is especially true for ideological identification, where the 0.73 implied 24-year over-time correlation suggests that slightly more than half the variance in latent ideology at about age 49 could be explained by ideological tendency at about age 25. Similar findings can be found from other data and other studies (Alwin, Cohen and Newcomb 1991).

**Vote choice: an exception**

If survey responses to attitudinal questions are a function of both long-term and short-term forces, one might think that this model applies to vote choice in presidential elections. Even over the short term, voters are not as much influenced as we might think by campaign messages, a phenomenon that can suggest perhaps the absence of thinking (Achen and Bartels 2016). But voters do predictably choose based on their long-standing partisan and ideological beliefs. (Ansolabehere, Rodden and Snyder 2008).

At least in presidential elections, most voters make an early choice and stick to it throughout the campaign— influenced by their long-standing partisan and ideological predispositions, plus their group interests and idiosyncratic factors. Once decided, they are not easily swayed to

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**Table 28.4 Over-time correlations from two panels, observed and estimated for the latent variable**

<table>
<thead>
<tr>
<th>Latent variables over-time correlations</th>
<th>Party identification</th>
<th>Ideological identification</th>
<th>Guaranteed jobs and standard of living</th>
</tr>
</thead>
<tbody>
<tr>
<td>Party identification</td>
<td>0.91</td>
<td>0.91</td>
<td>0.99</td>
</tr>
<tr>
<td>Ideological identification</td>
<td>0.91</td>
<td>1.01*</td>
<td>0.92</td>
</tr>
<tr>
<td>Guaranteed jobs and standard of living</td>
<td>0.79</td>
<td>1.09*</td>
<td>0.86</td>
</tr>
</tbody>
</table>

**Notes**

Latent variable correlations are estimated using the Wiley and Wiley (1970) method. Starred (*) estimates exceed the maximum value of 1.00. Ns for the 1990s survey are 407 (ideology), 497 (jobs), and 584 (party identification). Ns for the Socialization survey are 728 (ideology), 793 (jobs), and 892 (party identification).
change their mind. Where casual survey evidence suggests that voters are swayed by candidate policy stances, it is more likely that their vote choice influenced their stance on the issue than the other way around (Lenz 2012). Over the many election campaigns where the American National Election Studies asked people for their vote choice pre-election and then asked how they voted, 95 percent of those who offered a choice both times were consistent in their pre-election preference and eventual vote choice (Erikson and Wlezien 2012).

Macro-level opinion change

So far we have been discussing opinion change at the micro-level of individual citizens. We often are interested in opinion change by the public as a whole. The question then arises that if people have such stable latent attitudes, how can we account for polls that show people collectively changing their mind? The answer is that small shifts at the micro-level can appear major on the macro-level canvas (Erikson, MacKuen and Stimson 2002). When public opinion collectively moves (say, conservative to liberal – or vice versa – on some policy question), it generally makes sense (Page and Shapiro 1992). Moreover, when the ideological tone of public opinion shifts in a liberal or conservative direction it is often in response to government policy or economic performance (Erikson, MacKuen and Stimson 2002). At the macro-level, partisanship (or “macropartisanship”) moves in response to government performance (Erikson, MacKuen and Stimson 1998). These shifts can be traced to small collective changes in latent attitudes as people modify their political predispositions to fit changing circumstances in the political environment.

Summary and conclusions

Public opinion can be analyzed in terms of short-term responses as measured by survey researchers. Or it can be treated as a set of stable political predispositions (latent attitudes, not directly measurable) that are like people’s personal mean positions or set points. People can be moved off their set-points by persuasive arguments, yet these short-term effects do not last long.

People’s political predispositions are essentially stable, especially in the short run of a few years. Over the long haul, they also change in response to fresh political conditions, but perhaps less than we think. If adults’ core political attitudes are essentially stable, then where do they come from? An implication is that to understand why we are the way we are, we need to know more about people’s earliest political experiences (Stoker and Bass 2011). In recent years, researchers have been particularly interested in political ideology – what separates liberals from conservatives (Jost 2009; Hetherington and Weiler 2009; Haidt 2013). The current research frontier is on the role of personality traits and even our genetic programing that we inherit at birth. Stay tuned.

Appendix

This section offers a more formal analysis of opinion responses over time. Here, we consider opinion not as simply taking sides but rather as a continuous interval-level variable that is measured on a scale such as the ANES’ seven-point scales for issue positions, ideological identification, and party identification.

Figure 28.2 presents a causal model of the opinion responses for one attitude over three waves of a panel. The key statistical assumption is that latent opinion evolves as an AR1
process, meaning that its value at time $t$ is a function of its value at time $t - 1$ but independent of latent opinion at earlier time $t - 2$. In other words, if we know latent opinion at one time $(t - 1$ in the model) earlier history does not matter. This AR1 assumption provides the leverage for modeling latent opinion over time.

A second assumption is that survey responses to the same question at different points in time are connected only via the continuity of latent opinion. A survey response at time $t$ is a function of latent opinion $L$ at time $t$ plus a deviation from latent opinion we will call $S$, for short-term response. $S$ can represent a short-term response to immediate stimuli (Zaller’s top-of-the-head response) or it could be simple measurement error. The crucial assumption is that $S_t$ is unrelated to $S_{t-1}$.

Armed with these assumptions, we can employ the statistical procedure known as two-stage least squares to estimate the effect of latent opinion at time $t - 1$ ($L_{t-1}$) on latent opinion at time $t$ ($L_t$) without worrying about contamination from the short-term factor $S$. Here, a third measurement of opinion at $t - 2$ is needed. One predicts observed opinion $Y$ at $t - 1$ from observed opinion $Y$ at $t - 2$ and uses this prediction of $Y_{t-1}$ as the “instrument” to predict $Y$ at time $t$. The assumption for 2SLS to work is that the only connection between $Y_{t-2}$ and $Y_t$ is via $Y_{t-1}$, which is the AR1 assumption. The outcome of this statistical manipulation is an estimate of the coefficient predicting $Y_t$ from $Y_{t-1}$. With a further bit of manipulation and the assumption of constant variance for $S$, the short-term or error variance (Wiley and Wiley, 1970), it is possible to estimate the variance of $S_t$ (the short-term forces), and $u_t$, the variance of the shock to $Y_t$ unaccounted for by $Y_{t-1}$.

Notes
1 The stylized example is simplified for ease of exposition in that the coin being flipped is unbiased with equal chances of heads and tails. In many examples of response turnover, the division is not close to 50–50, which requires the coin-flipping example to involve a biased coin, e.g., if opinion is 60–40 liberal to conservative, the coin-flipping analogy could be a coin that comes up heads 60 percent of the time and tails 40 percent of the time. In the real-world example of the “power and housing” question, the opinions expressed were more conservative (pro-private industry) than liberal. The allowance of the equivalent of a biased coin does not affect the generality of the argument.
2 See especially Green and Palmquist (1994) and Green, Palmquist and Schickler (2002).
The stability of political attitudes

3 From the AR1 assumption, the implied latent value correlation from time 1 to time 3 must equal the time 1 – time 2 correlation × the time 2 – time 3 correlation.

4 For convenience, assume that variables in the model are de-meaned – that is, they are measured as deviations from their means.

References


