Static Stability and Evolving Constraint
Preference Stability and Ideological Structure in the Mass Public *

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ABSTRACT

Prominent accounts of public opinion argue that citizens' preferences are unstable, with stated desires on policies varying wildly from survey to survey, and ideologically incoherent, with preferences on multiple policies evidencing little or no structure. In the aggregate, these findings suggest that many voters are not capable of fulfilling their normative role in the democratic system. In this article, we challenge this conventional view and argue that the apparent instability and incoherence among the public are both overstated and outdated. Using panel surveys from the 1970s, 1990s, and 2010s, we conduct a multi-trait multi-method (MTMM) confirmatory factor analysis of citizen preferences in multiple issue areas. Our results reveal a surprising degree of preference stability in all three time periods across many policy domains. Further, our results reveal increasing levels of ideological thinking over time and that these patterns of stability and coherence hold across subpopulations defined by levels of sophistication.

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1 INTRODUCTION

Traditional theories of democracy argue that voters should hold elected officials accountable for the policies they advocate during elections and the laws they enact while in office. This concept of accountability undergirds more than a century of democratic theory and is a central tenant of spatial models of elections. Underlying both normative and positive theories of politics, therefore, lies the assumption that voters' have meaningful preferences about the kinds of policies they want enacted by officeholders and advocated by candidates. Can voters – or at least some voters – meet this requirement?

In reviewing decades of survey research on the American electorate, the answer to this question remains uncertain. The literature is littered with findings that citizens' policy beliefs are less stable *preferences* and more temporally unstable and ideologically incoherent *attitudes*. These findings, dating back at least to Converse (1964), remain the canonical textbook vision of American public opinion (see Ansolabehere et al. 2008, for additional discussion). That is, there still exists a general consensus that voters' policy beliefs are unstable and unstructured – particularly among unsophisticated voters – and that many, or even most, voters are unable to fulfill their theorized role in democratic politics.

In this article, we build upon a contrasting body of research, dating back at least to Achen (1975). Like other scholars in this tradition, we argue that the case for the public's incompetence is overstated due to a failure to properly account for measurement error inherent in the survey process and the political context in which voters are imbedded. First, applying a multi-trait multi-method (MTMM) confirmatory factor analysis, we show that, contrary to conventional wisdom, the preferences of citizens are stable from survey to survey in multiple domains. Indeed, in some instances, preference stability approaches and even surpasses the stability of party identification – the "unmoved mover" of public opinion.

Second, we show that what incoherence existed in policy preferences has declined markedly from the 1970s to the present as political elites in each party have themselves become increasingly coherent and polarized. It is true that preferences in policy areas like abortion and the role of women in society were relatively independent of ideology and party affiliation in the 1970s. However, we show that over the past four decades, preferences in almost all domains have become increasingly inter-related. That is, in the intervening decades, changes in the political environment have led to preferences that are increasingly structured by broad ideological commitments such that voters' opinions in one area of public policy are increasingly predictive of all their opinions across issues domains. Thus, knowing that a voter is a conservative Republican today allows us to make strong inferences about their preference on abortion and health care policies while that was much less true in the 1970s or even the 1990s.

Finally, some theories of public opinion have attempted to resuscitate the functional competence of the public at large by arguing that while unsophisticated voters may not have structured and stable preferences, there exist a sub-population – political sophisticates – who are sufficiently engaged and informed to develop stable and coherent preferences (Zaller 1992b; MacKuen et al. 1992). We argue that while sophisticates tend to have more ideologically structured preferences, policy beliefs are actually stable across sub-groups. That is, once we have accounted for random error and measurement error, preferences in specific issue areas tend to be stable from survey to survey at roughly the same rates among sophisticates and non-sophisticates alike.

In all, our findings suggest that the textbook vision of U.S. public opinion as unstable, unorganized, and non-ideological is (in part) an artifact of the statistical tools and political context of the middle decades of the 20^{th} century. When analyzed using modern methods, survey responses appear to be highly correlated with stable underlying preferences. Moreover, early studies of voter preferences based on surveys from the 50s-80s took place in a context of weak parties with minimal ideological commitments. Indeed, the two major parties in this era were not clearly distinguishable and highly unstable in many issue areas (i.e. abortion and race). This confusion at the elite level was reflected in the instability and incoherence of citizen preferences at the time. However, much like the "textbook congress" of strong committees and weak party hierarchies, this understanding of public opinion is now an anachronism. Today, citizens are imbedded within a political context of two strong parties articulating ideologically coherent and distinct policy agendas, and voter preferences have accordingly become increasingly coherent and stable.

This article proceeds as follows. After reviewing the debate regarding preference stability and coherence and specifying our empirical expectations, we provide the details of our measurement model and discuss its advantages for simultaneously evaluating preference stability and preference coherence in the context of potentially correlated measurement error resulting from panel-wave or time-period effects. In Section 4, we analyze the 1970s and 1990s ANES panels and the 2010-2014 waves from The American Panel Survey (TAPS). First, we show that preferences appear to be quite stable once responses are cleaned of random error and time-specific correlated errors. Second, we show that preference constraint has increased markedly from the 1970s to the present. Third, we show that while political sophisticates have more ideologically structured beliefs, preference stability holds among both sophisticated and unsophisticated voters alike.

2 INSTABILITY OR ERROR?

Since Converse (1964) launched the controversy about preference stability and constraint, a steady stream of research has explored the issues surrounding citizen competence.[1] A great deal of this debate has centered on explaining the seeming contradiction between the levels of stability and coherence of public opinion at the micro and macro levels (e.g., Zaller 1992b; Lupia and McCubbins 1998; Erikson et al. 2002; Green et al. 2002). At the level of the individual survey respondent, scholars have shown again and again that opinions are volatile, inconsistent, and unstructured. Individuals' preferences on policy proposals appear to change rapidly over time, can be significantly shifted by arbitrary differences in question wording and ordering, and do not reflect broader ideological tendencies. On the other hand, aggregate public opinion seems to be relatively stable and coherent (MacKuen et al. 1992; Stimson 2004), and it responds in predictable ways to events as well as the actions and statements of elites (Zaller 1992b; Erikson et al. 2002).

One explanation for the seemingly contradictory findings at the micro and macro level is that the public consists of distinct sub-groups with differing degrees of preference stability and consistency. In brief, this theory conceptualizes "elite" individuals with stable, organized beliefs, some of whom respond in a reasoned manner to public events, candidate statements, and shifts in public policy (Converse 1964; Converse and Markus 1979). Non-elite public opinion, however, is less stable, less coherent, and more random. Converse's so-called "black-white model", refined and advanced by others (c.f., Luskin 1987; Feldman 1988; Sniderman et al. 1991; Zaller and Feldman 1992; Zaller 1992b; Delli Carpini and Keeter 1993; Goren 2004) suggests that over-time preference stability and inter-preference constraint exist only (or at least to a much greater extent) among sophisticated members of the public. Low-sophisticates, on the other hand, rely more heavily on non-ideological heuristics. Under this conceptualization, large portions of the electorate are conceived as having little in the way of a stable preferences, much less a coherently organized set of ideological beliefs and priorities. Instead, the seemingly reasonable responses of macro-level public opinion are a function of the more reasoned response of elites and, perhaps, cue-taking from less informed segments of the population (Lupia and McCubbins 1998).

A second explanation is that survey responses are rife with error that mask true preferences. The contradictory findings at the micro- and macro-level "are easily reconciled with a model in which there is a high degree of measurement error and a high degree of stability in preferences" (Ansolabehere et al. 2008, 216). One of the earliest proponents of this idea

[1] In addition to those discussed in the main text, an incomplete list of works relevant to the study of issue stability and constraint would include: Stimson (1975); Converse (1976); Sullivan et al. (1978); Erikson (1979); Markus and Converse (1979); Green and Palmquist (1990); Green and Citrin (1994); Green and Palmquist (1994); Erikson and Tedin (2005); and Carsey and Layman (2006).

was Achen (1975; 1983), who argued that Converse's conclusions about the instability and inconsistency of mass public opinion were driven by unmodeled measurement error. Subsequent work has echoed this finding (e.g., Erikson 1979; Judd and Milburn 1980; Jackson 1983; Norpoth and Lodge 1985; Krosnick 1991; Jennings 1992; Heath et al. 1994), although it is still far from the dominant view.

A third account suggests that neither of these views is by itself complete (Zaller 1992b; Zaller and Feldman 1992). Survey responses do not reveal one stable preferences. Rather, survey questions prompt respondents to sample from multiple considerations and to then construct their responses online. Micro-level responses for any one individual may be quite unstable as the specific set of attitudes involved in forming the online response can vary based on idiosyncratic factors such as question ordering. Yet, macro-level trends will seem reasonable as the set of considerations that individuals associate with a given policy will respond to discussions and actions taken by the media, campaigns, and elected officials. Importantly, however, the level of coherence and consistency in this theory is expected to be strongly conditioned by individuals' levels of political sophistication; sophisticates are theorized to receive and accept sufficiently coherent information to engage fully in the democratic process.[2]

In this article, we offer an account of mass public preferences that, while firmly in the "measurement error" camp, seeks to extend past finding in three important ways. First, we present evidence that *issue-specific* preferences are far more stable across time than previous accounts suggest. Second, we argue that preferences have become significantly more ideologically structured over the past four decades such that the observed incoherence in voter beliefs should rightly be viewed (in part) as a consequence of the unusual political context of the mid-20^{th} century rather than a durable feature of mass public preferences. Finally, we show that these patterns – issue-specific stability and increasing ideological coherence– are observable in sophisticates and non-sophisticates alike.

More formally, our first claim is that, once appropriately modeled to remove error,[3] preferences across panel waves will appear far more stable than past research suggests.

> **Hypothesis 1**: Individual issue preferences will be *stable* when systematic and random measurement error is removed.

While research in this vein dates back to at least Achen (1975), the results below are among the most comprehensive to date in directly challenging the textbook vision of American

[2]Political sophistication is defined as possessing a political belief system that is composed of numerous elements that cover a wide range of political concepts and are connected in a constrained and organized manner (Luskin 1987).

[3]For the sake of exposition, we use the term 'error' in references to any variation in survey response not related to the stable underlying preferences. We return to this point below.

public opinion. We use contemporary confirmatory factor analytic methods to show that preferences – even preferences measured by a single survey item – are highly stable in almost every domain of public opinion (social issues, economic issues, etc.). Indeed, in some cases preferences are as stable as party identification.

Second, between the 1970s and 2010s, partisans at the elite level (e.g., Congress) exhibited a dramatic increase in ideological polarization. Ideologically, Democrats and Republicans became more homogenous within party and differentiated from the opposing party (Aldrich 2011; Theriault 2008). This elite polarization has instigated a substantial amount of research examining its consequences for mass public opinion. The bulk of the debate examines how the distributional and directional aspect of public opinion has responded to elite polarization (e.g., Abramowitz et al. 2008; Fiorina et al. 2008).

However, there is a smaller set of findings suggesting that polarization has led policy preferences to become more coherent over time as liberal and conservative citizens sort into Democratic and Republican parties and adopt more of their specific policy positions (Hetherington 2001; Levendusky 2009). That is, more ideologically coherent messaging at the elite level has led voters themselves to become more ideologically coherent either as a consequence of altering their policy positions on specific issues, their party identification, or some combination thereof. Building on this perspective, we expect that the consequences of elite polarization will be a significant increase in ideological coherence in policy preferences.

> **Hypothesis 2**: There will be increased preference constraint from the 1970s to the 2010s period.

Third, research shows citizens with higher levels of political sophistication tend to exhibit issue positions with more temporal stability and greater coherence between issue attitudes and their general political predisposition (Delli Carpini and Keeter 1996; Sniderman et al. 1991; Zaller 1992a). Armed with a greater store of information relevant to politics, political sophisticates are able to accurately interpret the meaning of issue questions, connect their values to concrete policy matters, and provide consistent responses (Delli Carpini and Keeter 1996). Furthermore, because political sophisticates are more informed and attentive to the flow of elite communication, political sophisticates use elite issue positions as patterns by which to organize their own issue positions into ideological coherent bundles (Zaller 1992a).

However, when political sophisticates' distinctiveness is considered in conjunction with our expectations of random and systematic error, more nuanced expectations of attitude instability and coherence emerges. Our conception of a uniformly coherent public opinion leads us to expect that while political sophisticates should exhibit more ideological constraint and stability than low sophisticates, the distinction between the two groups is likely to be

exaggerated due to asymmetric measurement error. Specifically, we expect low sophisticates' survey responses to be contaminated more by measurement error (Bishop et al. 1982). Removing this error allows us to show that sophisticated and unsophisticated populations are more similar in terms of stability and constraint than we would normally expect. Indeed, we show that in terms of stability there appears to be almost no difference at all.

> **Hypothesis 3**: Individuals with low levels of political sophistication will exhibit significant levels of preference stability and constraint.

3 DATA AND MODEL

To test these claims, we first analyze the 1972-1974-1976 and 1990-1992-1996 panels of the American National Election Studies (ANES). We chose these surveys partly due to the presence of identically worded policy questions both within each panel and, in many cases, across the two panels.[4] We selected a set of six distinct, but potentially related, preferences that were measured in multiple waves on both panel studies. The question wording for these six preferences are shown in Figure 1. Note that we included items spanning multiple domains, including preferences about the degree of government involvement in job creation, government health insurance, aid to minorities, abortion, the place of women in society, and ideology.[5] In addition, we include the traditional seven-point measure of party identification.[6]

Unfortunately, similar batteries are not available for more recent ANES panel studies. To better understand how preference structures work in the contemporary era, therefore, we turn to The American Panel Survey, a multi-year panel studying being conducted by the Weidenbaum Center for Public Policy and Economics at Washington University in St. Louis. TAPS is a monthly online panel survey of over 2,100 people. Panelists were recruited as a national probability sample with an addressed-based sampling frame in the fall of 2011 by

[4]Our focus on items asked consistently across the two panels results in a set of issue preferences that are relatively central to political party platforms and the general public discourse. This may somewhat limit the generalizability of our findings. However, if all citizens' preferences are truly unstable and unconstrained as the Converse (1964) contingent implies, even preferences regarding salient and core issues should be unstable and unconstrained.

[5]While our variable set is not exactly comparable with prior studies (e.g., Achen 1975; Ansolabehere et al. 2008; Converse 1964; Judd and Milburn 1980; Zaller 1992a) because we selected variables that were included on both the 1970s and 1990s ANES panel, our study still maintains a high degree of overlap in terms of variable selection. For example, using ANES panel data, Achen (1975) and Converse (1964) examine minority aid, school integration, isolationism, foreign aid, maintain army overseas, federal aid to education, guaranteed jobs, government intervention in housing and electricity, party identification, and church attendance (Achen only). Also using ANES panel data, Judd and Milburn (1980) select the variables of busing, rights of accused, minority aid, jobs, and ideology. Zaller (1992a) examines jobs, minority aid, and government services in ANES data as well.

[6]We also estimated several of the results using the three-item party ID measure. These results are shown in Appendix Table SI-8 and are largely consistent with our main results.

Figure 1: Issue preference question wording on the ANES

Ideology: (v720652, v742305, v763286, v923509, v940840, v960365) We hear a lot of talk these days about liberals and conservatives. Here is a 7-point scale on which the political views that people might hold are arranged from extremely liberal to extremely conservative. Where would you place yourself on this scale, or haven't you thought much about this? [Response Options:] 1. Extremely Liberal 2. Liberal 3. Slightly Liberal 4. Moderate; Middle of the Road 5. Slightly Conservative 6. Conservative 7. Extremely Conservative.

Health Care: (v720208, v763273, v923716, v940950, v960479) There is much concern about the rapid rise in medical and hospital costs. Some people feel there should be a government insurance plan which would cover all medical and hospital expenses for everyone. Others feel that all medical expenses should be paid by individuals, and through private insurance plans like Blue Cross [1992,94,96: or other company paid plans]. Where would you place yourself on this scale, or haven't you thought much about this? [Response Options:] 1. Government Insurance Plan 2. 3. 4. 5. 6. 7. Private Insurance Plan.

Minority Aid: (v720629, v742296, v763264, v923724, v940936, v960487) Some people feel that the government in Washington should make every effort to improve the social and economic position of blacks [1972,74,76: and other minority groups]. Others feel that the government should not make any special effort to help blacks [1972,74,76: minorities] because they should help themselves. Where would you place yourself on this scale, or haven't you thought much about this? [Response Options:] 1. Government should help [1972,74,76: minority groups] [1992, 94, 96: Blacks] 2. 3. 4. 5. 6. 7. [1972,74,76: Minority groups] [1992, 94, 96:Blacks] should help themselves.

Abortion: (v720238, v763796, v923732, v941014, v960503) There has been some discussion about abortion during recent years [1972,76: Still on the subject of women's rights, there has been some discussion about abortion during recent years.]. Which one of the opinions on this page best agrees with your view? [Response Options:] 1. By law, abortion should never be permitted. 2. The law should permit abortion only in case of rape, incest or when the woman's life is in danger. 3. The law should permit abortion for reasons other than rape, incest or danger to the woman's life, but only after the need for abortion has been clearly established. 4. By law, a woman should always be able to obtain an abortion as a matter of personal choice.

Jobs: (v721067, v742265, v763241, v923718, v940930, v960483) Some people feel the government in Washington should see to it that every person has a job and a good standard of living. Others think the government should just let each person get ahead on their own. Where would you place yourself on this scale, or haven't you thought much about this? [Response Options:] 1. Government see to job and good standard of living 2. 3. 4. 5. 6. 7. Government let each person get ahead [1994, 96: on own].

Women's Place: (v720232, v742302, v763787, v923801, v940928, v960543) Recently there has been a lot of talk about women's rights. Some people feel that women should have an equal role with men in running business, industry, and government. Others feel that women's place is in the home. Where would you place yourself on this scale, or haven't you thought much about this? [Response Options:] 1. Women and men should have an equal role 2. 3. 4. 5. 6. 7. Women's place is in the home.

Figure 2: Issue preference question wording on TAPS

Ideology: In terms of your political views, do you think of yourself as: [Response Options:] 1. Very liberal, 2. Liberal, 3. Slightly liberal, 4. Moderate, 4. Slightly conservative, 6. Conservative, or 7. Very conservative?

Health Care: Indicate your level of agreement with each statement: The federal health care reform program adopted in 2010 should be repealed. [Response Options:] 1. Strongly agree, 2. agree, 3. neither agree nor disagree, 4. disagree, 5. strongly disagree.

Minority Aid Indicate your level of agreement with each statement: The federal government should support programs designed to help minorities get better jobs and education. [Response Options:] 1. Strongly agree, 2. agree, 3. neither agree nor disagree, 4. disagree, 5. strongly disagree.

Abortion: Indicate your level of agreement with each statement: Federal programs that provide health care benefits should allow funding for abortions. [Response Options:] 1. Strongly agree, 2. agree, 3. neither agree nor disagree, 4. disagree, 5. strongly disagree.

Minimum Wage: Indicate your level of agreement with each statement: The federal government should guarantee a higher minimum hourly wage. [Response Options:] 1. Strongly agree, 2. agree, 3. neither agree nor disagree, 4. disagree, 5. strongly disagree.

Gay marriage Indicate your level of agreement with each statement: The federal government should recognize the validity of a same-sex marriage where state law does. [Response Options:] 1. Strongly agree, 2. agree, 3. neither agree nor disagree, 4. disagree, 4. strongly disagree.

Notes: "Refused" and "Don't know" responses were coded as missing.

Knowledge Networks (now GfK Knowledge Networks). Individuals without Internet access were provided a laptop and internet service. In a typical month, about 1,700 of the panelists complete the online survey. Note that it is possible for panelists to miss some months and subsequently re-enter the panel. More technical information about the survey is available at `taps.wustl.edu`.

For our analyses below, we identified five policy-specific question asked to TAPS panelists that were as similar as possible to the items from the ANES. The relevant items are shown in Figure 2. The issue-specific questions are part of a broader battery on policy preferences that were asked simultaneously across multiple waves. Questions on basic ideological orientation and party identification, however, were also asked frequently, but not always as part of the same wave. Additional details about sample sizes and the questions included on each wave are shown in Appendix Table SI-1. Basic descriptive statistics for all issue-specific questions, ideology, and party identification are shown in Appendix Tables SI-10, SI-11, and SI-12.

3.1. *Methodological concerns*

A great deal of the debate surrounding preference stability and coherence has focused on difficult methodological questions about the appropriate way to model survey responses. The core controversy is how to empirically distinguish between "error" – variations in survey response *not* related to underlying preferences – and preference instability. Early researchers

Table 1: Kendall's rank correlations (τ) of preferences across survey waves in the 1972-1974-1976 ANES panel

	Observed τ's		
	1-2	2-3	1-3
Party ID	0.65	0.69	0.65
Ideology	0.51	0.55	0.48
Health Care	–	–	0.42
Minority Aid	0.41	0.46	0.38
Jobs	0.39	0.41	0.36
Abortion	–	–	0.56
Women's Place	0.42	0.50	0.43

All parameters estimated using pairwise complete observations.

Table 2: Kendall's rank correlations (τ) between preferences in the 1972 wave of the ANES 1972-1974-1976 panel

	Health Care	Minority Aid	Jobs	Abortion	Women's Place
Health Care	–				
Minority Aid	0.18	–			
Jobs	0.27	0.31	–		
Abortion	0.05	0.09	-0.02	–	
Women's Place	0.07	0.14	0.03	0.20	–

All parameters estimated using pairwise complete observations. The Abortion item was reverse-coded.

focused primarily on correlation coefficients between individuals' responses to the same questions asked at different times (a measure of stability) and correlations between responses to multiple survey items (a measure of constraint). Indeed, Converse's initial finding was largely based on the very modest levels of correlation revealed in such analyses.

As an example, Table 1 shows estimated rank-order correlations between responses in the 1972-1974-1976 ANES panel study for the question-items shown in Figure 1 as well as party identification. The table shows that responses to the same question over time are only modestly correlated, with only party identification crossing the 0.60 threshold. In several cases, correlations are below 0.4, which is a very modest level of correlation indeed. For instance, of those who responded in category '1' (Government should help minority groups) on the question about aid to minority groups in 1972, over 25% of respondents answered in the '4' category or above in 1976 and over 10% answered '7' (Minority groups should help themselves).

Likewise, Table 2 shows the rank correlations between the five policy preferences as measured in the 1972 wave alone. Here we see quite modest levels of correlations between

preferences across domains, with only one coefficient even crossing the 0.30 threshold and five out of ten being less than 0.10

Faced with evidence such as this, Converse (1964) concluded that, "these ... data offer eloquent proof that signs of low constraint among belief elements in the mass public are not products of well knit but highly idiosyncratic belief systems, for these beliefs are extremely liable for individuals over time" (p. 47). However, other scholars were quick to point out that this approach – using raw correlation statistics – fails to isolate instability in the *survey response* from the instability in the *underlying preferences*. Subsequent work aimed to calculate "adjusted" correlations that distinguished between preference instability and more mundane measurement error associated with the survey process (e.g., Achen 1975; Erikson 1979). These models – largely variants of Wiley and Wiley (1970) estimators – test how much survey responses to a single item (e.g., party ID) correlate across panel waves and divide any instability into either meaningful changes (i.e., instability) or meaningless error.

Other scholars have addressed this same question by using multiple survey items to measure an underlying preference, which again is designed to help researchers distinguish between instability in the true underlying preferences and measurement error. A recent demonstration is Ansolabehere et al. (2008), which takes multiple question items from the ANES to estimate broad latent dimensions such as "moral issues," "economic issues," and "racial issues." They show that these broader constructs are stable over time.

Confirmatory factor analysis (CFA) of multiple item scales has also been used to gain at least some traction regarding measurement error caused by the survey process or question item wording. Perez (2011), for instance, proposes a multiple indicators multiple cause (MIMIC) model to account for measurement error and survey-level language effects on survey responses. After the variance of multiple item scales has been accounted for by a basic CFA measurement model, MIMIC incorporates individual-level covariates (e.g., the language in which a survey is conducted) to model measurement error in responses. That is, in this approach the researcher aims to detect whether specific items contain more error as a function of known covariates, even if the underlying measurement model itself remains constant.

A related approach, and one which we extend in our final section below in our study of political sophistication, is to imagine that the underlying measurement model may be entirely distinct across known groupings in the populations (e.g., individuals who took a survey in English versus those who took it in Spanish). Scholars such as Perez and Hetherington (2014) and Davidov (2009) use multi-group confirmatory factory analysis (MGCFA) to examine survey scale validity. By comparing the structure of loading for multi-item scale structures across sub-groups that should be theoretically similar, conceptualization distinctions and potential measurement problems in scales can be tentatively identified.

We deviate from past studies in three important ways. First, in many cases (e.g., party identification), scholars only have a single indicator or are uncomfortable with the assumption that multiple indicators necessarily load on a single latent dimension. Thus, while it is possible to combine multiple indicators to measure broader policy preferences, we wish to show that responses to *single-item questions* are themselves stable and increasingly coherent. Second, the methods described above have almost exclusively focused on the degree to which preferences change over time. In contrast, we aim to *also* explore the degree to which distinct preferences are correlated. Third, approaches such as the MIMIC or MGCFA models mentioned above model how specific items may relate differently to the underlying trait as a function of individual-level (i.e., respondent) factors. Although closely related, the approach we take below instead models how the *same* item behaves differently as a function of time – an item-level characteristic. Specifically, by fitting this same measurement model in three distinct time periods, our approach demonstrates considerable change in the structure and consistency of public opinion from the 1970s to the present. Indeed, the results below show there has been an increase in preference consistency over this time period.[7]

3.2. *Multi-trait multi-method (MTMM) confirmatory factor analysis*

*Model basics:*MTMM models provide an intuitive and flexible approach to simultaneously evaluating preference stability and constraint in the presence of potentially correlated measurement error introduced in panel surveys.[8] While MTMM analysis is more common in psychology (e.g., Krosnick et al. 1993), sociology (e.g., Bollen and Paxton 1998), and education (e.g., Wu and Chen 2010), it is relatively rare in published political science research and may be unfamiliar to many readers (but see Sullivan and Feldman 1979; Andrews 1984; Saris and Sniderman 2004; Bakker 2009).[9]

For survey respondent i answering question j asked at time t, we assume that the survey response can be modeled as a linear function:

$$x_{ijt} = \beta\xi_{ij} + \epsilon_{ijt}, \tag{1}$$

where ξ_{ij} is the true value of the underlying preference of respondent i, and $\epsilon_{ijt} \sim N(0, \delta_{jt}^2)$ is the "error" in the survey response.

Intuitively, β represents the degree to which answers across waves covary with a single stable preference.[10] That is, low values of β indicate that survey responses are not highly

[7]This is particularly relevant as the study most similar to our own (Judd and Milburn 1980) necessarily relied on only data from the 1970s panel.

[8]See van der Veld and Saris (2005) for a similar argument.

[9]We certainly are not the first to suggest using MTMM techniques on survey data (e.g., Andrews 1984; Saris and Van Meurs 1990). For a recent review of MTMM techniques on public opinion surveys, see Scherpenzeel and Saris (2007).

[10]We assume here that preferences are stable across waves. It is, of course, possible that preferences may themselves change. However, we make the more stringent assumption that systematic changes in survey

correlated to any fundamental and stable preferences (ξ_{ij}). Further, δ_{jt} is an estimate of the level of "error" that is associated neither with respondent's true preferences nor with time/wave specific factors. Higher values of δ_{jt} indicate that the survey response exhibits significant residual variation that cannot be attributed to stable preferences.

Thus, ξ_j is the measure of respondents' "true" underlying traits on issue j. Therefore, $\Xi = (\xi_1, \xi_2, \ldots, \xi_J)$ is the matrix of all respondents' preferences on all J issue areas, and $Cov(\Xi)$ provides estimates of the degree to which preference are coherently organized. That is, higher levels of covariance indicates higher levels of constraint.[11]

A final consideration is that there may exist "method effects" associated with a specific panel wave or time period. There are many reasons why survey responses might be systematically biased in different waves of a panel. For instance, changes in social and political contexts may alter what considerations are salient and available to individuals when they provide responses to survey questions. Thus, saliency effects resulting from idiosyncratic current events may systematically shape survey responses (Zaller 1992b).

The presence of panel effects suggest that, for instance, $Cov(\epsilon_{jt}, \epsilon_{kt}) \neq 0$, for some survey question j and k as measured on panel wave t.[12] In words, survey responses across preference domains may be correlated because survey responses *across issue areas* are affected in the same way by the survey process itself. Failing to account for this so-called "correlated uniqueness" may result in biased estimates of β and $Cov(\Xi)$ (Kenny 1979; Marsh 1989).

To handle these issues, we implement an MTMM model commonly referred to as the correlated traits correlated uniqueness (CTCU) model (Kenny 1979; Marsh 1989).[13] The advantage of CTCU variant of MTMM is that it makes no assumptions about the relationship between various panel-wave effects nor does it assume that the panel waves have an identical effect across all items and traits. In addition, the CTCU model has been shown to be far less likely to converge on an improper solution with more limited data than its alternatives.[14]

A graphical depiction of the model for the 1970s is shown in Figure 3. In this model, we allow items repeated over waves to load on a single underlying factor (e.g., abortion). The standardized trait-factor loadings indicate the degree of temporal stability associated with each trait with complete stability represented by numbers approaching unity. We also

response are due to error, which should tend to *underestimate* preference stability and work against our stated hypotheses.

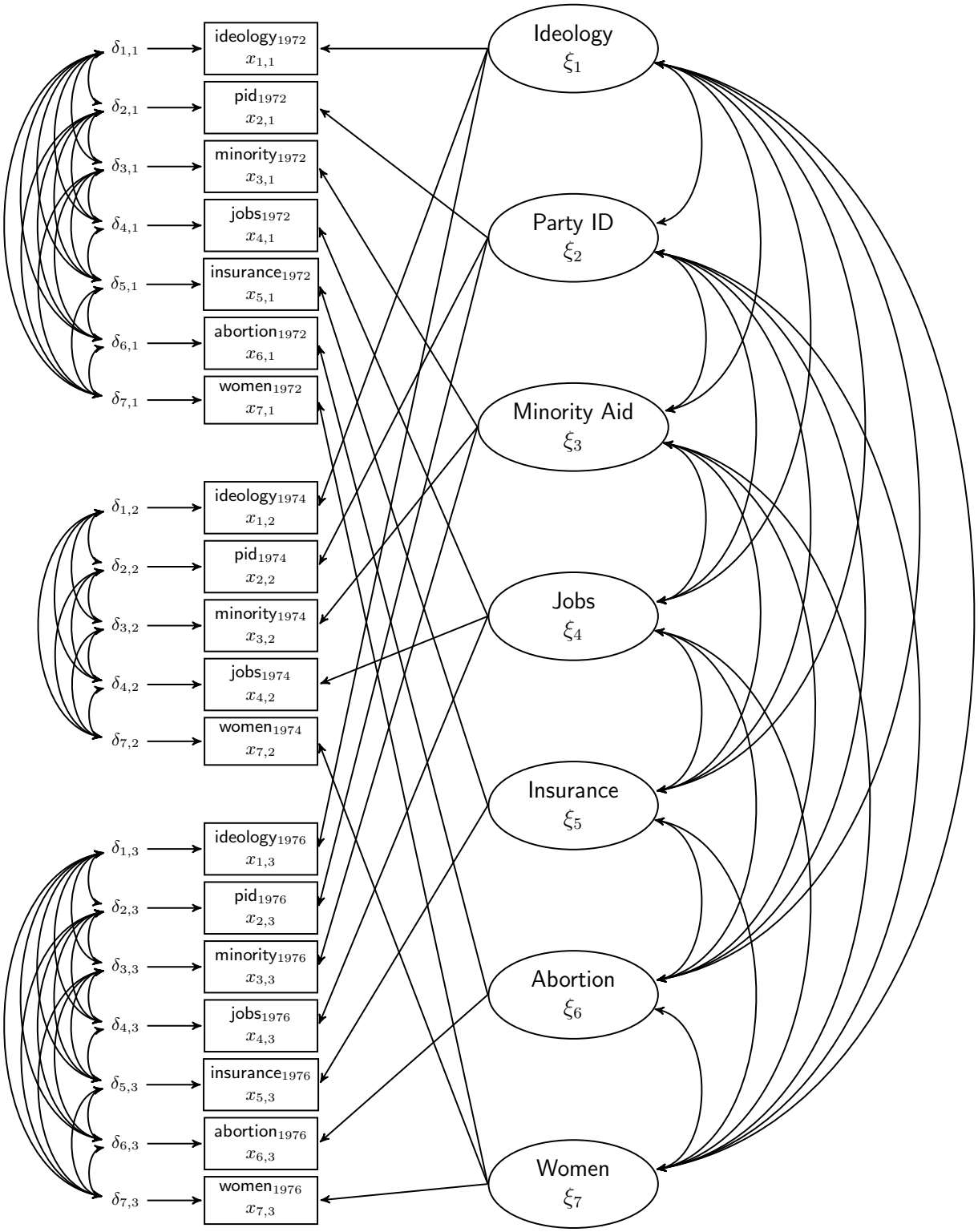
[11] We identify our models by specifying that $Var(\xi_j) = 1$, which sets the scale for the latent trait. Thus, the elements of the covariance matrix, $Cov(\Xi)$, can be interpreted as the correlation between true preferences.

[12] More formally, we let $\delta_{jk,t} = Cov(\epsilon'_{j,t}, \epsilon'_{k,t})$, where ϵ' is error in the survey process unrelated either to the true preference or with the method effect. Using this notation, $\delta_{jt} = \sum_k^K \delta_{jk,t} \forall k \in [1, \ldots, J]$

[13] For excellent overviews of MTMM models, see Kenny and Kashy (1992) and Marsh and Grayson (1995).

[14] In Table SI-9, we show that our results do not differ significantly when specified using an alternative MTMM framework.

Figure 3: MTMM model of stability and constraint for the 1970-1972-1974 ANES panel



allowed each of the seven latent traits to be correlated, with larger numbers indicating greater constraint. Finally, the residuals for all items within a panel wave were allowed to correlate to account for potential measurement error associated with each panel wave.

Discussion: The panel design, which measures the same trait on several panel waves, provides the leverage needed to generate estimates of all of the parameters in Figure 3. Indeed, panel surveys are an ideal setting for applying MTMM models. One reason MTMM analyses are rare is that they require more observations,[15] more methods of measurement, and more traits per method than are available in, for example, standard political psychology datasets. Public opinion researchers, however, have relatively large sample sizes, and surveys often include more latent concepts in any given instrument than is the case in other settings such as expert codings (e.g., Bakker 2009).

Our empirical approach improves upon past research in three important ways. First, it does not require the use of multiple question-items measuring a broader latent preference. The wider literature seems to place a heavy emphasis on combining multiple questions to create broader scales. Ansolabehere et al. (2008), for instance, state that conclusions about the instability of preferences are "driven largely by measurement error associated with the analysis of individual survey items" (p 215). Likewise, Judd and Milburn (1980) evaluate preference constraint by estimating how issues load onto a single ideological dimension.

In contrast, we argue that the conclusion of instability and non-constraint is incorrect even when only looking at a single item. That is, imposing a specific ideological structure onto voters is not necessary since we are able to show that responses to individual questions are themselves constrained and stable over time. Indeed, we impose no structure at all on the data other than to allow that responses to the same question across time periods *may* be correlated and, where they are not, that errors across survey items on the same panel wave *may* be correlated.

Second, the MTMM modeling approach provides *simultaneous* estimates of the over-time stability and interrelationships of multiple preferences across domains. We do not simply focus on how preferences are correlated with broader issue domains such as ideology and partisan identification, but also explore the degree of ideological consistency across domains such as abortion policy and government-backed health insurance. We believe that this allows us to speak more strongly to the degree of ideological thinking in the public where issues in nearly all domains are expected to be correlated.

More practically, we are able to use several options available in modern statistical packages unavailable to previous generations of scholars who examined these questions. Specif-

[15]Some suggest a minimum of four traits and three methods and a sample size greater than 250 (Marsh and Grayson 1995; Nussbeck et al. 2006).

ically, we make appropriate corrections for survey weights, missing data, and the ordinal nature of the responses. This contrasts, for instance, with the model estimated by Judd and Milburn (1980) which uses only the 1970s ANES panel respondents who provided answers to all of the questions, approximately 35% of the sample. Indeed, in that study the sample is further broken into elite (n=143) and nonelite (n=203) sub-samples for actual parameter estimation, leading the authors themselves to note that "generalizations from our results should be tentative" (p 632).

4 RESULTS

We fit the CTCM MTMM model shown in Figure 3 for the 1970s ANES panel (n=1,290) and 1990s ANES panel (n=1,301), and 2011-2014 TAPS panel (n=2,126) separately. Because of the categorical nature of the variables used in our analyses, all of the models are estimated using robust weighted least squares (WLSMV) in MPLUS (version 6.12). All of the models converged with acceptable goodness-of-fit measures, which are reported in Table SI-6 in the Appendix.

4.1. *Over-time preference stability*

We begin by exploring preference stability over the course of the panels. If preferences are stable, responses to an issue question asked in different years will all load strongly on the underlying issue latent trait. We interpret any standardized factor loadings of 0.6 or above as sufficiently strong to support our hypothesis, which is a standard minimal threshold (standardized scores range from 0 to 1).[16] To provide a baseline for comparison, we also include the standard measure of party identification, which is widely viewed as being among the most stable attitudes (Green et al. 2002). Figure 4 provides the trait-factor loadings and 95% confidence intervals for all three panels.[17]

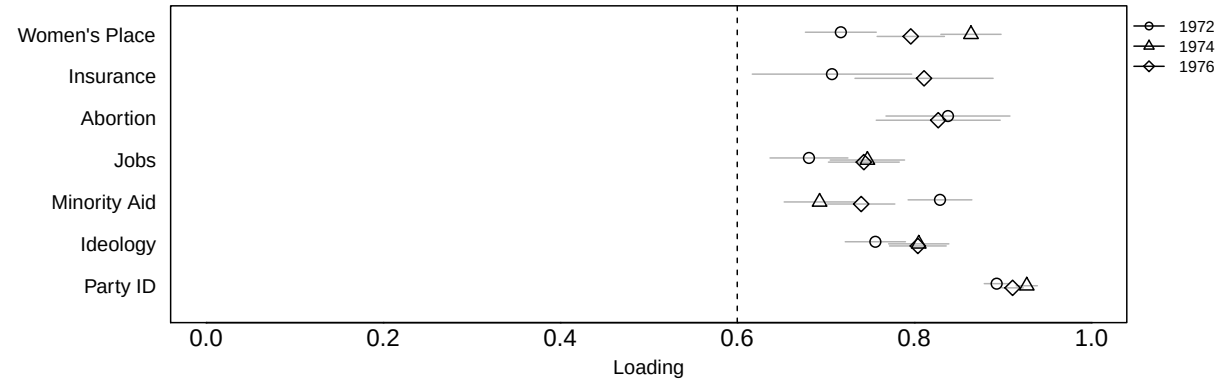
The results in Figure 4 shows clearly that stable preferences do exist, strongly supporting Hypothesis 1. Even when asked their opinion years apart, responses tend to load strongly on each preferences' specific trait factor. This suggests that the underlying preferences – independent of measurement error – are stable. All factor loadings are statistically distinguishable from the 0.6 threshold. Indeed, for all but two cases case (Jobs in 1974 and Insurance in 1972) the factor loadings are greater than 0.7. The average point estimate for the loadings (excluding party identification) is 0.772 for the 1970s panel, 0.802 for the 1990s panel, and .897 for the TAPS panel. This compares with average loadings of 0.910, 0.915,

[16]While 0.6 is a somewhat arbitrary cutoff, we also attempt to define stability in more relative terms by comparing all issue factor loadings to the loadings of party identification, an attitude that has been conclusively acknowledged as highly stable (Green et al. 2002). If issue factor loadings are similar in magnitude as party identification, we can claim with more certainty that they are stable.

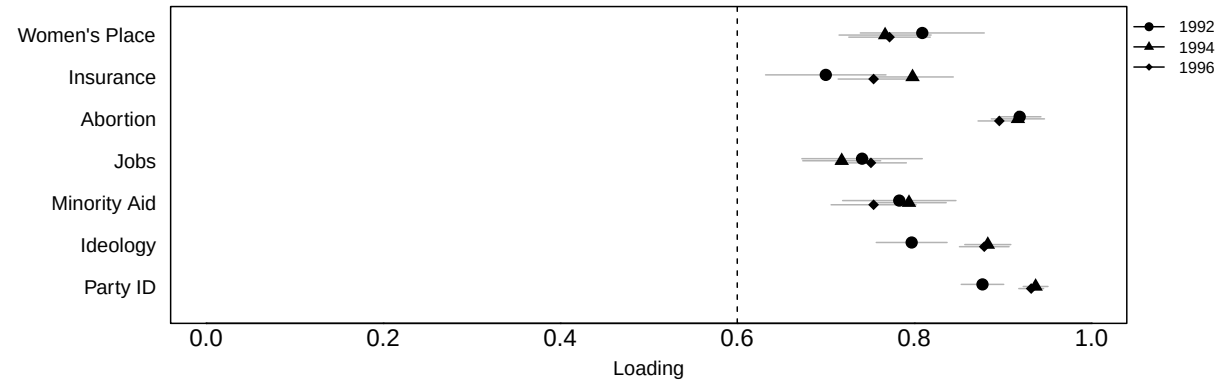
[17]Full results for factor loadings are provided in Appendix SI: 2.

Figure 4: Preference stability: Factor loadings by wave

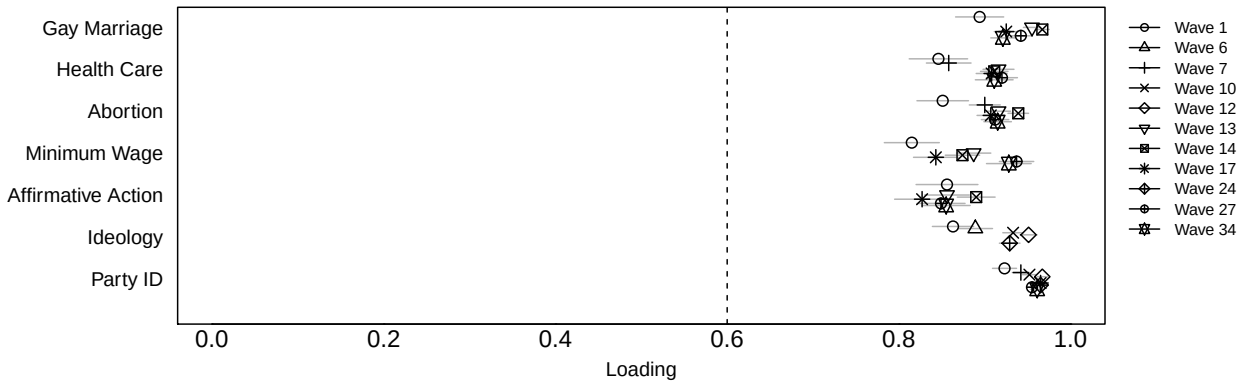
(a) 1972-1974-1976 ANES Panel



(b) 1992-1994-1996 ANES Panel



(c) 2011-2014 TAPS Panel



Point estimates and 95% confidence intervals for factor loadings. All parameter estimates, standard errors, and model fit stat statistics are supplied in the Appendix. The dashed line shows the 0.6 cutoff typically recommended for "strong" factor loadings.

and 0.958 for the Party ID questions on the corresponding panels, indicating that while Party ID is quite stable, it is unique in this respect.

The stability of preferences does vary by issue-domain. For instance, loadings in the 1970s range from 0.893 to 0.911 for partisan identification and from 0.668 to 0.747 for the beliefs about the government's role in creating jobs. However, it is notable that some issue positions are nearly as stable as partisanship. For instance, in the 1990s panel, the factor loadings for the abortion issue range from 0.896 to 0.919 and the loadings for preferences on gay marriage in the 2011-2014 panel ranges from 0.894 to 0.967.

4.2. *Consistency and constraint*

To test Hypothesis 2, preference constraint will be examined through two routes. First, if preferences are constrained, error-cleaned factors derived from the MTMM model for individual issue preferences are expected to be moderately (above 0.3) or strongly correlated (above 0.6) with each other. Second, if constraint is present, individual issue preference factors will be strongly correlated with the more abstract and organizing preferences of party identification and liberal-conservative ideology.

The correlations among partisanship, ideology, and issue positions are shown in Table 3. If preferences are consistent, we would expect moderate to high correlation among the partisanship, ideology, and issue-position traits. In general, this is precisely what we find, although there are some important caveats. For all respondents, irrespective of time period, the correlation between party identification, ideology, jobs/minimum wage, and health insurance/health care are moderately to highly correlated ($r > 0.36$ in all cases).

Notably, this consistency is not constant across preference domains. For instance, preferences about abortion and women's role in society are almost entirely uncorrelated with the other traits in the 1972-1974-1976 panel. The 1972-1974-1976 correlations in Table 3 show abortion is only weakly related to ideology (0.207), and it appears to have an incorrectly signed relationship with partisanship (-0.120). This corresponds to what we know about the abortion issue, which was not heavily partisan during this period (Adams 1997).

Critically, however, Table 3 shows that consistency has increased substantially since the 1970s according to our expectations, strongly supporting Hypothesis 2. Comparing the inter-trait correlations between the 1970s ANES panel, the 1990s ANES panel, and the 2011-2014 TAPS panel, we see that there has been substantial increased level of constraint in nearly every domain. For instance, the correlation between party identification and ideology jumps from $r = 0.525$ in the 1970s to $r = 0.756$ in the 1990s and $r = 0.795$ in the 2010s. This sharp increase in consistency is particularly evident in the area of abortion. In the 1972-1974-1976 panel, abortion correlates with ideology at $r = 0.218$, but in the 1992-1994-1996 panel, the correlation between abortion and ideology increases to $r = 0.555$. Further, while we must

Table 3: Between-factor loadings for the 1972-1974-1976 ANES panel, the 1992-1994-1996 ANES panel, and the 2011-2014 TAPS panel

	Party ID	Ideology	Jobs	Insurance	Minority Aid	Abortion	Women
1972-1974-1976 ANES							
Party ID	1.00						
Ideology	0.519	1.00					
Jobs	0.362	0.624	1.00				
Insurance	0.374	0.544	0.614	1.00			
Minority Aid	0.233	0.580	0.725	0.463	1.00		
Abortion	-0.120	0.207	-0.043†	0.048†	0.111	1.00	
Women	0.058†	0.425	0.125	0.154	0.36	0.461	1.00
1992-1994-1996 ANES							
Party ID	1.00						
Ideology	0.677	1.00					
Jobs	0.564	0.516	1.00				
Insurance	0.560	0.567	0.748	1.00			
Minority Aid	0.408	0.502	0.653	0.466	1.00		
Abortion	0.196	0.538	0.076	0.206	0.139	1.00	
Women	0.207	0.536	0.212	0.276	0.223	0.580	1.00

	Party ID	Ideology	Min. Wage	Health Care	Aff. Action	Abortion	Gay Mar.
2011-2014 TAPS							
Party ID	1.00						
Ideology	0.795	1.00					
Min. Wage	0.633	0.611	1.00				
Health Care	0.765	0.780	0.620	1.00			
Aff. Action	0.596	0.546	0.684	0.574	1.00		
Abortion	0.522	0.687	0.436	0.629	0.332	1.00	
Gay Mar.	0.505	0.708	0.408	0.615	0.338	0.743	1.00

†Indicates correlation parameters are insignificant ($p > 0.05$).

be cautious due to changes in the question wording in the TAPS panel, abortion preferences appear to correlate with ideology in the 2011-2014 period even more highly at $r = 0.687$.

4.3. *Differences across levels of sophistication*

The previous results have shown that public preferences are far more stable and constrained than the textbook vision of public opinion would suggest. The next question, however, is whether these results are largely or even mostly the result of political sophisticates. To test whether preference structures are stable and constrained across levels of political sophistication, we estimate a series of nested models to test whether the structure and stability of preferences differs by level of sophistication.

Numerous measures of sophistication exist in the literature, but we follow Luskin (1987) and use the external interviewer's evaluation of the respondent's level of political information.[18] Respondents who were rated by the interviewer in 1976 or 1996 as having a fairly high or very high level of information about politics and public affairs are coded as political sophisticates, while all other respondents are placed in the low-sophistication group. If no rating was provided in the 1976 or 1996 wave, we used the most recent rating. Unfortunately, no similar measure exists on the TAPS panel. Here, we instead use respondent's answers to ten political knowledge variables.[19] The top 40% of the population was identified as sophisticates in our analysis below, which corresponds to the proportions in the ANES panels.[20]

To compare the structure of preferences across groups, we first estimate a combined (what we term *fully constrained*) model in which all estimated parameters are constrained to be equal across sophistication groups.[21] So, for instance, this model assumes that the relationship between party identification and ideology will be identical for both high- and low-sophistication sub-groups. Next, we allow correlated uniquenesses to vary across the two groups. That is, the sophisticated and unsophisticated elements of the population are

[18] Among other advantages, this measure is included for both ANES panels.

[19] The questions ask: which party holds a majority in the U.S. House (POLKNOW1); how many votes are required to override a veto (POLKNOW2); The name or procedure whereby a minority of senators can prevent a vote on a bill (POLKNOW5); the name of the Vice President (POLKNOW6), the maximum length of a presidential term (POLKNOW7), the length of tenure of U.S. Supreme Court Justices (POLKNOW12), the name of the Chief Justice of the United States Supreme Court (POLKNOW13), the function of social security program (POLKNOW17), and the relative size of four federal programs (POLKNOW18). Full question wordings are available in the TAPS documentation at: `http://taps.wustl.edu/files/taps/imce/taps2012byvariable.pdf`.

[20] 1970s Panel: Number of sophisticated =510, Number of unsophisticated =780; 1990s Panel: Number of sophisticated = 551, Number of unsophisticated =750; 2010s Panel: Number of sophisticated = 841, Number of unsophisticated = 1285. Note that if a respondent did not respond to the question the first time the question was asked, the response to that factual question on the next available wave was used instead.

[21] For recent work using multiple group analysis, see Carsey and Layman (2006); Perez (2009); and DeSante and Smith (2012).

allowed to have different within-panel correlated errors in their preferences.[22] Third, inter-trait correlations across sophistication groups are allowed to vary, which indicates different degrees of preference constraint across the two groups. Finally, in the fully unconstrained model, the factor loadings for the underlying traits are allowed to differ across groups, which suggests differing levels of preference stability.

As these are each nested models, we can perform a χ^2 test to see if model fit is improved by adding constraints. The model fit comparison test results are shown in Appendix SI: 3. In every case, the *least* constrained model provides a better fit to the data. That is, political sophisticates do indeed appear to differ in the degree of preference stability and consistency.[23]

These results, however, only indicate that the various factor loadings and inter-trait correlations are statistically distinct for high-sophisticates and low-sophisticates. This, however, is not the relevant question. Rather, we are interested in understanding if the level of stability and constraint is unusually high (low) for sophisticated (nonsophisticated) respondents. To answer this, we first look at the factor loadings estimated for each group in all three surveys. Standardized factor loadings for both groups are shown in Figure 5. The inter-trait correlations for the sophistication subpopulations are displayed in Table 4 (1970s panel), Table 5 (1990s panel), and Table 6 (2010s panel).

The results in Figure 5 indicate that while respondents who are politically unsophisticated do on average have less stable preferences – indicated by lower factor loadings – this difference is neither uniform nor dramatic. First, and most critically, at an absolute level these factor loadings are relatively strong, with only one parameter estimate (Insurance in 1992) falling below the 0.6 threshold. More commonly, factor loadings for the non-sophisticated group are in the 0.70-0.90 range. (Full tables for these results are shown in Appendix Tables SI-4 and SI-5.)

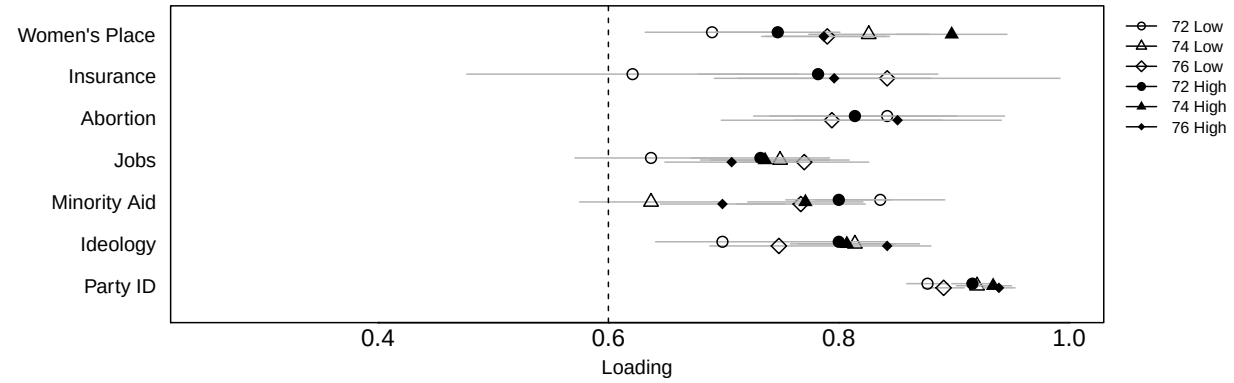
Second, the factor loadings are not even uniformly greater for sophisticates than non-sophisticates in the ANES panels, although this is more generally true in the TAPS survey. While the factor loadings differ across groups, there is no pervasive pattern of greater stability among sophisticates. High-sophisticates have more stable responses to questions about partisanship and ideology, but this pattern does not hold for questions about specific policy areas. For example, preference stability about government aid to minorities are almost indistinguishable between levels of sophistication. Indeed, almost all of the differences are small relative to the measures of uncertainty, as shown by the error bars associated with each

[22]The correlated errors matrices are available from the authors upon request.

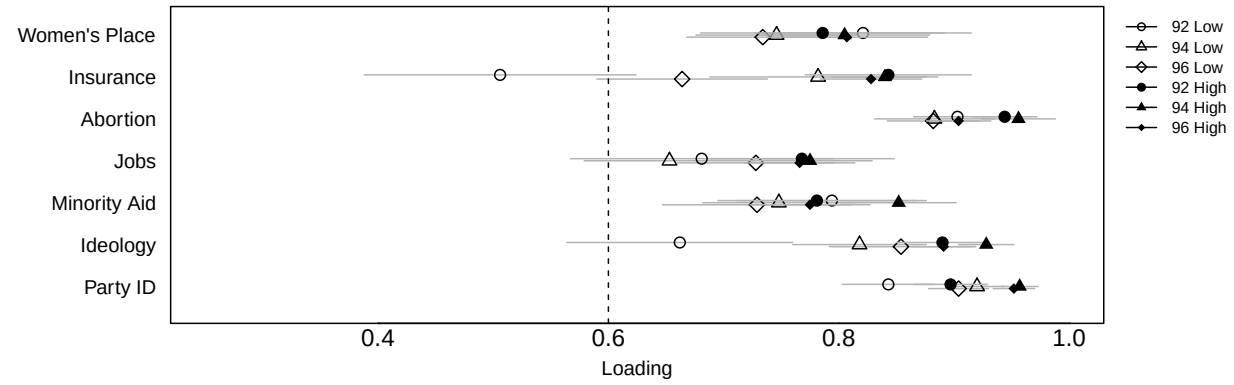
[23]It would also be possible to allow the threshold parameters needed to correctly handle the ordered categorical indicators to vary between groups. However, we had no theoretical expectations for allowing these parameters to differ, and we do not believe that such differences would have any interpretable meaning.

Figure 5: Preference stability: Factor loadings by level of sophistication and wave

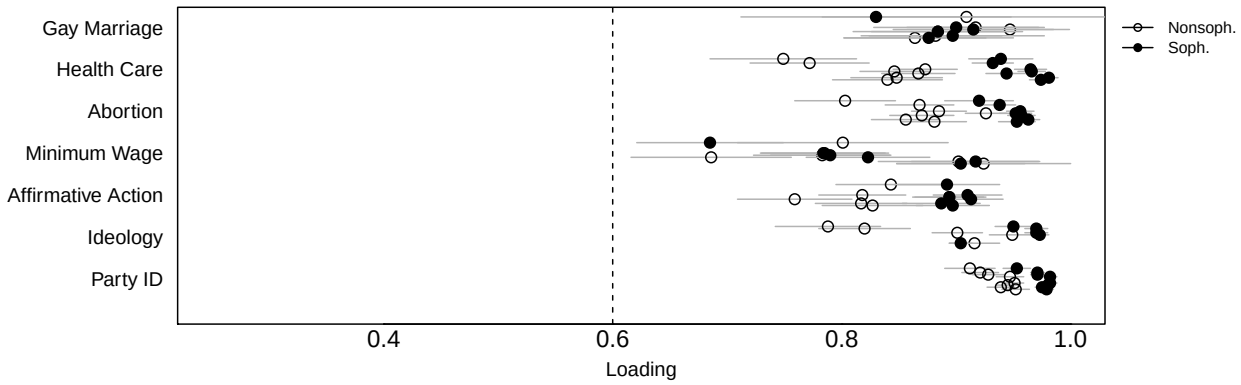
(a) 1972-1974-1976 ANES Panel



(b) 1992-1994-1996 ANES Panel



(c) 2011-2014 TAPS Panel



Point estimates and 95% confidence intervals for factor loadings. All parameter estimates, standard errors, and model fit stat statistics are supplied in the Appendix. The dashed line shows the 0.6 cutoff typically recommended for "strong" factor loadings.

estimate. We are left to conclude that while there are some *differences* in preference stability across groups, the evidence suggests that these differences are substantively inconsequential once we have accounted appropriately for measurement error (see also Goren 2004).

On the other hand, Tables 4, 5, and 6 show that there are systematic differences in preference consistency between groups. The inter-trait correlations are, with only a few exceptions, higher for the high-sophisticated group. For instance, the correlation between partisanship and ideology in the 1990s was only 0.524 for low-sophisticates, while it is 0.790 for politically sophisticated respondents. Although not all of these differences are individually statistically significant, the model comparison tests in the Appendix show that, in combination, there are important and statistically significant differences between the structure of preferences of these groups. That is, a joint test indicates that these factor loadings are distinguishable across groups.

Note, however, that the patterns of correlations do not suggest that individuals in the low sophistication group have **no** consistency in their preferences, but rather that consistency operates differently. For instance, the association between issue positions and party identification is dramatically lower among low-sophisticates in the 1970s panel. On the other hand, the evident consistency between individual issues (e.g., Jobs and Minority Aid, or Abortion and Women's Role) are nearly equivalent across sophistication groups.

With that said, for our purposes the most relevant feature of Tables 4-6 is the increase in constraint across time periods.[24] For instance, the correlation between preferences on ideology and abortion policy amongst low sophisticates was $r = 0.167$ in the 1970s, $r = 0.529$ in the 1990s, and $r = 0.590$ in the 2010s. In general, the correlation of preferences in diverse areas can be characterized as "moderate to strong" by the 2010s among both sophisticates (min=0.525, max=0.875) and non-sophisticates alike (min=0.205, max=0.721), although clearly the level of constraint is much higher in the former group. This represents a significant increase from the 1970s when correlations were mostly modest among non-sophisticates (min=-0.138, max=0.531), and still modest in many cases among high sophisticates (min=-0.058, max=0.716).

Notably, a number of issues that were once less associated with ideology and partisanship have become associated over time – especially among highly sophisticated voters. We have already noted the changing position of abortion preferences in the constellation of public preferences. Another example, however, is preferences towards the government's role in aid-

[24]Caution is needed in comparing the specific coefficients in these tables. To identify these models, we set the trait variance to unity. Thus, the parameter estimates in the two models are not strictly comparable as they were not set to the same scale. The coefficients can be interpreted as the level of correlation between preferences, however, the underlying level of variation on these preferences may difference across populations and samples.

Table 4: Multiple group analysis between factor loadings: 1972-1974-1976

		Party ID	Ideology	Jobs	Insurance	Minority Aid	Abortion	Women
Unsophisticated Sophisticated	Party ID	1.00						
Unsophisticated Sophisticated	Ideology	0.419 0.605	1.00					
Unsophisticated Sophisticated	Jobs	0.271 0.470	0.528 0.716	1.00				
Unsophisticated Sophisticated	Insurance	0.262 0.494	0.463 0.609	0.531 0.703	1.00			
Unsophisticated Sophisticated	Minority Aid	0.170 0.337	0.509 0.659	0.716 0.765	0.376 0.590	1.00		
Unsophisticated Sophisticated	Abortion	-0.138 -0.058†	0.180 0.238	-0.126 0.147	-0.005† 0.213	0.068† 0.149	1.00	
Unsophisticated Sophisticated	Women	0.061† 0.096†	0.422 0.430	0.087† 0.230	0.169 0.199	0.324 0.389	0.413 0.450	1.00

†Indicates correlation parameters are insignificant ($p > 0.10$).

Table 5: Multiple group analysis between factor loadings: 1992-1994-1996

		Party ID	Ideology	Jobs	Insurance	Minority Aid	Abortion	Women
Unsophisticated Sophisticated	Party ID	1.00						
Unsophisticated Sophisticated	Ideology	0.524 0.790	1.00					
Unsophisticated Sophisticated	Jobs	0.459 0.636	0.300 0.669	1.00				
Unsophisticated Sophisticated	Insurance	0.467 0.622	0.410 0.655	0.707 0.765	1.00			
Unsophisticated Sophisticated	Minority Aid	0.318 0.518	0.318 0.636	0.548 0.800	0.380 0.579	1.00		
Unsophisticated Sophisticated	Abortion	0.094† 0.400	0.523 0.593	-0.031† 0.301	0.100 0.385	0.022† 0.261	1.00	
Unsophisticated Sophisticated	Women	0.153 0.321	0.554 0.547	0.164 0.364	0.192 0.400	0.150 0.305	0.481 0.682	1.00

†Indicates correlation parameters are insignificant ($p > 0.10$).

Table 6: Multiple group analysis between factor loadings: 2011-2014

		Party ID	Ideology	Min. Wage	Health Care	Aff. Action	Abortion	Gay Marriage
Unsophisticated Sophisticated	Party ID	1.00						
Unsophisticated Sophisticated	Ideology	0.721 0.875	1.00					
Unsophisticated Sophisticated	Min. Wage	0.526 0.802	0.454 0.808	1.00				
Unsophisticated Sophisticated	Health Care	0.697 0.876	0.708 0.869	0.444 0.851	1.00			
Unsophisticated Sophisticated	Aff. Action	0.532 0.693	0.429 0.673	0.594 0.787	0.470 0.761	1.00		
Unsophisticated Sophisticated	Abortion	0.400 0.676	0.590 0.786	0.263 0.683	0.509 0.751	0.205 0.525	1.00	
Unsophisticated Sophisticated	Gay Marriage	0.347 0.685	0.597 0.797	0.238 0.669	0.458 0.721	0.216 0.820	0.627 0.517	1.00

†Indicates correlation parameters are insignificant ($p > 0.10$).

ing minority groups. In the 1970s panel, these preferences were correlated with partisanship at $r = 0.337$ amongst high-sophisticates and 0.170 among low-sophisticates. By the 1990s, however, the correlation between partisanship and preferences towards programs that aid minorities was $r = 0.318$ for low-sophisticates and $r = 0.518$ for high-sophisticates. By the 2010s, now using a question measuring preferences towards affirmative action, the correlation was $r = 0.532$ for low-sophisticates and $r = 0.693$ for high-sophisticates.

Altogether, these findings speak to the literature on the changing levels of polarization and constraint in the mass electorate (Abramowitz and Saunders 1998; Fiorina 2005; Levendusky 2009). Specifically, while our results cannot speak to whether the level of polarization in public preferences has increased, they do provide a stark demonstration of the degree to which ideological thinking has spread in both its scope and significance. This suggests that the findings of low levels of ideological thinking in the textbook model of public opinion may in part reflect the political environment of the middle decades of the 20th century rather than a durable feature mass public attitudes.

5 CONCLUSION

At the heart of democratic governance lies the assumption of a public with issue preferences that are relatively stable and organized. Preferences serve as a basis for the public's evaluations of candidates and elected officials, and they structure elite competition, debate, and discourse. Without issue preference stability and constraint, electoral and political institutions that purport to link the public with elite actions have little or no substance. For representation and accountability to exist, a degree of systematic organization and persistence is required of mass preferences.

Perhaps it is for this reason the vigorous debate regarding the existence and degree of preference stability and constraint continues to draw scholarly attention. Despite decades of research, the conventional wisdom about the structure and dynamics of mass preferences continues to be refined and reframed. In this article, we contributed to this debate by providing additional evidence that the caricature of randomly fluctuating public opinion is outdated and incorrect. Using a multi-trait multi-method (MTMM) confirmatory factor analysis model, we examined the broad structure of issue preferences while simultaneously accounting for many forms of measurement error. When random and systematic error are removed from measures of issue preferences, we showed that preferences are stable – at times comparable to the stability of party identifications. Further, the public's preferences are clearly organized in a meaningful fashion, and this level of coherence has increased significantly over time. Finally, this pattern of stable preferences paired with increasing levels of constraint exist for both sophisticated and non-sophisticated voters alike.

Methodologically, our use of a MTMM model to examine preference stability and constraint has two clear advantages over previous methods. First, when applied to panel data, it is extremely flexible, as it can account for both random error and correlated time-dependent errors – even when a trait is measured by a single item. Second, the MTMM models allow for simultaneous unbiased estimates of correlated error within a panel wave, stability over time, and item-level random error in one model. This coherent method allows us to understand the overall temporal and spatial nature of items with greater clarity and ease.

By applying MTMM methods to panel survey data, our overall results provide evidence against the received wisdom that mass preferences are chaotic and unorganized. When preferences are estimated using an appropriate measurement model, order and stability emerge. Moreover, this order is not caused by a small contingent of informed and sophisticated citizens. Instead, people who are both low and high on levels of information about politics and public affairs maintain relatively similar levels of preference stability. Furthermore, we find that both sub-populations maintain consistently related preferences, although the nature of the consistency differs across the two sub-groups. In addition, we showed that, over time, the preferences individuals at all levels of sophistication, but especially low-sophisticate levels, have become more consistently structured. In total, therefore, we found clear evidence that the general public does hold preferences that are sufficiently structured and stable enough to provide a meaningful foundation for democracy and accountability.

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SI: 1 THE AMERICAN PANEL SURVEY

Table SI-1: Question inclusion and sample size by wave

Wave	Date	Sample Size	Party ID	Ideology	Health Care	Minority Aid	Abortion	Minimum Wage	Gay Marriage
1	Nov/Dec 2011	1213	x	x	x	x	x	x	x
3	February 2012 †	1517			x	x	x	x	x
6	May 2012	1417		x					
7	June 2012 ‡	1693	x		x		x		
10	September 2012	1699	x	x					
12	November 2012	1677	x	x					
13	December 2012	1692			x	x	x	x	x
14	January 2013	1652			x	x	x	x	x
17	April 2013	1808	x		x	x	x	x	x
24	November 2013	1663	x	x					
27	March 2014	1669	x		x	x	x	x	x
34	September 2014	1553	x		x	x	x	x	x

† Panel was refreshed with 329 subjects in February 2012.
‡ Panel was refreshed with 329 subjects in June 2012.

Post-stratification weights for this analysis were constructed based on the 2011 current population survey (CPS) population parameters. Weights were constructed using iterative raking and trimming (maximum weight = 5) using level of education, metro area, income, ethnicity, Internet access, age, and gender.

SI: 2 FULL MODEL RESULTS

The tables in this appendix present the coefficients and standard errors displayed visually in the figures in the main text.

Table SI-2: Factor loadings for the 1970s and 1990s ANES panels

	1972	1974	1976	1992	1994	1996
Party ID	0.89	0.93	0.91	0.88	0.94	0.93
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Ideology	0.76	0.81	0.80	0.80	0.88	0.88
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Minority Aid	0.83	0.69	0.74	0.78	0.79	0.75
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Jobs	0.68	0.75	0.74	0.74	0.72	0.75
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
Abortion	0.84		0.83	0.92	0.92	0.90
	(0.04)		(0.04)	(0.01)	(0.01)	(0.01)
Insurance	0.71		0.81	0.70	0.80	0.75
	(0.04)		(0.04)	(0.03)	(0.02)	(0.02)
WomenAll	0.72	0.86	0.80	0.81	0.77	0.77
	(0.02)	(0.02)	(0.02)	(0.04)	(0.03)	(0.02)

Standard errors are in parentheses. All loadings are significant ($p < 0.05$); Models are estimated with WLSMV estimators.

Table SI-3: Factor loadings for the 2011-2014 TAPS panel

	W1	W6	W7	W10	W12	W13	W14	W17	W24	W27	W34
Abortion	0.85		0.90			0.92	0.94	0.91		0.91	0.92
	(0.01)		(0.01)			(0.01)	(0.01)	(0.01)		(0.01)	(0.01)
Aff. Action	0.86					0.86	0.89	0.83		0.85	0.85
	(0.02)					(0.01)	(0.01)	(0.02)		(0.01)	(0.01)
Gay Mar.	0.89					0.95	0.97	0.93		0.94	0.92
	(0.01)					(0.01)	(0.00)	(0.01)		(0.01)	(0.01)
Health Care	0.85		0.86			0.92	0.91	0.91		0.92	0.91
	(0.02)		(0.01)			(0.01)	(0.01)	(0.01)		(0.01)	(0.01)
Ideology	0.86	0.89		0.93	0.95				0.93		
	(0.01)	(0.01)		(0.01)	(0.01)				(0.01)		
Min. Wave	0.81					0.89	0.87	0.84		0.94	0.93
	(0.02)					(0.01)	(0.01)	(0.01)		(0.01)	(0.01)
Party ID	0.92		0.94	0.95	0.97			0.96	0.96	0.95	0.96
	(0.01)		(0.01)	(0.00)	(0.00)			(0.00)	(0.00)	(0.00)	(0.00)

Standard errors are in parentheses. All loadings are significant ($p < 0.05$); Models are estimated with WLSMV estimators.

Table SI-4: Factor loadings for the 1970s and 1990s ANES panel by level of sophistication

	1972	1974	1976	1992	1994	1996
Low-sophistication						
Party ID	0.88	0.92	0.89	0.84	0.92	0.90
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Ideology	0.70	0.81	0.75	0.66	0.82	0.85
	(0.03)	(0.03)	(0.03)	(0.05)	(0.03)	(0.03)
Minority Aid	0.84	0.64	0.77	0.79	0.75	0.73
	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)
Jobs	0.64	0.75	0.77	0.68	0.65	0.73
	(0.03)	(0.03)	(0.03)	(0.06)	(0.04)	(0.03)
Abortion	0.84		0.79	0.90	0.88	0.88
	(0.05)		(0.05)	(0.02)	(0.03)	(0.02)p
Insurance	0.62		0.84	0.51	0.78	0.66
	(0.07)		(0.07)	(0.06)	(0.05)	(0.04)
Women	0.69	0.83	0.79	0.82	0.75	0.73
	(0.03)	(0.03)	(0.03)	(0.05)	(0.04)	(0.03)p
High-sophistication						
Party ID	0.92	0.93	0.94	0.90	0.96	0.95
	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Ideology	0.80	0.81	0.84	0.89	0.93	0.89
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Minority Aid	0.80	0.77	0.70	0.78	0.85	0.78
	(0.02)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
Jobs	0.73	0.74	0.71	0.77	0.78	0.77
	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.02)
Abortion	0.81		0.85	0.94	0.96	0.90
	(0.04)		(0.04)	(0.01)	(0.02)	(0.01)
Insurance	0.78		0.80	0.84	0.84	0.83
	(0.05)		(0.04)	(0.04)	(0.02)	(0.02)
Women	0.75	0.90	0.79	0.79	0.81	0.81
	(0.03)	(0.02)	(0.03)	(0.05)	(0.04)	(0.04)

Standard errors are in parentheses. All loadings are significant ($p < 0.05$); Models are estimated with WLSMV estimators.

Table SI-5: Factor loadings for the 2011-2014 TAPS panel by level of sophistication

	W1	W6	W7	W10	W12	W13	W14	W17	W24	W27	W34
High-sophistication											
Abortion	0.80		0.87			0.89	0.93	0.87		0.86	0.88
	(0.02)		(0.01)			(0.01)	(0.01)	(0.01)		(0.01)	(0.01)
Aff. Action	0.84					0.82	0.89	0.76		0.82	0.83
	(0.02)					(0.02)	(0.01)	(0.03)		(0.02)	(0.02)
Gay Mar.	0.91					0.92	0.95	0.88		0.88	0.86
	(0.06)					(0.03)	(0.03)	(0.03)		(0.03)	(0.03)
Health Care	0.75		0.77			0.87	0.85	0.87		0.85	0.84
	(0.03)		(0.03)			(0.01)	(0.01)	(0.02)		(0.02)	(0.02)
Ideology	0.79	0.82		0.90	0.95				0.92		
	(0.02)	(0.02)		(0.01)	(0.01)				(0.01)		
Min. Wage	0.80					0.79	0.78	0.69		0.90	0.92
	(0.05)					(0.03)	(0.03)	(0.04)		(0.04)	(0.04)
Party ID	0.91		0.92	0.93	0.95			0.95	0.94	0.94	0.95
	(0.01)		(0.01)	(0.01)	(0.01)			(0.00)	(0.01)	(0.01)	(0.01)
High-sophistication											
Abortion	0.92		0.94			0.96	0.95	0.96		0.96	0.95
	(0.01)		(0.01)			(0.01)	(0.01)	(0.01)		(0.01)	(0.01)
Aff. Action	0.89					0.91	0.89	0.91		0.89	0.90
	(0.02)					(0.01)	(0.02)	(0.01)		(0.02)	(0.02)
Gay Mar.	0.83					0.90	0.92	0.88		0.90	0.88
	(0.06)					(0.04)	(0.04)	(0.04)		(0.04)	(0.04)
Health Care	0.94		0.93			0.96	0.97	0.94		0.98	0.97
	(0.01)		(0.01)			(0.01)	(0.01)	(0.01)		(0.00)	(0.01)
Ideology	0.95	0.97		0.97	0.97				0.90		
	(0.01)	(0.01)		(0.01)	(0.00)				(0.01)		
Min. Wage	0.69					0.78	0.79	0.82		0.92	0.90
	(0.03)					(0.03)	(0.03)	(0.03)		(0.03)	(0.03)
Party ID	0.95		0.97	0.97	0.98			0.98	0.98	0.97	0.98
	(0.01)		(0.00)	(0.00)	(0.00)			(0.00)	(0.00)	(0.00)	(0.00)

Standard errors are in parentheses. All loadings are significant ($p < 0.05$); Models are estimated with WLSMV estimators.

SI: 3 MODEL FIT

Table SI-6: Model fit statistics for models with no groups specified

	CFI	RMSEA	Chi-square value	Sample size
1972-1974-1976 ANES	0.998	0.026	149.025 (df=79)	1290
1992-1994-1996 ANES	1.000	0.007	110.780 (df=105)	1301
2011-2014 TAPS	0.997	0.020	1570.220 (df= 842)	2126

Table SI-7: Multiple group analysis

	CFI	RMSEA	Chi-square test for difference	P-value
1972-1974-1976 models*				
Fully constrained	0.990	0.037	111.881 (df=52)	0.000
Constrain cross-factor correlations	0.990	0.039	69.945 (df=21)	0.000
Constrain factor loadings	0.992	0.036	62.533 (df=19)	0.000
Fully unconstrained	0.994	0.032	–	–
1992-1994-1996 models**				
Fully constrained	0.982	0.046	217.133 (df=60)	0.000
Constrain cross-factor correlations†	0.984	0.047	187.795 (df=22)	0.000
Constrain factor loadings‡	0.993	0.032	81.023 (df=22)	0.000
Fully unconstrained	0.996	0.024	–	–
2011-2014 TAPS models***				
Fully constrained	0.992	0.032	428.881 (df=81)	0.000
Constrain cross-factor correlations	0.992	0.033	251.696 (df=22)	0.000
Constrain factor loadings	0.996	0.024	263.324 (df=42)	0.000
Fully unconstrained	0.998	0.017	–	–

*N(Sophisticated) =510, N(Unsophisticated) = 780; **N(Sophisticated) =551, N(Unsophisticated) =750; ***N(Sophisticated) 841, N(Unsophisticated) 1285 †Because the constrained cross-factor correlations model had problems converging, the model results may not be valid. ‡To aid proper convergence, the abortion item in 1992 was constrained to not correlate with the minority aid item in 1992 in the sophisticated group in all models.

SI: 4 ADDITIONAL STATISTICAL ANALYSES

In this Appendix, we consider two possible objections to the analysis in the main text. First, it is possible that the seven-point party identification scale used in the main text – which asks respondents not only about their identification but about its strength – may

Table SI-8: Factor loadings for 3-point and 7-point party ID scales in the ANES panels

	3-point Party ID	7-point Party ID
1972-1974-1976 ANES		
PID72	0.911	0.890
	(0.009)	(0.007)
PID74	0.937	0.927
	(0.008)	(0.006)
PID76	0.920	0.911
	(0.008)	(0.006)
1992-1994-1996 ANES		
PID92	0.881	0.877
	(0.018)	(0.012)
PID94	0.956	0.937
	(0.01)	(0.007)
PID96	0.918	0.932
	(0.011)	(0.007)

significantly underplay the stability of party identification. If true, this would reduce its usefulness as a meaningful baseline for understanding preference stability.

To explore this possibility, we re-analyzed the 1970s and 1990s ANES panels using a three-point coding of party identification that identifies respondents only as Democrats, Republicans, or Independents.[1] The factor loadings for this model and the results in the main text are shown in Table SI-8. As can be seen, although the 3-point party identification is on average more stable, the differences are not dramatics and in most cases the 95% confidence intervals significantly overlap. We conclude, therefore, that our analysis does not dramatically underestimate the stability of Party ID.

Second, the correlated-trait correlated-uniqueness MTMM model does not fully correspond with the original conception of MTMM models first outlines by Campbell and Fiske (1959). Several alternative conceptions more in line with the original presentation have been preposed, including correlated-trait uncorrelated method (CTUM) and correlated-trait correlated-method (CTCM). However, these latter models have been shown to be more likely to converge to improper solutions, and in any case usually offer very similar substantive findings. To illustrate this, in Table SI-9 we show estimates from a CTUM model of the 1970s

[1]To execute this, we simply collapsed the categories from seven to three, grouping all three middle categories as independents.

ANES panel.[2] Although some specific parameters differ slightly, in general the factor loadings of interest are identical across model specifications.

Table SI-9: Comparison of factor loading for correlated-trait correlated-uniqueness (CTCU) model with the correlated-trait uncorrelated-method (CTUM) model for the 1972-1974-1976 ANES panel

	CTCU Model			*CTUM Model*		
	1972	1974	1976	1972	1974	1976
Party ID	0.893	0.927	0.911	0.892	0.927	0.912
	(0.007)	(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
Ideology	0.756	0.805	0.804	0.768	0.798	0.8
	(0.017)	(0.017)	(0.016)	(0.017)	(0.017)	(0.017)
Minority Aid	0.829	0.693	0.74	0.829	0.714	0.72
	(0.018)	(0.020)	(0.019)	(0.017)	(0.019)	(0.019)
Jobs	0.681	0.747	0.743	0.692	0.748	0.732
	(0.022)	(0.021)	(0.020)	(0.021)	(0.020)	(0.020)
Abortion	0.838		0.827	0.807		0.858
	(0.035)		(0.035)	(0.031)		(0.033)
Insurance	0.707		0.811	0.718		0.8
	(0.045)		(0.039)	(0.043)		(0.037)
Women	0.717	0.864	0.796	0.714	0.864	0.798
	(0.020)	(0.017)	(0.019)	(0.020)	(0.018)	(0.019)

[2]We were unable to get a CTCM model to converge using this data.

SI: 5 VARIABLE DESCRIPTIVE STATISTICS

Table SI-10: Descriptive statistics for variables in the 1970s ANES panels

Variable	Wave	Mean	SD	Min	Max	N
Ideology	1972	4.19	1.29	1	7	983
Ideology	1974	4.08	1.28	1	7	991
Ideology	1976	4.34	1.31	1	7	931
Party ID	1972	2.75	2.03	0	6	1267
Party ID	1974	2.57	2.03	0	6	1246
Party ID	1976	2.65	2.02	0	6	1276
Minority Aid	1972	4.23	1.91	1	7	1158
Minority Aid	1974	4.35	1.89	1	7	1119
Minority Aid	1976	4.41	1.88	1	7	1089
Jobs	1972	4.38	1.96	1	7	1140
Jobs	1974	4.41	1.86	1	7	1102
Jobs	1976	4.51	1.86	1	7	1082
Insurance	1972	3.98	2.37	1	7	565
Insurance	1976	4.05	2.25	1	7	1047
Abortion	1972	2.58	0.96	1	4	1251
Abortion	1976	2.56	0.99	1	4	1142
Women	1972	3.48	2.26	1	7	1241
Women	1974	3.18	2.08	1	7	1196
Women	1976	3.23	2.06	1	7	1086

Table SI-11: Descriptive statistics for variables in the 1990s ANES panels

Variable	Wave	Mean	SD	Min	Max	N
Ideology	1992	4.24	1.64	1	7	469
Ideology	1994	4.47	1.52	1	7	1042
Ideology	1996	4.37	1.52	1	7	1033
Party ID	1992	2.88	2.07	0	6	583
Party ID	1994	2.95	2.32	0	6	1288
Party ID	1996	2.77	2.31	0	6	1289
Minority Aid	1992	4.67	1.96	1	7	541
Minority Aid	1994	4.70	1.94	1	7	1216
Minority Aid	1996	4.95	1.72	1	7	1191
Jobs	1992	4.38	2.00	1	7	538
Jobs	1994	4.37	2.04	1	7	1218
Jobs	1996	4.60	1.94	1	7	1181
Insurance	1992	3.60	2.14	1	7	516
Insurance	1994	4.04	2.23	1	7	1207
Insurance	1996	4.07	2.12	1	7	1171
Abortion	1992	3.06	1.18	1	4	573
Abortion	1994	2.89	1.20	1	4	1264
Abortion	1996	2.89	1.19	1	4	1272
Women	1992	2.11	1.72	1	7	573
Women	1994	2.39	1.81	1	7	1211
Women	1996	2.25	1.80	1	7	1245

Note: Means and standard deviations are weighted.

Table SI-12: Descriptive statistics for variables in the 2010s TAPS panels

Variable	Wave	Mean	SD	Min	Max	N
Abortion	W1	3.28	1.89	1	5	1138
Abortion	W3	3.38	1.84	1	5	358
Abortion	W7	3.22	1.83	1	5	1626
Abortion	W13	3.29	1.93	1	5	1640
Abortion	W14	3.29	1.80	1	5	1608
Abortion	W17	3.36	1.87	1	5	1793
Abortion	W27	3.33	1.87	1	5	1650
Abortion	W34	3.16	1.94	1	5	1537
Aff. Action	W1	2.70	1.75	1	5	1142
Aff. Action	W3	2.81	1.90	1	5	356
Aff. Action	W13	2.87	1.68	1	5	1642
Aff. Action	W14	2.90	1.73	1	5	1613
Aff. Action	W17	2.94	1.71	1	5	1787
Aff. Action	W27	2.80	1.59	1	5	1650
Aff. Action	W34	2.82	1.63	1	5	1536
Gay Mar.	W1	3.00	2.06	1	5	1142
Gay Mar.	W3	3.28	2.31	1	5	358
Gay Mar.	W13	3.05	2.08	1	5	1641
Gay Mar.	W14	3.05	2.05	1	5	1611
Gay Mar.	W17	2.98	2.08	1	5	1794
Gay Mar.	W27	2.97	2.07	1	5	1649
Gay Mar.	W34	2.87	2.00	1	5	1538
Min. Wage	W1	2.35	1.59	1	5	1144
Min. Wage	W3	2.35	1.63	1	5	357
Min. Wage	W13	2.43	1.52	1	5	1643
Min. Wage	W14	2.48	1.55	1	5	1613
Min. Wage	W17	2.54	1.62	1	5	1789
Min. Wage	W27	2.62	1.78	1	5	1652
Min. Wage	W34	2.63	1.69	1	5	1536
Insurance	W1	2.83	1.78	1	5	1140
Insurance	W3	2.71	1.77	1	5	357
Insurance	W7	2.83	1.72	1	5	1619
Insurance	W13	2.98	1.90	1	5	1643
Insurance	W14	2.93	1.71	1	5	1609
Insurance	W17	2.89	1.86	1	5	1778
Insurance	W27	2.85	1.97	1	5	1649
Insurance	W34	2.88	1.93	1	5	1537
Ideology	W1	4.11	2.08	1	7	1141
Ideology	W6	4.18	2.20	1	7	1289
Ideology	W10	4.05	2.38	1	7	1516
Ideology	W12	4.02	2.27	1	7	1495
Ideology	W24	4.16	2.28	1	7	1511
Party ID	W1	3.59	2.87	1	7	1133
Party ID	W7	3.72	2.96	1	7	1607
Party ID	W10	3.57	3.02	1	7	1621
Party ID	W12	3.59	3.02	1	7	1603
Party ID	W17	3.68	2.99	1	7	1780
Party ID	W24	3.71	2.94	1	7	1630
Party ID	W27	3.72	2.97	1	7	1622
Party ID	W34	3.73	3.13	1	7	1518

Note: Means and standard deviations are weighted.