

Selling Ourselves Short? How Abbreviated Measures of Personality Change the Way We Think about Personality and Politics

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Political scientists who study the interplay between personality and politics overwhelmingly rely on short personality scales. We explore whether the length of the employed personality scales affects the criterion validity of the scales. We show that need for cognition (NfC) increases reliance on party cues, but only when a longer measure is employed. Additionally, while NfC increases reliance on policy information, the effect is more than twice as large when a longer measure is used. Finally, Big Five personality traits that have been dismissed as irrelevant to political ideology yield stronger and more consistent associations when larger batteries are employed. We also show that using high Cronbach's alpha and factor loadings as indicators of scale quality does not improve the criterion validity of brief measures. Hence, the measurement of personality conditions the conclusions we draw about the role of personality in politics.

The study of personality and politics has—after lying relatively dormant for several decades—received renewed interest from political scientists (e.g., Bakker, Rooduijn, and Schumacher 2016; Bullock 2011; Feldman and Johnston 2014; Gerber et al. 2010; Malka et al. 2014; Mondak and Halperin 2008). We now see more and more personality measures being included in political science research. Yet space is scarce in omnibus surveys—such as the American National Election Studies or the British National Election Study—that are the source for much of the personality and politics research. Furthermore, researchers often have limited resources at hand when designing their own studies. The trade-off for limited space and resources is shorter measures. While textbooks on measurement recommend long scales over short scales (Cronbach 1949), political science research tends to ignore this advice (although see Achen 1975; Ansolabehere, Rodden, and Snyder 2008).

We turn our attention to personality traits, which are often measured using one or two items culled from fairly long and

often multidimensional scales. As is well known, such short forms are less reliable (Gosling, Rentfrow, and Swann 2003; Schmitt 1996) and may measure only some subdimension of a trait (Cronbach 1949; Smith, McCarthy, and Anderson 2000) leading to either regression dilution or overestimation of the association between a trait and a criterion measure (Credé et al. 2012; Lord and Novick 1968; Smith et al. 2000). Despite these risks, short personality measures continue to be a mainstay of personality and politics research in political science.

In this article, we assess the impact of the short measures on substantive conclusions. We focus on two central debates within the literature. The first touches on the role of need for cognition (NfC)—the tendency to enjoy thinking (Cacioppo and Petty 1982)—in moderating the reliance on party cues and policy information (Bullock 2011; Kam 2005). The second addresses the association between the Big Five personality traits and political ideology (Gerber et al. 2010; Mondak and Halperin 2008). In our studies, we show that the brief measures yield different results than the longer

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measures. We also find that a slight increase in the number of items we use yields outcomes consistent with the more elaborate measures, which also implies that political science research need not turn to excessively long measures of personality.

Our article has important substantive implications. First, although we replicate the main findings of Kam (2005), unlike that article we find that NfC does moderate the reliance on party cues in a way that is consistent with theories of motivated reasoning (Kahan 2013; Petersen et al. 2013); that is, those higher on NfC rely more on party cues. This finding contradicts theories of bounded rationality (Popkin 1994), which suggests that a party cue is an easy heuristic for those low on NfC. We only reach these conclusions if we rely on the full 18-item battery, while abbreviated batteries—such as a two-item NfC measure developed by Bizer et al. (2000)—would lead us in line with Kam (2005) to conclude that NfC does not moderate the reliance on party cues. Next, we turn to the reliance on policy information. The majority of political science studies have relied on an abbreviated two-item NfC measure and do not find evidence that those higher on NfC rely more on policy information (Berinsky and Kinder 2006; Holbrook 2006; Mérola and Hitt 2016; Rudolph 2011; Sokhey and McClurg 2012). We show that this conclusion is an artifact of the measure—using a full 18-item battery, NfC in fact moderates the reliance on policy information, as would be predicted based the Elaboration Likelihood Model.

In a third study, we show that, if we rely on a brief measure of the Big Five traits (i.e., 10-item Big Five Inventory [BFI]; Rammstedt and John 2007), then we conclude that traits such as agreeableness, extraversion, and conscientiousness are irrelevant for politics, while other traits are weakly associated with political attitudes. Yet once we rely on a more elaborate battery (i.e., the 50-item International Personality Item Pool battery [IPIP]; Goldberg et al. 2006), many of the Big Five personality traits are as highly correlated with the same political outcomes as openness, the trait perhaps most commonly shown to be important for politics.

THE CONSEQUENCES OF USING BRIEF PERSONALITY MEASURES

Brief measures of personality offer several advantages over their longer counterparts. Short measures of personality are cheaper to administer, increase response rates (Edwards et al. 2004), and decrease measurement error that may arise because of boredom and fatigue caused by completing a long personality battery (Burisch 1984). Since hundreds of questions often appear in a single wave of an omnibus survey, space comes at a premium, and brief measures allow scholars to study personality when they have limited space available in a survey. For-

tunately, some of the psychometric properties of brief personality measures are satisfactory. For the NfC, BFI (Rammstedt and John 2007), and other brief measures of personality, the test-retest reliability (Gerber et al. 2013; Gosling et al. 2003; Rammstedt and John 2007) and the convergent validity—that is, the degree to which the brief measure correlates with a longer measure of the same construct—are acceptable (Donnellan et al. 2006; Rammstedt and John 2007).

Other psychometric properties of brief personality batteries are more problematic. First, in all domains of research, it is well known that short batteries tend to be less reliable than longer batteries (Lord and Novick 1968). The measurement error in the independent variables attenuates the relationship with certain criterion (i.e., outcome) measures—a process called regression dilution.

Second, personality research is particularly sensitive to short batteries because of the so-called bandwidth-fidelity trade-off (Cronbach and Gleser 1965). Bandwidth is the amount of complexity of information in a measure. Many personality traits are fairly complex constructs and thus have a high bandwidth. Each of the Big Five traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) consists—according to the Five Factor Model of personality—of six lower subdimensions. Conscientiousness, for instance, contains the subdimensions achievement striving, competence, dutifulness, deliberation, self-discipline, and order (Costa, McCrae, and Dye 1991). Short batteries, such as the BFI and the Ten Item Personality Inventory (TIPI; Gosling et al. 2003) may only tap into a few of these subdimensions. If the target measure we are interested in is associated with a subdimension that is missed by the BFI or TIPI, any correlation will be attenuated (Credé et al. 2012). Conversely, if a target measure is only related to one specific facet of that trait but not others, any correlation will be overestimated (Credé et al. 2012). Accordingly, there is the risk of a type M (magnitude) error (Gelman and Carlin 2014). A type S (sign) error might even occur if our brief measure disproportionately taps into a subdimension that is differentially correlated with the criterion measure than the broader trait.

SHORT MEASURES WITH LOW BANDWIDTH: THE CASE OF THE NEED FOR COGNITION AND MESSAGE PROCESSING

NfC captures individual differences in the tendency to enjoy thinking (Cacioppo and Petty 1982). It is possible that NfC may either increase or decrease the reliance on party cues compared to the same information without party cues. In line with the expectation by Kam (2005), party cues offer an easy heuristic to those who would prefer not to think about the implications about a policy. Therefore, we could

expect that reliance on party cues is higher among those who are lower on NfC. However, those who are “the most vulnerable to ideologically consistent bias” (Hatemi and McDermott 2016, 342) tend to be cognitively reflective and politically sophisticated (Kahan 2013; Slothuus and De Vreese 2010), two traits that are positively correlated with the NfC (Kahan 2013; Tidwell, Sadowski, and Pate 2000). Therefore, among those higher on NfC, party cues may also trigger motivated reasoning (Petersen et al. 2013) and lead people to conform to identity-consistent attitudes (Kahan 2013; Slothuus and De Vreese 2010).

Aside from party cues, the literature is fairly clear on the expectation that NfC should increase the reliance on substantive information. The Elaboration Likelihood Model (Petty and Cacioppo 1986), which underpins much of the political persuasion literature (Alvarez and Brehm 1995; Johnson and Martin 1998), argues that individual differences in NfC moderate the extent to which citizens’ political attitudes are influenced by policy information. Those high on NfC tend to be motivated to understand and thoroughly process information that they receive and, therefore, should be more affected by policy information compared to citizens who score low on NfC (Bullock 2011).

When testing the effects of NfC on information processing, political scientists tend to rely on a two-item variant that was originally developed for inclusion in the 2000 American National Election Studies (ANES; Bizer et al. 2000). The two-item ANES NfC measure is a highly shortened form of the 18-item NfC scale (Cacioppo, Petty, and Kao 1984), which itself is a “short” form of the original 34-item scale (Cacioppo and Petty 1982). Studies within political science that rely on the 2000 ANES measure often fail to find evidence that NfC moderates the impact of party cues (Bullock 2011; Kam 2005) or policy information (Berinsky and Kinder 2006; Holbrook 2006; Mérola and Hitt 2016; Rudolph 2011; Sokhey and McClurg 2012) on political attitudes. Bullock (2011, 513) suggests that “the accumulating non-findings about NfC may well be driven by measurement error.” Employing a somewhat larger (although not validated) six-item NfC battery, Bullock (2011) finds that NfC does moderate the effect of policy information on policy attitudes. Yet NfC does not moderate the effect of policy information when Bullock (2011) subsetted the six-item battery to the two-item ANES battery. Importantly, Bullock (2011) does not compare the six-item measure to a validated NfC battery, so we have to be cautious in overinterpreting these results.

We conduct two studies to determine whether the measurement of the NfC conditions the conclusions we reach about the extent to which the NfC moderates citizens’ tendency to rely on party cues (study 1) and policy informa-

tion (study 2). We have formulated competing expectations of the nature through which the NfC moderate the reliance on party cues, while we expect more reliance on policy information by persons high on NfC. Yet in both studies we expect that the conclusion we draw about the importance of the NfC is conditional on the measurement of the NfC.

Study 1: Need for cognition and party cues

In study 1, we test whether the NfC conditions the reliance on party cues (Bullock 2011; Kam 2005). Specifically, we can assess whether those high on the NfC rely more (Kahan 2013) or less on party cues (Kam 2005). In order to test these competing expectations, we replicate one of the most influential papers that assesses the extent to which the reliance on party cues is moderated by the NfC conducted by Kam (2005).¹ Participants were randomly exposed to a short newspaper article introducing a proposal to ban food irradiation—a low-salience political issue in the United States. In the first condition, Democrats supported the policy, and Republicans opposed it. In the second condition, Republicans supported the policy, while Democrats opposed it. In the control condition no party cues were mentioned, while all other information remained constant.² We implemented the design directly in line with Kam (2005).³ Survey Sampling International (SSI) fielded the experiment in the United States on their online panel between July 4 and July 6, 2016. In exchange for participation, SSI compensates panelists with points that can be exchanged for various rewards. In total, 883 respondents were randomly assigned to participate in the cue-taking experiment.

Following Kam (2005), we measured support for the ban on food irradiation on a five-point Likert scale ranging from “strongly agree” (1) to “strongly disagree” (5). In order to decrease measurement error in the dependent variable, we included two additional items, namely, “The costs of food irradiation outweigh the benefits,” which was scored on a scale ranging from “strongly agree” (1) through “strongly disagree” (5), and “All things considered, food irradiation is a good thing,” scored on a scale ranging from “food irradiation is bad” (1) through “food irradiation is good” (5). We created an additive scale ranging from (0) “oppose a ban on food irradiation” to (1) “support a ban on food irradiation” ($M = 0.54$, $SD = 0.20$, $\alpha = 0.54$).

1. The article had received 287 citations by September 5, 2017 (Google Scholar).

2. Appendix A.1 (apps. A–C are available online) provides stimuli.

3. Kam (2005) conducted her study in Michigan and focused on the House of Representatives in the state of Michigan. We conducted our study across the United States, and accordingly the proposed ban on food irradiation as is discussed in the US House of Representatives.

The NfC was measured with the 18-item battery (Cacioppo et al. 1984) using items such as “I prefer complex to simple problems,” which respondents answered on a Likert-type scale from “extremely characteristic” (1) to “extremely uncharacteristic” (5). We compute the average score of the measures (on the original five-point scale) and then, for the sake of comparability, rescale results to lie between 0 and 1 by subtracting the minimum score (1) and then dividing by the maximum minus the minimum (6). The 18-item NfC battery can be subsetted to the two-item measure that is included in the ANES 2000 (Bizer et al. 2000) as well as the six-item battery employed by Bullock (2011). These NfC batteries—as well as other personality inventories in this article—were rescaled to range from 0 to 1 like we did with the 18-item battery. Appendix A.2 provides descriptive statistics and psychometric properties of the scales. Randomization checks indicated that NfC as well as a set of observed background characteristics were balanced across the treatments (app. A.3).

Treatment status was indicated by a set of dummy variables indicating whether the participants read that the party

they identify with proposed to ban food irradiation (in-party cue) or opposed the ban (out-party cue). A control condition omitted mention of the party label (no party cue).

While this study replicates the main effect findings of Kam (2005) that citizens rely on party cues (app. A.4), we are interested in the question whether the NfC moderates the reliance on the party cues. To investigate when the reliance on party cues is moderated by the NfC, we estimated three ordinary least squares (OLS) regression models. We set the out-party cue as the reference category and interacted the NfC with the in-party cue and no party cue. Figure 1 presents the results of the regression models and plots the marginal effect of the in-party cue on support for banning food irradiation over the range of the NfC. Note that here and throughout the manuscript we report unstandardized coefficients; standardized coefficients appear in the appendix.

In line with Kam (2005), we find that when using the two-item ANES measure (fig. 1, left-hand column), the NfC does not moderate the effect of the party cue on the policy

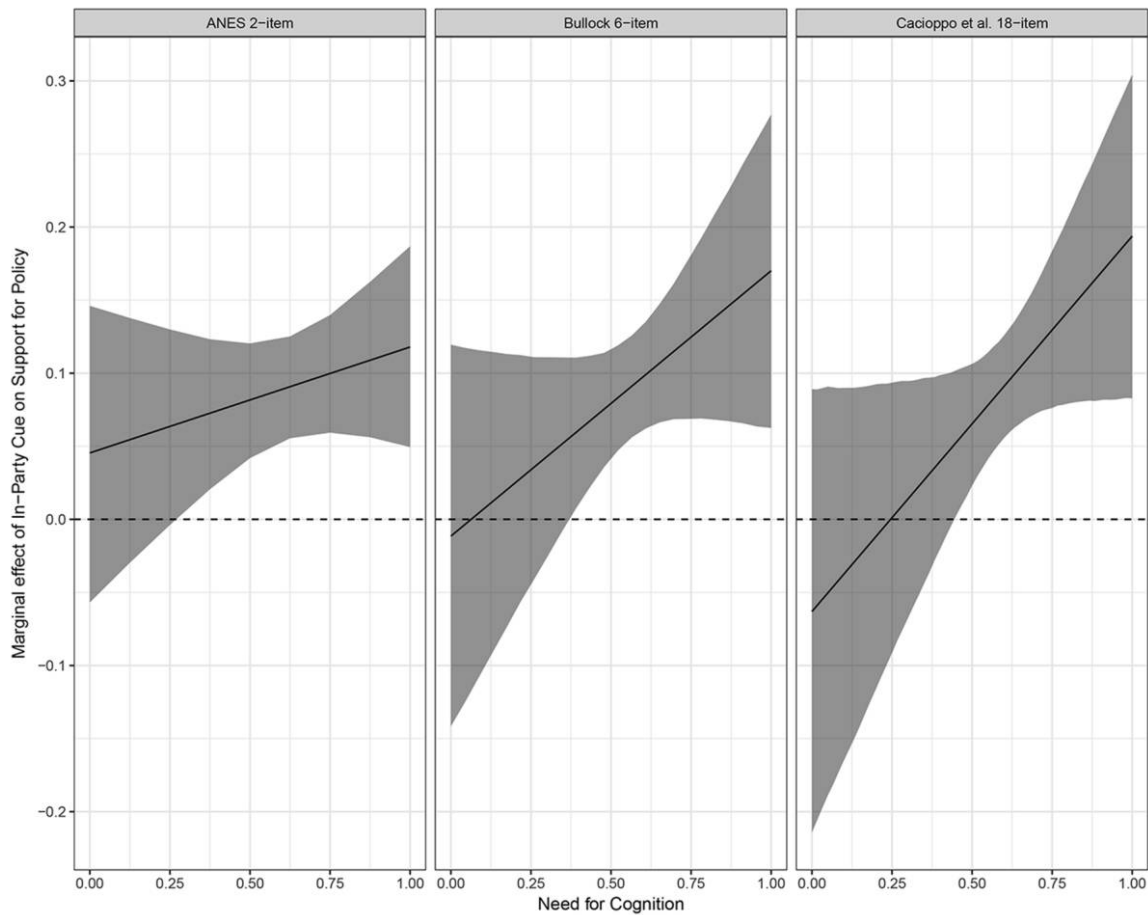


Figure 1. Study 1: need for cognition and party cues. Marginal effects of the in-party cue compared to the out-party cue on support for food irradiation, with 95% confidence intervals (see app. A.5 for tables with results).

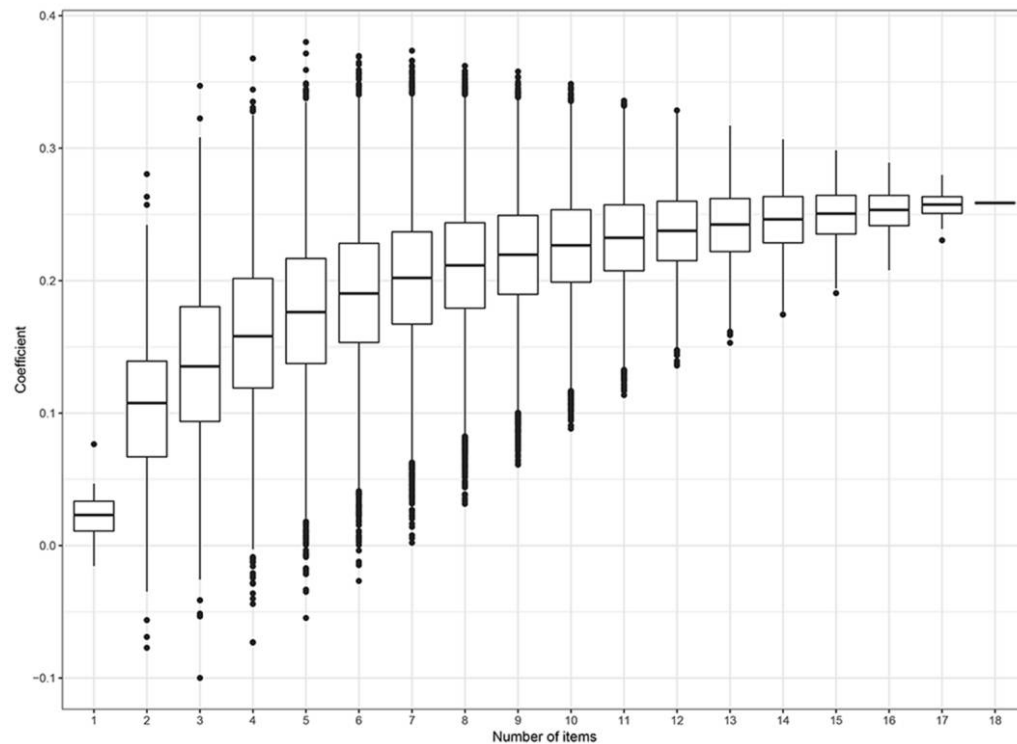


Figure 2. Study 1: Relationship between interaction effect size and the number of items used to create need for cognition (NfC). Coefficient of the interaction effect between NfC and the policy cues and each possible combination of the NfC. Distribution of the point estimates of these measures sorted by the number of items used to generate the NfC.

attitude ($b = 0.07$, $SE = 0.08$). NfC does moderate the reliance on party cues when we use an 18-item NfC measure (fig. 1, right-hand column; $b = 0.26^*$, $SE = 0.13$). In line with motivated reasoning, we find that citizens that score high on the NfC rely more on the in-party cue compared to the out-party cue (Kahan 2013; Slothuus and De Vreese 2010). The six-item measure does not significantly moderate the reliance on party cues ($b = 0.18$, $SE = 0.12$). However, the effect is more than twice as large when using the two-item measure. The results do not change once we run structural equation models (app. A.6), rely on the single-item dependent variable as employed by Kam (2005; app. A.7), or employ the slightly different operationalization of the treatment indicators found in appendix A.8.

Our results might be due to the idiosyncrasies of the two-item ANES measure. Perhaps another brief NfC inventory would result in estimates more consistent with a larger NfC battery. To estimate whether the effect size is a function of the particular items or the number of items included in the battery, we turn to a second analysis. Using the 18 items, we generated all possible combinations for scales of different lengths. This resulted, for instance, in 153 two-item measures, 816 three-item measures, 3,060 four-item measures, 8,586 five-item measures, 18,564 six-item measures, and so on. For each of these 262,143 instantiations of NfC, we then calculated the interac-

tion effects between receiving the in-party cue or out-party cue and NfC. Figure 2 plots the distribution of the point estimates of these measures sorted by the number of items used to generate the trait. The x -axis indicates the number of items used to make a particular trait. The median point estimate is plotted as the thick horizontal in each box plot. The results show that a randomly generated two-item scale yields estimates of an interaction effect that is roughly 2.5 times smaller compared to the 18-item scale. The median point estimate of randomly chosen scales does not increase linearly with the number of items in a scale, however. The median point estimate of a randomly chosen four-item scale is three-fourths the size of the 18-item scale, by nine items, the median coefficient estimate that is roughly 90% of the 18-item NfC estimate. Study 1 shows that the ANES measure seems to yield estimates that are smaller than roughly 70% of any other two-item measure.

Could short measures be saved if we just more carefully construct them? For low-bandwidth scales, one suggestion is to make sure that the Cronbach's alpha is at least "satisfactory" (greater than .7).⁴ We show, that Cronbach's alpha increases with the number of items, as expected, but

4. Bullock (2011, 503), for instance, suggested that the low Cronbach's alpha of the two-item ANES measure explains the poor performance of the short battery.

when we compare scales that contain the same number of items, there is no association between the Cronbach's alpha of a scale and the extent to which estimates are closer to the 18-item NfC measure (app. A.9).

Another common practice when forming a short measure is to select items that load higher in a confirmatory factor analysis. This was the method used to develop the two-item NfC ANES measure (Bizer et al. 2000). Yet we find no association between the extent to which items load high on a brief NfC measure and closeness to the estimate of the 18-item measure (app. A.10). This suggests that relying solely on Cronbach's alpha or high factor item loadings does not result in brief measures of personality with a high criterion validity. Instead, study 1 suggests that decreasing measurement error by increasing the number of items is the best strategy.

Study 2: Need for cognition and policy information

In study 2, we test whether NfC moderates the effect of policy cues on policy attitudes. The survey experiment—designed by a separate team (Coffé 2013)—was a 2 (policy cue: center-right vs. radical-right message) \times 2 (ideological cue: no ideological cue vs. ideological cue) \times 2 (sex: male vs. female politician) \times 2 (speech: aggressive vs. nuanced manner of speech) experimental design. Participants were randomly assigned to be shown a center-right message or radical-right message on a professionally edited campaign video. For instance, discussing the issue of immigration, the center-right message was, “We believe that the influx of underprivileged, lowly educated immigrants must stop. Instead, we should open our doors only to higher educated, promising immigrants,” while the radical-right message was, “We demand a complete cessation of immigration of people from Islamic countries.”⁵ Each treatment lasted approximately two minutes. Our interest lies in the extent to which participants rely on policy information (center-right vs. radical-right message).

The experiment was run on the Longitudinal Internet Studies for the Social Sciences (LISS) panel, a true probability sample of Dutch households drawn from the official population registry (Scherpenzeel and Das 2010) and administered by CentERdata (Tilburg University). LISS panel members fill out one survey each month and get reimbursed €15 per hour. We used three waves of the LISS panel. Between October 1 and October 30, 2012, 6,434 LISS panel members were invited to participate in a survey that contained a cue-taking experiment, and 5,179 panel members completed the survey (80.5% response rate). In total 455 (i.e., 8.77%) participants indicated that they could not hear or could not see

the videos in the experiment. These participants were excluded from further analyses.⁶

The dependent variable measured the extent to which citizens agree with the party position, namely, “How much do you agree with the party position on migration by the candidate?” which was scored on scale ranging from “completely disagree” (1) through “completely agree” (5). We recoded the scale to range from 0 (completely disagree) to 1 (completely agree).

NfC was measured as part of the Personality and Values module of the LISS panel that is fielded to LISS panel members in May of each year; to increase our sample size, we include NfC from May 2011 (74% response rate) and May 2012 (79.3% response rate). By merging these waves, we had a measure of the NfC for almost all participants ($N = 4,544$). The 18-item NfC battery can be subsetted to the ANES two-item measure (Bizer et al. 2000) as well as the six-item battery employed by Bullock (2011). Appendix B.2 provides the item wording of the NfC, descriptive statistics, and psychometric properties of the three NfC measures. Randomization checks indicate that the three NfC batteries are randomly distributed across the different treatments (app. B.3).

Figure 3 presents the results of the regression models and plots the marginal effect of the radical-right message on support for the proposed migration policy over the range of the NfC. We control for the other conditions in the experiment and the interaction between the NfC and these conditions. Using the two-item ANES measure, we find that NfC moderates the effect of the policy cue on policy attitudes ($b = -0.08$, $SE = 0.04$). That is, the agreement with the radical-right policy decreases compared to the right-wing policy as NfC goes up (see left-hand panel of fig. 3). However, when running a similar model using the 18-item NfC battery, a significant interaction effect that is more than twice the size of the ANES-based estimate of the interaction effect emerges ($b = -0.17$, $SE = 0.06$). Specifically, the difference in the agreement between the right-wing and radical-right messages increases as NfC goes up (see right-hand panel of fig. 3). Subsetting our 18-item measure to the six-item measure employed by Bullock (2011) yields a result that is slightly stronger than the two-item measure ($b = -0.12$, $SE = 0.05$), as can be seen in the middle panel of figure 3. The results for the six-item and 18-item NfC do not change once we directly account for measurement error (app. B.5). When we analyze the effect among liberals and conservatives sepa-

5. Appendix B.1 provides complete treatments.

6. The tendency to not be able to hear or see the treatment is randomly distributed across the conditions (app. B.3).

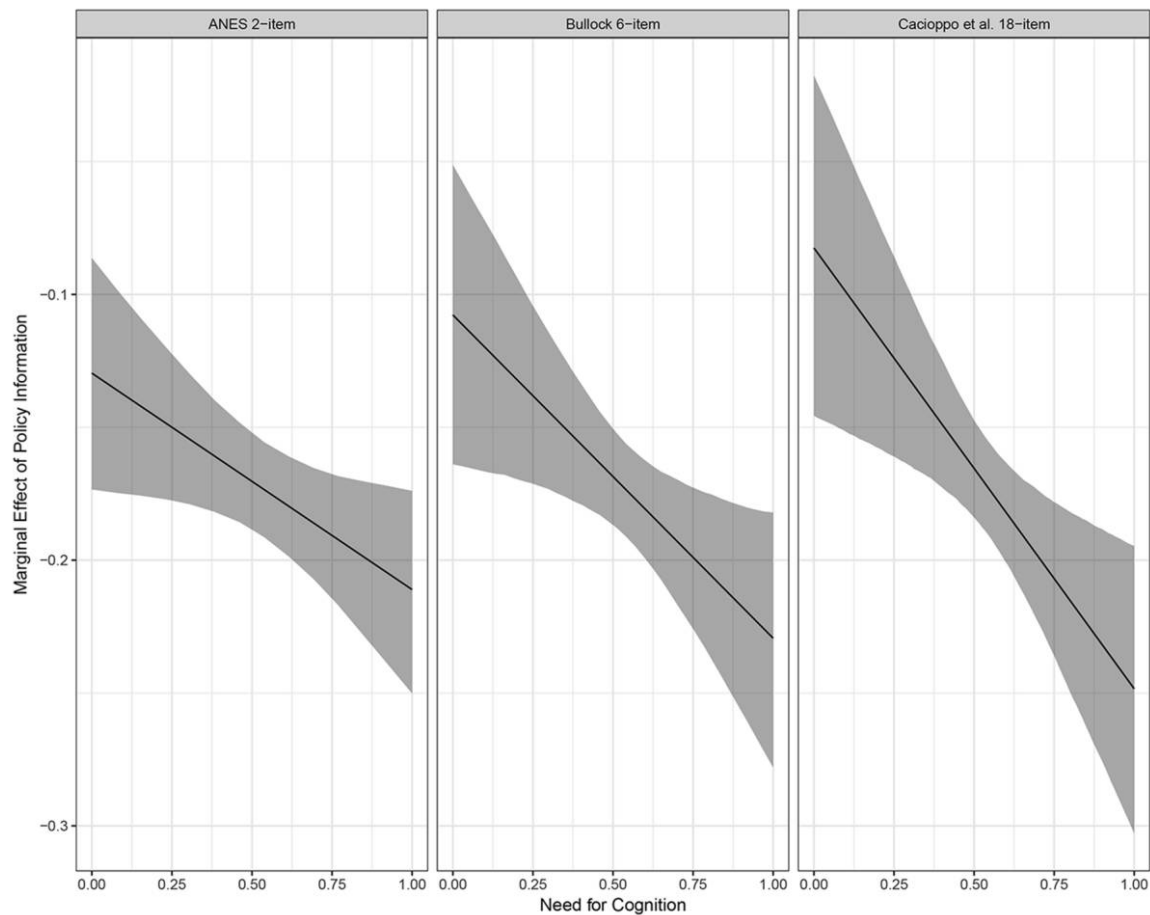


Figure 3. Need for cognition and policy information. Marginal effects of the radical-right message compared to the right-wing message, with 95% confidence intervals (app. B.4 provides tables with results).

rately, the $NfC \times$ message interaction is never significant among liberals, but among conservatives, the results are similar to those reported in figure 3 (app. B.6). This is not surprising given that the message was either center-right (and appealing to conservatives) or far-right.

Next, we estimate whether the effect size is a function of the particular items or the number of items included in the battery (fig. 4). As in study 1, these results clearly show the impact of scale length on the size of the effect. A one-item scale yields estimates of an interaction effect that is roughly a third of the 18-item scale. The median point estimate of randomly chosen scales does not increase linearly with the number of scales, however. The median point estimate of a randomly chosen four-item scale is three-fourths the size of the 18-item scale, by 9 items, the median coefficient estimate that is roughly 90% of the 18-item NfC estimate. The ANES measure seems to yield estimates that are smaller than roughly 70% of any other two-item measure, indicating that the ANES measure is a particularly poor alternative to the full NfC measure.

As in study 1, we find that high Cronbach's alpha (app. B.7) or factor loadings (app. B.8) do not lead to measures of personality with a high criterion validity. Instead, study 2 reaffirms that decreasing measurement error by increasing the number of items in a battery is the best strategy.

The NfC is a low-bandwidth measure, and therefore differences in the criterion validity between the three NfC measures are most likely due to regression dilution, and our errors were of magnitude (i.e., type M; Gelman and Carlin 2014). Some personality traits—such as the Big Five traits—are much more complex and have a high bandwidth. What are the consequences of using short measures for these constructs?

SHORT MEASURES WITH HIGH BANDWIDTH: THE CASE OF THE ASSOCIATION BETWEEN PERSONALITY AND POLITICAL IDEOLOGY

Traditionally, the Big Five traits—openness, conscientiousness, extraversion, agreeableness, and neuroticism—are high-bandwidth constructs that were assessed with up to 240 item scales using convenience samples of university students. How-

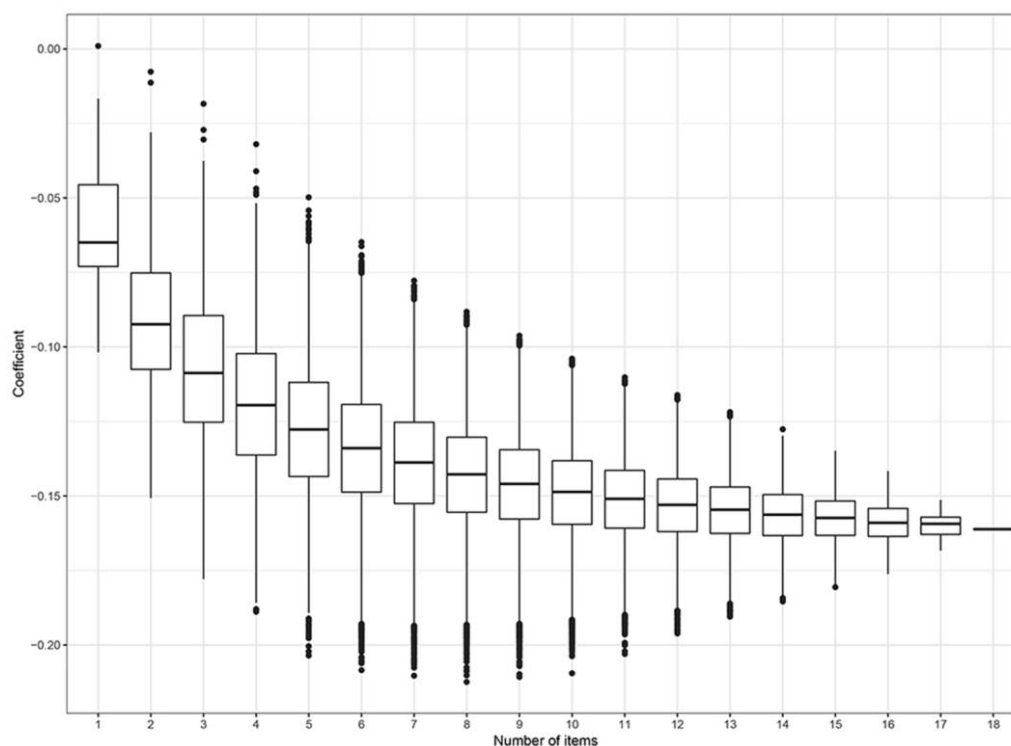


Figure 4. Need for cognition (NfC) and policy information. Coefficient of the interaction effect between NfC and the policy information and each possible combination of the NfC. Distribution of the point estimates of these measures sorted by the number of items used to generate the NfC.

ever, more and more political scientists rely on short measures of the Big Five personality traits. Ten-item personality inventories such as the BFI and TIPI are now included in the General Social Survey, the International Social Survey Programme, World Values Survey, the Cooperative Congressional Election Study, the ANES, the AmericasBarometer, and the British National Election Studies. The items for a short measure of each Big Five trait are selected so that the short measure reflects the breadth of the original dimension. Accordingly, the interitem correlation is low (Gosling et al. 2003). Moreover, it is difficult to capture all aspects of a high-bandwidth trait using only two items per trait. Necessarily, some aspects of a trait will be underrepresented in a short measure, which limits the content validity of the trait (Credé et al. 2012; Smith et al. 2000).

The burgeoning literature on the association between personality and political ideology (e.g., Gerber et al. 2010; Mondak and Halperin 2008) could be particularly prone to the detrimental consequences of using brief measures. Gerber, Huber, Doherty, and Dowling (2011) indicated that correlations between political ideology and the traits neuroticism, agreeableness, and extraversion were consistently larger when measured with the TIPI compared to the 44-item BFI, while the results for openness and conscientiousness

varied to a lesser degree based on the measure.⁷ Although Gerber et al. ultimately contend that differences between the TIPI and BFI were minor, they also conclude that “researchers should be sensitive to the consequences of using different personality batteries for predicting political outcomes” (280).⁸

In order to generate a more complete comparison of Big Five measurements and outcomes, we surveyed the published literature (overview in app. C.1). These studies have yielded fairly consistent results when it comes to direction and statistical significance (although not strength) for the negative association between openness and conservatism as well as the positive association between conscientiousness and conservatism (app. C.1, table C1). Yet our literature review shows that—with the exception of the consistent negative association between openness and cultural conservatism (app. C.1, table C2)—there is a heterogeneous pattern of associations between the Big Five traits and cultural

7. Overestimation—just like underestimation—can occur when relying on brief measures of personality (Credé et al. 2012).

8. Mondak et al. (2010, app. A) partly address the issue by creating 10 possible two-item measures out of the five-item measure of each trait. Yet it is not possible to assess whether their results comport with underestimation or overestimation of the association because they group both underestimation and overestimation in one category.

conservatism whereby some studies find an association between the Big Five traits and others do not. Likewise, for economic ideology, more than half the studies for each trait point to an association with economic ideology, while between 30% and 50% of the studies failed to find an association (app. C.1, table C3). With the exception of openness, all traits have, to different degrees, been regarded as irrelevant for political ideology. Importantly, in the published literature, studies that relied on brief measures—as well as convenience samples—are overrepresented in the studies that report no associations between traits and ideology.

Study 3: Big Five traits and political ideology

Like in study 2, we rely on the Dutch LISS panel. In December 2012, a random subset of the LISS panelists ($N = 2,479$) was invited to participate in the Dutch module of the 2012 World Values Survey (WVS).⁹ The response rate of the WVS was 76.6% ($N = 1,901$), and the completion rate was 76.0% ($N = 1,884$).

We combine the WVS with the Personality and Values module of the LISS panel that is fielded to LISS panel members in May of each year and contains a measure of the Big Five personality traits. To increase our sample size, we include the Big Five data from May 2011 (76.4% response rate) and May 2012 (79.6% response rate).¹⁰ Our sample was restricted to those participants who completed the WVS and had at least once completed a personality inventory in 2011 or 2012; this results in a data set with 1,419 respondents.

Personality was assessed using two different batteries—the 10-item BFI (Rammstedt and John 2007) and the 50-item IPIP (Goldberg et al. 2006). When measuring Big Five traits, there are roughly two traditions: inventories that consist of a series of questions on which respondents rate themselves and inventories that consist of a set of adjectives on which respondents rate themselves. The IPIP is part of the question-based approach, while BFI is an adjective-based approach. However, the IPIP and BFI show good convergent validity (Donnellan et al. 2006). A unique aspect of the 50-item IPIP is that it is possible to derive a validated and reliable 20-item instrument, the Mini-IPIP (Donnellan et al. 2006).

The BFI and IPIP were assessed among panel members in different waves. The BFI was administered as part of the WVS 2012. Participants completed the 50-item IPIP in the Politics and Values waves in May 2011 and May 2012. The items of both inventories were translated into Dutch by professional translators, using the translation-back-translation

method, while the principle investigators of the panel resolved inconsistencies in the translations. The BFI was measured at the same time as the criterion measures, while the IPIP was measured before the criterion measures. Since personality traits are relatively stable over shorter time periods (Gerber et al. 2013)—and are stably associated with political attitudes over time (Bloeser et al. 2015)—the lag between the waves should not affect the nature of the associations reported here. Moreover, the strength of the associations between personality and the criterion measures should be biased in favor of the BFI compared to the measures collected earlier. We created additive scales of each of the Big Five traits.¹¹

We compared the relationships between the personality traits, on the one hand, and different dimensions of political ideology, on the other, as these interrelationships are among the primary focus of the personality-politics research. Specifically, we focus on a unidimensional operationalization of ideology (Mondak and Halperin 2008) as well as cultural and economic ideology (Bakker 2016; Feldman and Huddy 2014; Gerber et al. 2010). Unidimensional ideology was part of the WVS 2012 and measured by asking panelists to rate themselves on a scale from left (0) to right (10). We recoded the ideology dimension to range from the most liberal (0; left) to most conservative (1; right) observation ($M = 0.51$, $SD = 0.23$).

Cultural and economic ideology were measured using a total of nine items that were part of the WVS 2012.¹² Cultural ideology was measured using six items: “I find it shocking if two men kiss in public,” “Gay men and lesbian women should be free to live their life as they wish,” and “I find it shocking when a man and a woman kiss in public,” all scored on a five-point Likert scale ranging from “strongly disagree” (1) through “strongly agree” (5); abortion “can always be justified” (1) through “never be justified” (10); “Where would you place yourself on a scale from 1 to 5, where 1 means that euthanasia should be forbidden and 5 means that euthanasia should be permitted”; “There are too many people of foreign descent in the Netherlands,” scored on a scale ranging from “fully disagree” (1) to “fully agree” (5).

Economic ideology was measured using three items: “Incomes should be made more equal” (1) through “Individual effort should be rewarded” (10); “Government should take more responsibility to ensure that everyone is provided for” (1) through “People should take more responsibility to pro-

11. See app. C.2 for item wording and app. C.3 for the psychometric characteristics of the different personality batteries.

12. Three items were included from the Politics and Values wave, which was completed by LISS panelists at the same time as the WVS (i.e., December 2012).

9. Data collection ran from December 3 to 31, 2012.

10. Data collection ran from May 2 to June 29, 2011, and from May 7 to June 26, 2012.

vide for themselves” (10); “Where would you place yourself on a scale from 1 to 5, where 1 means that differences in income should increase and 5 means that these should decrease?”

A confirmatory factor analysis demonstrated that the nine items fit within a two-dimensional factor structure whereby the items load high on the hypothesized ideology dimension (app. C.4). The internal consistency of the cultural ideology dimension ($\alpha = 0.70$) and economic ideology ($\alpha = 0.75$) were acceptable. We created a scale ranging from the most liberal (0) through the most conservative (1) cultural ideology ($M = 0.33$, $SD = 0.16$) and a scale ranging from the most liberal (0) through the most conservative (1) economic ideology ($M = 0.45$, $SD = 0.20$).

The three ideology dimensions are conceptually distinct. The correlation between unidimensional ideology and cultural ideology was fairly weak ($r = 0.29$), while the correlation between unidimensional ideology and economic ideology was modestly strong ($r = 0.54$). Cultural and economic ideology were weakly associated with each other ($r = 0.10$; see also Bakker 2016; Feldman and Johnston 2014).

For each personality battery, we regressed—using OLS regression models—the criterion measures on each trait as well as sex, age, education, and income (see app. C.5 for the descriptive statistics). To make the results easily comparable, we plot the unstandardized regression coefficients and 95% confidence intervals in one figure with a row for each trait and a column for the associations between each ideology dimension and the BFI, Mini-IPIP, and IPIP. We discuss the results for the three ideology measures on a trait-by-trait basis.¹³ The results discussed here do not change if we do not control for education and income (app. C.8) or if we run structural equation models (app. C.9).

Higher levels of openness were negatively correlated with conservatism (fig. 5, col. 1) and cultural conservatism (col. 2). However, a study using the BFI would conclude that there is a small negative association between economic ideology and openness, while a study using the IPIP would conclude that there is no association between economic ideology and openness (fig. 5, row 1, col. 3).

There is a consistent positive association between conscientiousness (fig. 5, row 2) and the unidimensional measure of conservatism (row 2, col. 1) and cultural conservatism (row 2, col. 2). However, the association between conscientiousness and these ideology dimensions was 1.5–2 times larger when measured using the IPIP compared to the BFI, which suggests an underestimation of the effect of

conscientiousness. Finally, measurement of conscientiousness conditions the conclusion we reach about the relationship between conscientiousness and economic conservatism (fig. 5, row 2, cols. 2 and 3). We would likely conclude that there was no relationship between conscientiousness and the economic ideology dimensions because the 95% confidence interval of the BFI contains zero. Using the more elaborate IPIP and Mini-IPIP, conscientiousness and economic conservatism are positive and significantly correlated. Thus, scholars using the BFI underestimate the size of the association between conscientiousness and ideology and might even conclude that there is no association between conscientiousness and economic ideology.

The results for neuroticism show that the trait is consistently correlated with the ideology dimensions (fig. 5, row 3). There is no association between neuroticism and a unidimensional measure of ideology, while neuroticism is positively correlated with cultural conservatism and negatively correlated with economic conservatism. Our results suggest that the measurement of neuroticism does not condition the conclusions we reach about the association between this trait and various ideology dimensions.

Measurement conditions the substantive conclusions we draw about the association between agreeableness and the dimensions of ideology (fig. 5, row 4). The negative association between agreeableness and conservatism (row 4, col. 1) is two times as large using the IPIP compared to the BFI, while the Mini-IPIP estimate is roughly 50% larger compared to the BFI although not statistically significant different.

The BFI estimate of the relationship between agreeableness and cultural conservatism was not significant. Yet this seems to be a type M error; the relationship between agreeableness and cultural conservatism is three times larger compared to the IPIP. Finally, if we employ the BFI in the study of economic ideology, we would likely conclude that there is a weak negative association with economic conservatism. The negative association between agreeableness and economic conservatism is roughly three times as large and significant when we use the IPIP. The agreeableness results indicate that there is a severe risk of a type M error when using a brief measure of the trait.

Extraversion yielded striking results with both type M and type S errors occurring. Type M errors are found for the relationship between extraversion and an unidimensional measure of ideology as well as cultural ideology. Using the BFI, the association between extraversion and unidimensional ideology was negative and not different from zero. The IPIP—as well as the Mini-IPIP—estimate was positive and much larger and statistically significantly stronger compared

13. Standardized regression coefficients are reported in app. C.7.

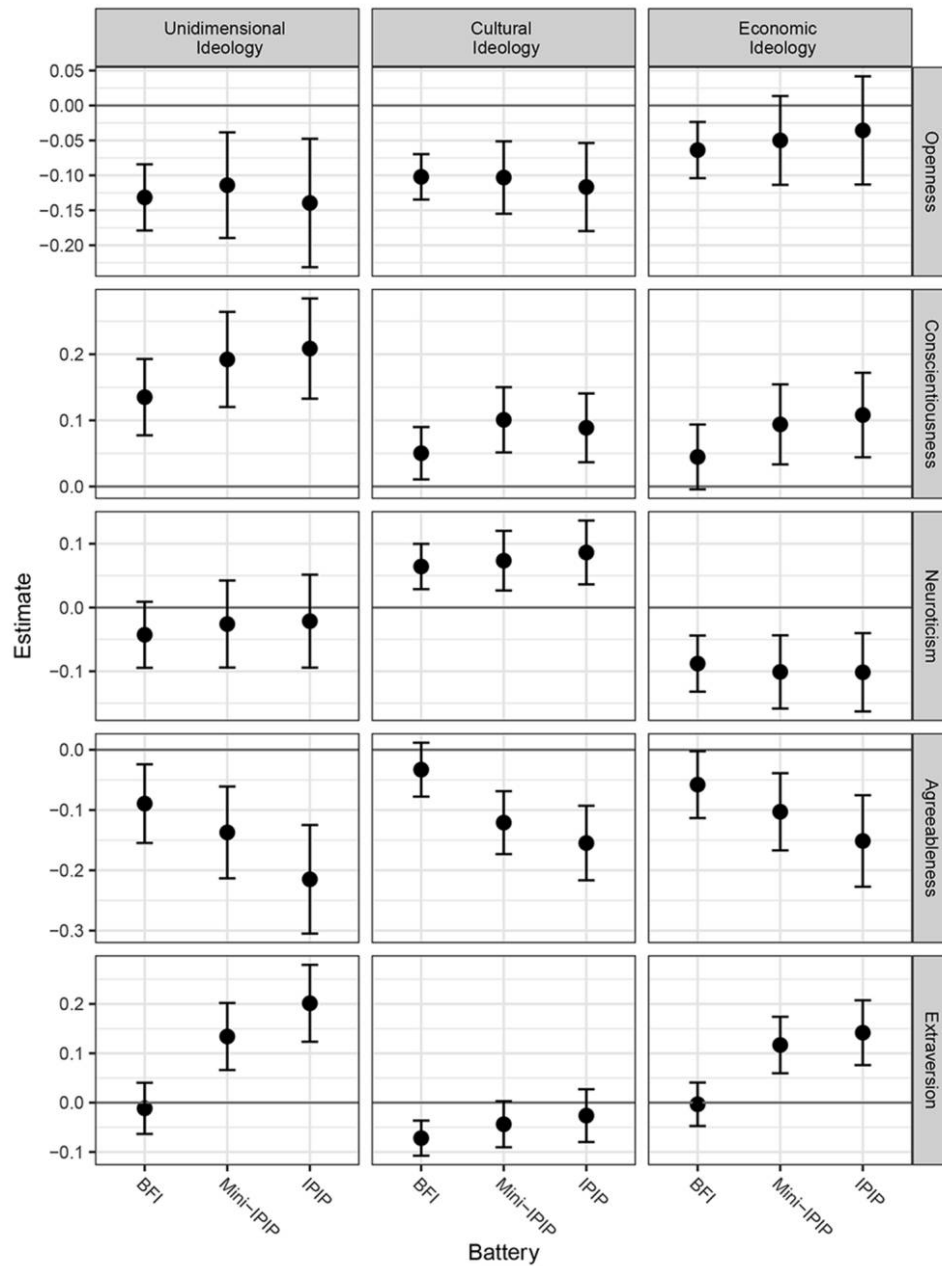


Figure 5. Personality and politics: BFI, Mini-IPIP, and IPIP results. Unstandardized ordinary least squares estimates with 95% confidence intervals (see app. C.6 for tables with results).

to the BFI estimate. Similarly, those using the BFI would conclude that the relationship between cultural ideology and extraversion was negative and not significant, and those using the IPIP would probably argue that there is no relationship between the two constructs. Finally, a type S error is found for the relationship between extraversion and cultural ideology. Those using the BFI would find a negative but not different from zero relationship between extraversion and economic ideology. Those using either the Mini-IPIP or the IPIP would find a much larger significantly positive one.

Would another brief personality inventory, perhaps, result in estimates more consistent with larger personality batteries? Unfortunately, our study does not contain alternative brief measures. We can, however, following the same logic employed in studies 1 and 2, generate 10 one-item measures, 45 different two-item measures, 120 three-item measures, 210 four-item measures, 252 five-item measures, 210 six-item measures, 120 seven-item measures, 45 eight-item measures, and 10 nine-item measures. We calculated the associations between our measures of ideology and each

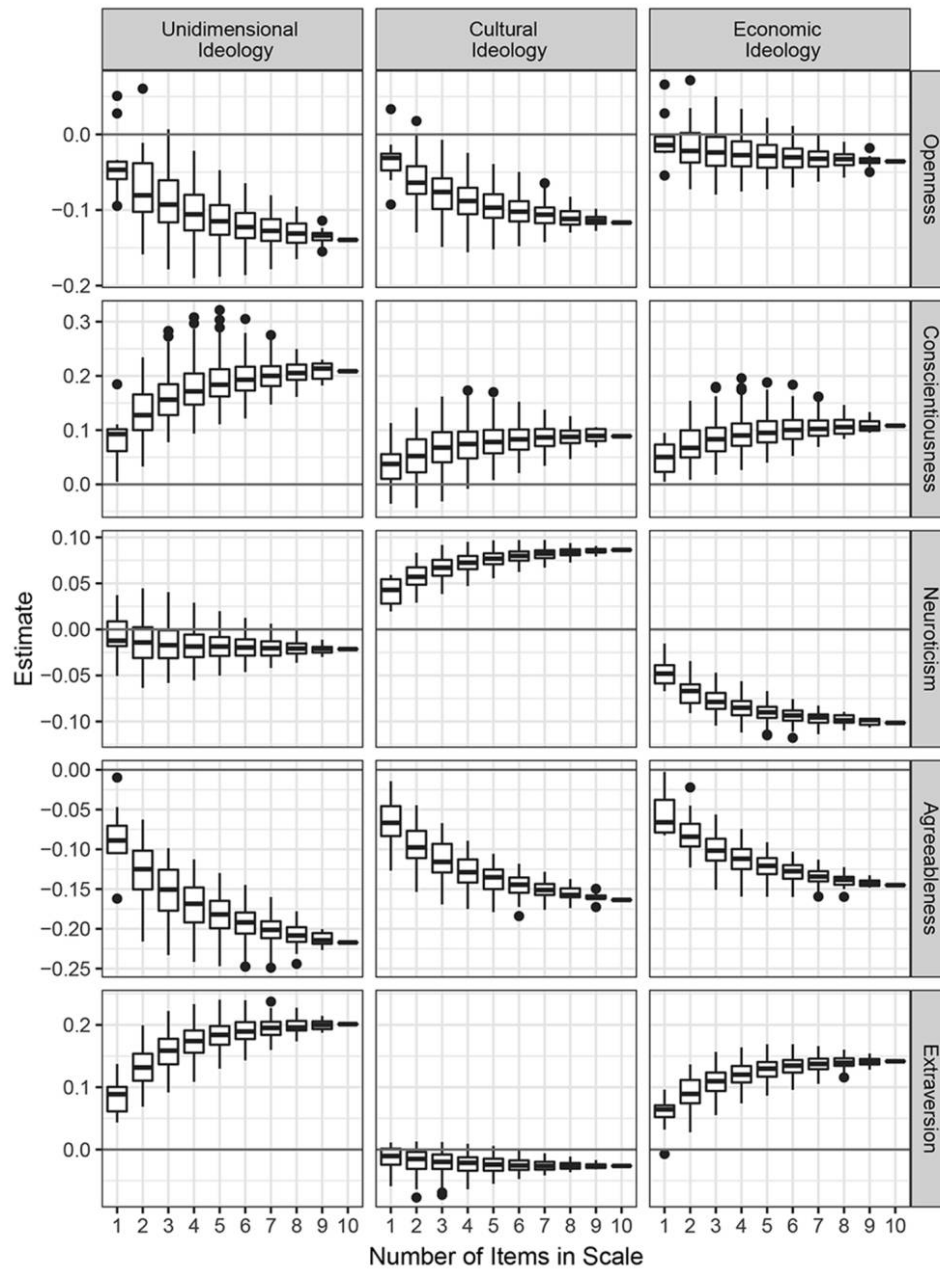


Figure 6. Study 3: relationship between personality and political ideology based on the number of items used to create each Big Five trait. Associations between our measures of ideology and each possible combination of each trait. Distribution of the point estimates of these measures sorted by the number of items used to generate the trait.

of these 1,022 possible combinations of the trait, controlling for the 10-item measures of the other four traits.¹⁴ Figure 6

14. We control for the covariates as well as 10-item measures of the other four traits because this yields the most conservative test given that we reduce measurement error. It becomes logistically difficult to estimate all possible covariate combinations with all possible criterion combinations, as it produces over 1.1×10^{15} parameters.

plots the distribution of the point estimates of these measures sorted by the number of items used to generate the trait. These results clearly illustrate that decreasing the number of items—regardless of the items chosen—generally attenuates the relationship between a trait and the ideology dimensions.

Finally, in line with studies 1 and 2, we show that selecting items of a scale using Cronbach’s alpha (app. C.10) or factor loadings (app. C.11) does not lead to better estimates.

DISCUSSION

The current “replication crisis” has raised serious questions about the validity of social science findings. Political scientists may feel shielded because sample sizes tend to be much larger and more representative than those in psychology, particularly when we use large-*N* surveys like the ANES, Cooperative Congressional Election Studies, or the WVS. However, as a trade-off for large sample sizes, political scientists rely on very short measures of various constructs. As we have demonstrated, this trade-off often leads to different conclusions than if our constructs of interest were longer (see also Achen 1975; Ansolabehere et al. 2008).

The general consensus in political science is that NfC does not moderate a person’s reliance on cues—a consensus that runs counter to the Elaboration Likelihood Model (Petty and Cacioppo 1986). This work overwhelmingly relies on the two-item ANES measure, but when longer measures are used, we have shown in study 2 that those with higher levels of NfC are more likely to rely on policy information. Additionally, our first study indicates that those who exhibit higher levels of NfC are also more likely to rely on party cues, a finding that runs counter to the Elaboration Likelihood Model and Kam’s (2005) expectations but that is consistent with theories of motivated reasoning (Kahan 2013; Slothuus and De Vreese 2010).

Turning to the Big Five and ideology literature, we have shown that—with the exception of neuroticism—the association between personality and political dimensions is highly conditional on the measurement of personality. We found that the 50-item IPIP yields associations with ideology that are twice as strong as the associations produced by the BFI. In a few instances, the BFI yields estimates of the opposite sign to those of the 50-item measure, which suggests the possibility of a type S error. Traits that have largely been dismissed as irrelevant for the study of politics and personality—such as extraversion and agreeableness—are as strongly correlated with our outcome measures as those that are focal to the field. Our study thus shows that relying on a larger Big Five battery would yield different conclusions about which traits are correlated with political ideology.

This study is not without its limitations. One could argue that differences in criterion validity between the BFI and the IPIP in study 3 are actually not explained by the length of the battery but by the measurement tradition (i.e., adjectives vs. sentences). However, our randomly generated two-item IPIP measures in figure 6 show the same poor criterion validity as the adjective-based BFI. Yet, in order to rule out this alternative explanation completely, future studies should collect data that contain brief and elaborate

measures that are based on the questionnaire and adjective approach.

Additionally, when asking questions about the criterion validity, studies should ideally use some gold standard, wherein they compare self-reported behavior with an actual behavior such as the study of electoral participation (e.g., Gerber, Huber, Doherty, Dowling, et al. 2011). We do not have an analogous criterion measure here. This implies that we have to be careful in drawing conclusions that the results of the larger batteries results in better estimates. We have reason to believe that the results of the larger batteries lead to estimates closer to the true estimate because of the superior measurement properties. Yet, we have no way of proving this point. More research, using independent samples but equivalent measures, should help us to get one step closer to understanding the size and direction of the association between personality and political ideology. Finally, many studies of personality and politics have been conducted among American subjects, and it is possible that our results may have been influenced by cultural differences because studies 2 and 3 were conducted in the Netherlands. Future research is well advised to replicate and extend these findings in other political contexts such as the United States.

The renewed interest in personality has also sparked interest in a host of other personality inventories that we did not investigate, such as other popular Big Five inventories (i.e., the TIPI; Gosling et al. 2003) or other popular personality inventories like the Need to Evaluate and the Need for Certainty. There is no a priori reason to assume that other brief measures of personality are less prone to the type M—and to some extent type S—errors documented in this study. Yet the conclusions in this study are necessarily limited to the brief measures of personality we employed. We would welcome future research that assesses the consequences of the use of these brief personality measures because it is not possible to generalize our findings to other brief measures of personality without a direct empirical test.

Identifying the particular combination of items that balances validity and scale length is beyond the scope of this article. But we can offer a few suggestions for future research. As discussed by Cronbach and Meehl (1955, 300), “many types of evidence are relevant to construct validity, including content validity, inter-item correlations, inter-test correlations, test-criterion correlations, studies of stability over time, and stability under experimental intervention.” Scholars tend to follow Cronbach and Meehl (1955) and assess the interitem correlations (see, e.g., Gerber et al. 2010) and overtime stability of the construct (Gerber et al. 2013). However, more attention should be paid to the criterion validity of a

construct (for notable exceptions, see Gerber, Huber, Doherty, and Dowling 2011; Kam and Estes 2016).

What is the way forward for the personality and politics literature in political science? Adaptive tests of personality (Montgomery and Cutler 2013)—such as the implementation of the NfC in the 2016 ANES pilot—save considerable space in surveys. However, some respondents will still answer long measures, which is costly, time consuming, and tiring. Another possibility is to randomly assign k items from the larger pool of N items. Given that this fulfills the “missing completely at random” assumption, we can then impute missing values so that a scale of length N is generated for each respondent (Little and Rhemtulla 2013).

Finally, we believe there is still value in using the abbreviated measures that have been implemented on omnibus surveys. The longitudinal and cross-national nature of many of these surveys makes them particularly invaluable. As evidenced by the NfC studies, short measures of low-bandwidth traits seem to accurately gauge the direction of the effect if not the magnitude. Hence, we should be more skeptical of null relationships than non-null relationships from analyses that use these types of measures. One way forward would be to replicate results found using high-quality probability samples and brief measures on (less expensive) nonprobability samples with longer measures, thereby ensuring both external validity and internal validity.

Moving forward, we strongly advise against employing the two-item ANES NfC measure to study the reliance on party cues or policy information. Regression dilution seems to seriously affect our results and the conclusions we draw. However, the 18-item NfC measure seems to be overkill. A randomly drawn six-to-eight-item battery performs more or less in line with the 18-item measures. While we have to be careful to generalize on the basis of this study, we strongly advise researchers to devote some more space in their survey for a NfC battery (see, e.g., Arceneaux and Vander Wielen 2017; Bullock 2011). Our results suggest that conventions such as high factor loadings or high Cronbach’s alpha should not per se be the yardstick to select the items. Instead, randomly generating a battery of six to eight items would suffice. Yet, we do urge scholars to pretest their NfC battery while paying close attention to the criterion validity of their scale.

Like the NfC, we advise against the use of brief measures of the Big Five personality traits such as the 10-item BFI. Type M and even type S errors seem to dominate these findings. Accordingly, scholars run the risk of disregarding traits as relevant to politics, when they are in fact relevant. Again, a randomly drawn six-to-eight-item battery per trait—or to some extent relying on the four-item Mini-IPIP—seems to function in line with the larger 10-item battery.

We believe the literature on personality and politics has arrived at a turning point and should move beyond the use of extremely abbreviated scales of personality. We therefore welcome the next of generation of personality and politics research.

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