

Objectivity and Bias in Interviewer Assessments of Political Knowledge

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Political knowledge is central to a wide range of theories in political science and plays a critical role in discussions of numerous political phenomena. Political knowledge is operative in structuring individuals' voting decisions (e.g., Macdonald, Rabinowitz, and Listhaug 1995; Delli Carpini and Keeter 1996), conditions the nature of political discourse among individuals (e.g., Huckfeldt 2001; Ahn, Huckfeldt, and Ryan 2010; Ryan 2011), and facilitates mass (Zaller 1992) and interpersonal political persuasion (Mutz 1998). Indeed, citizens' knowledge about public affairs is also central in much of democratic theory (Dahl 1989), where public control of democratically elected governments is dependent upon citizens' awareness of government action and the ability to attribute responsibility social and political outcomes to government that action (Thompson 1980).

Survey researchers typically utilize two methods to measure individual's political knowledge. The first method asks survey respondents a battery of objective political knowledge questions, such as the offices currently held by specific individuals, the political party (or parties) currently in charge of the legislative branch of government, or details regarding specific constitutional functions. These objective items are typically combined to form a political knowledge index and offer a measure of the individuals' latent political "knowledge in use" (Neuman 1981), an indicator of one's cognitive engagement with the topic. Yet these objectives political knowledge items are not without problems. Gibson and Caldeira (2009), and more recently DeBell (2013, 393), argue, for instance, that the codings of the open-ended political knowledge questions collected by the American National Election Study (ANES) are "neither reliable nor replicable." And Mondak and Anderson (2004) have argued that these open-ended quiz items elicit a gender bias because men are more likely than women to wager a guess on questions about which they are uncertain.

An alternative strategy for measuring political knowledge is to use the survey interviewer's subjective assessment of the respondent's level of political knowledge. Though obviously limited to survey environments where interviewers have significant interaction with respondents (i.e., face-to-face and, to a lesser degree, telephone interviews), several scholars have claimed that this unobtrusive measure of political knowledge is both valid and reliable (Zaller 1986; Bartels 1996). Indeed, in a report made to the Board of the ANES, Zaller (1986, 18) notes that, while "interviewers were more effective in making discriminations among respondents in the lower and middle ranges of information than in the top range," the interviewers' subjective assessments of respondents' political knowledge are highly effective measures in a broad range of applications. Bartels (1986) notes further that interviewer assessment items in the ANES provide the additional benefit of over-time comparability, a quality not shared with the objective political knowledge items, the content of which typically change from election to election.

Yet scholars have given scant attention to the potential for bias in these subjective assessments (for an exception, see Ryan 2011).¹ Despite extensive training, survey interviewers are likely to be susceptible to the same biases that govern human psychology (e.g., Allport 1954; Srull and Wyer 1979; Tajfel 1981). If unbiased, interviewers' subjective appraisals of respondents' levels of political knowledge should be highly correlated with the objective measure of political knowledge and devoid of any correlation with demographic factors, such as the respondents' race, gender, or even education. Biased appraisals of the respondents' levels of political knowledge are likely to lead to biased estimates of the variable's relationship with other

¹ Zaller (1986) claims that respondent's race, gender, education, and income produces no significant bias in the interviewers' appraisals, but we find little evidence to support this claim.

politically relevant variables, particularly if interviewers are persuaded that respondents who are passionate about politics or politically active must also be more knowledgeable about politics.

This paper examines the extent of objectivity and bias in interviewers' assessments of political knowledge. Our investigation uses data from five iterations of the American National Election Study. We find that interviewer appraisals do, indeed, reflect respondents' objective political knowledge, but a significant portion of these assessments—roughly 20% of the variables' variance—can be explained by interviewer bias. Most notably, controlling for objective knowledge, interviewers are significantly less likely to classify women and blacks as being high in political knowledge. Conversely, interviewers are more likely to place college graduates in the most knowledgeable category, again controlling for objective knowledge. We also show that the measurement bias in interviewers' assessments of political knowledge biases the estimates one might obtain when attempting to judge the effect of respondents' political knowledge on their political participation. Using a classic errors-in-variables model, we show that the interviewer-assessment measure significantly underestimates the effect of political knowledge on participation.

The Relevance of Political Knowledge

Although researchers from a broad range of fields consider the role of political knowledge, Delli Carpini and Keeter (1996) articulate the importance of political knowledge for democratic theory, empirically demonstrate that Americans are strikingly low in political knowledge, and discuss relationship between political knowledge and a number of political phenomena. According to the democratic ideal, a well-informed citizenry is required to ensure active political participation and to maintain popular control over government (Mill 1865). Without high levels of citizen knowledge of politics, theory suggests, democracy is in peril. Yet

empirical evidence presents a puzzle to traditional views of political knowledge within democratic theory. Since its earliest days, survey research has shown that most citizens have low levels of political knowledge (Berelson, Lazarsfeld, and McPhee 1954; Campbell et al. 1960; Converse 1964), suggesting the public cannot meet the democratic standard. Downs (1957) outlines one rationale for a politically ignorant citizenry, arguing that the cost of educating oneself about politics exceeds any potential benefit one might receive from engaging in a political decision. Thus, despite the imperative of democratic theory, Downs asserts that citizens have little incentive to become politically informed and that ignorance and apathy toward politics is individually rational.

Some scholars have sought to reconcile democratic theory to the empirical reality of low levels of political knowledge among citizens. Lupia (1994; Lupia and McCubbins 1998), most notably, argues that citizens do not need comprehensive (or encyclopedic) political knowledge to participate effectively in democracy. Instead, citizens can rely on cues or heuristics, such as political party labels, to substitute for more costly knowledge. Lau and Redlawsk (2006) similarly argue that citizens with limited information, on average, make approximately the same voting decisions they would have made had they been exposed to greater amounts of information.

While high levels of political knowledge at the individual level may not be as critical as some democratic theorists suggest, political knowledge is nonetheless an important predictor of individual political behavior and strongly conditions the nature of political decision making. Political knowledge is a fundamental—though sometimes overlooked—ingredient in citizens' decisions to turn out and vote, as well as participate more generally in politics (e.g., Galston 2001; Lassen 2005; Larcinese 2007). Political knowledge increases political tolerance and trust

in government (Delli Carpini and Keeter 1996). And political knowledge also conditions citizens' ability to attribute responsibility for governmental action (Gomez and Wilson 2001; 2008). In short, political knowledge is a critical concept in the study of political decision making and political behavior, and measuring this concept remains an important consideration to researchers.

Measuring Political Knowledge

While there is no "perfect measure" of an individual's level of political knowledge, many surveys provide some measure of a respondent's political knowledge. The two primary measurement strategies include the utilization of objective political knowledge questions, which most researchers combine in some fashion to produce a scale of political knowledge, or the employment of interviewers' subjective assessments of respondents' political knowledge. Both measures imperfectly capture a respondent's true level of political knowledge, and both present unique challenges to researchers.

Objective Knowledge Questions

One way that surveys attempt to capture a respondent's level of political knowledge is via a series of objective knowledge questions. These questions typically ask a respondent to identify the political office currently held by a given person, the political party (or parties) that control the legislative branch, and/or the details of some constitutional requirement, such as the number of votes needed to override a presidential veto (e.g., Delli Carpini and Keeter 1993). Researchers typically sum the number of correct answers respondents provide to these queries into a scale to create an objective political knowledge scale. The assumption, of course, is that the individuals' latent levels of political knowledge will be reflected accurately by placement on the summary scale. Individuals with higher true levels of political knowledge should answer more of

objective knowledge questions correctly than those with lower true levels of knowledge.

Moreover, because the open-ended objective political knowledge require the individual to recall (rather than recognize) the correct answer, some scholars have argued that this measurement strategy provides the best indicator of the individual's political "knowledge in use" (Neumann 1981; Gomez and Wilson 2001; 2008).

While these objective knowledge scales present a plausibly valid measure of an individual's true political knowledge, it is important to remember that this measure strategy is imperfect and potentially subject to bias. Mondak and Anderson (2004), for instance, argue that these open-ended quiz items elicit a gender bias because men are more likely than women to offer a guess on questions about which they are uncertain (see also Dow 2009). Others argue that strict coding of these open-ended items, particularly by the ANES, unnecessarily codes partially correct answers as incorrect (Gibson and Caldeira 2009; DeBell 2013). And, Pietryka and MacIntosh (2013) claim that the objective political knowledge scales cannot be used to make valid comparisons across theoretically important subgroups and offer alternative scales to overcome this issue.

Other issues with the use of knowledge scales include question inconsistency over time and missingness within surveys. As Bartels (1996) notes, researchers cannot use objective political knowledge scales in longitudinal analysis of surveys, such as the American National Election Survey, because the content of the objective knowledge questions that form these scales vary over time as politicians move in and out of office. There are also cases of missingness within surveys; objective knowledge questions have not been included on all iterations of the ANES, thus limiting researchers' ability to draw inferences about certain elections.

All that said, objective political knowledge batteries are high in both face and construct (predictive) validity (Shadish, Cook, and Campbell 2001). Clearly, those who are absent political knowledge are unlikely to answer these open-ended items correctly; latent knowledge is both required and made manifest. Moreover, the application of objective political knowledge scales prove to be highly predictive in theoretically predicted ways (e.g., Gomez and Wilson 2001; 2008).

Interviewer Assessments of Political Knowledge

The primary alternative to objective political knowledge scales is the interviewer assessment of a respondent's political knowledge. This measurement strategy, of course, requires an interview, so its implementation is limited to the face-to-face and telephone survey environments. The interview assessment measure tends to include a five point scale of knowledge and, presumably, is based on an interviewer's overall perception of the respondent's demonstrated political knowledge during the interview. Zaller (1986) argues in favor of the validity of this subjective measure and claims that it does not suffer from biases based on respondent or interviewer characteristics. The interview assessment measure also has the advantage of over-time consistency because the question wording and scaling remains consistent across surveys, thus making it a potentially useful measure for researchers. While the interviewer assessment of knowledge has not reached the popularity of objective knowledge scales among researchers, a number of studies have employed the measure with some success. Bartels (1996) uses the interviewer assessment variable to study information effects in presidential elections, using the measure to simulate the behavior and decisions of a "fully informed" electorate. Ryan (2011) also uses the interviewer assessment of a respondent's knowledge level, focusing on the perception of political expertise among individuals within a

discussion network. Ryan (2010) argues that while the respondent's objective political knowledge is a strongly significant factor in predicting one's perception of their political knowledge, other factors bias an individual's perception of a discussion partner's political expertise.

Interviewer's subjective assessments of political knowledge have clear disadvantages however. It not clear that these subjective measures have face validity. While latent political knowledge is the most likely source for correct answers on the objective knowledge scale—luck and guessing being another plausible source—it is possible that a respondent's demonstrated partisan passions, verbosity, and demographic characteristics, such as educational attainment, might influence an interviewer's subjective appraisal of political knowledge. By way of example, consider a recently introduced discussion partner, who “talks a good game” about mathematics, using mathematical concepts and jargon in this discussion. Obviously, the discussion partner has some knowledge of mathematics, but how much? One might perceive the discussion partner to be very knowledgeable about math, but a #2 pencil and a problem set might prove otherwise. Similarly, while knowledge scales have a clear, if imperfect, connection to underlying political knowledge, the connection between an interviewer's assessment of political knowledge and a respondent's true level of political knowledge is potentially distorted.

Researchers cannot know with certainty on which criteria the interviewer is basing his/her subject assessment of political knowledge. An interviewer may, indeed, base his/her assessment solely on the revelation of a respondent's objective political knowledge. Yet on measures of education, demonstration of political knowledge, enthusiasm for politics, the respondent's confidence when answering questions, gender, race, income, etc. Yet other factors, unrelated (or only weakly related) to objective political knowledge, may influence an

interviewer's appraisal. Indeed, the interviewer is a constant and potentially biasing factor in this indirect measuring strategy.

Perceiving Political Knowledge

When interviewers—even well-trained ones—encounter a respondent for the first time, they are likely to be prone to the same psychological biases that commonly govern impression formation and trait ascription in all of us. Indeed, Garb (1997) shows that clinical psychologists—professionals who are highly trained to recognize psychological pathologies—are susceptible to race, social class, and gender bias in their own clinical judgments.

Jones and Nisbett (1971) were among the first psychologists to argue that people are biased in the way they attribute traits and dispositions to others, ascribing qualities to others that they may be unwilling to attribute to themselves. These biased ascriptions often result from the application of stereotypes (e.g., Allport 1954; Srull and Wyer 1979; Tajfel 1981), a cognitive process that is considered “automatic” (i.e., subconscious and unintentional) (e.g., Fiske and Pavelchak 1986; Devine 1989). Applied to the survey interview process, theory suggests that interviewers are likely to compare a respondent to the stored memory of individuals he/she has encountered in the past and attempt to categorize the respondent appropriately. Rather than judging the respondent in isolation, the interviewer ascribes traits and characteristics to the respondent conditional on his/her prior beliefs about the respondent's category. Thus, the interviewer's subjective assessment of a respondent's political knowledge is conditioned by the interviewer's beliefs about the group(s) to which the respondent belongs.

Similar to Zaller's argument in favor of subjective assessments of political knowledge, Huckfeldt (2001, 431) argues that individuals in social interactions accurately judge the political expertise of others vis-à-vis themselves, noting that “the best predictors of *perceived* expertise

are the measures of *actual* expertise” (emphasis in original). Ryan (2011), in a reevaluation of Huckfeldt’s data, argues that interpersonal perceptions of political expertise are, at least in part, biased, as individuals rely on stereotypes when determining an acquaintances level of political knowledge. As Ryan (2011, 352) concludes, “[t]he good news is individuals are able to recognize expertise, but people do make mistakes and systematically overestimate the knowledge of some types of individuals and underestimate it in others.”

Delli Carpini and Keeter (1996) show that gender, age, race, income, and education are all predictors of political knowledge, and it is reasonable to think that interviewers might incorporate these considerations into their assessment of a respondent’s political knowledge. Yet, interviewer perception may lead them to under- or overestimate an individual’s level of political knowledge based on stereotypes and non-knowledge related traits, even when the interviewer has information that accurately reflects the respondent’s objective political knowledge.

A number of studies, for example, have found that women are less knowledgeable—based on “objective” measures—than men (Delli Carpini and Keeter 1996; Verba, Burns, and Scholzman 1997). This result has been attributed to interviewer effects (McGlone, Aronson, and Kobayonowicz 2006), a lower propensity to guess among women (Mondak and Anderson 2004), and differences between genders in the strength of association between knowledge and individual characteristics (Dow 2009). The knowledge gap between men and women remains when one controls for these concerns, however, though the magnitude of the gap varies between surveys. Stolle and Gidengil (2010) show that the gap tends to disappear when one considers issues that are of importance to women, indicating that traditional knowledge batteries may underestimate female political knowledge when they focus on issues more likely to interest men.

Whatever the underlying causes of this gender gap, the long-standing perception that women are less politically knowledgeable than men might influence an interviewer's subjective assessment, causing them to rank women as less politically knowledgeable than men, simply due to stereotype.

Hence, if biases in subjective evaluations of political knowledge exist, we would expect to see that, interviewers should be less likely to classify women and blacks as being high in political knowledge than their male and white counterparts, controlling for objective political knowledge. Conversely, we would expect that interviewers are more likely to place college graduates and strong partisans in the most knowledgeable category—again, controlling for objective knowledge—and thus overestimating political knowledge within these groups.

Data and Methods

In order to gain leverage on the extent of bias in the interviewer assessment of knowledge, it was necessary to identify situations in which both objective knowledge and interviewer assessments were measured at the same time. Five recent American National Election Studies meet these criteria. Each study includes a battery of open-ended, objective political knowledge items. And after completing the interview with a respondent, interviewers were prompted to assess each respondent's political knowledge with the following question: *Respondent's general level of information about politics and public affairs seemed_____.* Answers range on a five-point scale from "Very high," to "Very low."

The data set includes the five post-election waves of the ANES from 1992 to 2012—omitting the problematic 2004 study (see Krosnick, DeBell and Donakowski 2008). We consider two measures included in all of these studies to be justifiable as "unbiased" ingredients of interviewer assessments: the number of correct answers to the common battery of objective

knowledge questions and whether or not a respondent reports having voted in the previous election. While the case for having voted as an objective measure of knowledge is perhaps more controversial, we follow Downs (1957) in arguing that the act of voting requires that information has been gathered, at least to some extent, on the candidates and issues of the race, and that an interviewer could plausibly use that information in assessing a respondent's knowledge.

Four open-ended objective knowledge items have been consistently included in the ANES since 1992. Though the specific actors involved have changed over time, the objective items query individuals' knowledge of current Vice President of the United States, Speaker of the House, Prime Minister of Great Britain, and Chief Justice of the United States. These four items have been deemed sufficient for capturing the concept of political knowledge (Delli-Carpini and Keeter 1996), and the index constructed from these items has been used regularly by scholars as such in subsequent decades. The open-ended political knowledge questions for 2008 and 2012 have not been officially coded by ANES, though an "unofficial" coding conducted by the study's Principal Investigators, Jon Krosnick and Arthur Lupia are publically available on the ANES website.² Each of the authors, along with one additional coder, independently read and coded the open-ended political knowledge responses for the 2012 ANES for correctness using the standards articulated by the ANES. After the coding, we discussed differences in individual response codings and agreed on a value for the *knowledge index* for each respondent; these data were then then merged with the 2012 ANES data.

We also include a number of variables that, if significant, would represent bias in the interviewer assessment. These include whether the respondent identifies as African American, the gender of the respondent, level of education, age, income, and the strength of the

² http://electionstudies.org/studypages/2008prepost/ANES2008TS_OfficeRecognition.zipx

respondent's partisan identification. Many of these variables were shown to have a significant influence on interviewer assessments by Ryan (2011) in his study of the 2000 ANES. Strength of partisanship is a four-point variable created from folding the standard seven-point party identification scale. Thus, "strong Republicans" and "strong Democrats" are coded as high on the scale and "Independents" are coded as low.

After controlling for the respondent's objective knowledge, none of the biasing variables we include in our model of interviewers' subjective assessments should achieve statistical significance if no measurement bias is present. Statistical differences from zero in these estimates reflect the presence of interviewer bias. Any direct effects of the demographic and strength of partisanship variables on variation in the respondents' *true* levels of political knowledge should be reflected in their performance on the objective political knowledge scale and, thus, already accounted for.

In some preliminary models, when available, we include additional biasing variables accounting for whether the respondent and interviewer are both the same gender (*gender match*) or that both are white and/or members of minority groups (*race match*) to account for the possibility that interviewers tend to prefer others who are "like them" in a similar manner to society at-large (Kawakami, Dion, and Dovidio 1998). Interestingly, none of these measures had a statistically significant influence on the interviewers' assessment of political knowledge and were dropped from the final tables presented here. Recognizing that assessment criteria may change between years, we include fixed effects for the year of the study in our pooled model. Our preliminary analysis examines the extent of bias in the interviewer assessment through simple ordered logit analysis. We utilize two-tailed tests in these models, allowing for the possibility that measurement bias may manifest itself in unexpected ways, such as if

interviewers, cognizant of their potential biases, overcompensate in the other direction. We then proceed to quantify the extent of bias within each year before offering a potential remedy for future scholars attempting to utilize IA.

Results

Table 1 reports the overall estimated effect of each variable on interviewers' subjective assessments of political knowledge using pooled data and ordered logit analysis. Election-year fixed effects were included in the model but excluded from the table for simplicity of presentation. As one might hope, the open-ended *Knowledge Index* and *Voted*, indicators of objective political knowledge, are the strongest predictors of interviewer assessment, having the largest coefficient and highest *t*-score of any included variables. This confirms Ryan's (2011) claim that the subjective assessments are largely based on objective criteria. However, similar to Ryan, our investigation also demonstrates that significant interviewer bias is present in the measure of this variable. Each of the potentially biasing factors that we included in our model, including *Age*, *Female*, *Black*, *Income*, *Strength of Partisanship*, and *Education* ($p < .01$), had a significant effect on the interviewers' assessment of respondents' political knowledge, the lone exception was the variable indicating the respondent's marital status.

[Table 1 here]

One-tailed hypothesis tests reveal that each of the variables listed above behave in the direction hypothesized. Older respondents, better educated respondents, higher income respondents, and highly partisan respondents were all assessed as being higher in political knowledge than the objective indicators would suggest. Unsurprisingly, women and blacks were biased toward the low end of the political knowledge scale. One somewhat surprising result is the strong, positive effect of *South* on interviewers' assessments of political knowledge.

Contrary to expectations, interviewers generally perceived residents of the former Confederacy as having greater levels of political knowledge than those from the rest of the country. Whether this is a result of overcompensation, stronger opinions among southerners, or some other explanation is not clear from this analysis. Since these estimates are generated from a pooled model of ANES respondents from five election years, we turn next to a year-by-year analysis to determine the extent to which the factors biasing interviewer assessments of political knowledge are relatively stable across time.

Table 2 presents the year-by-year ordered logit results of interviewer assessment predicted by the same biased and unbiased factors described in Table 1. Interestingly, the estimates demonstrate a great deal of consistency across years. Somewhat reassuringly perhaps, the *Knowledge Index* and *Voted* are consistently the strongest predictors of interviewers' subjective assessments of knowledge, but most of biasing factors are consistently important as well. *Age*, *Education*, *Partisan* and *Income* once again exert consistently positive effects on interviewer assessments, while *Female* has consistently negative effects. The effect of *Black* on interviewer assessment is the estimate that exhibits the most inconsistency. While *Black* exerts a significant positive influence on interviewer assessments of political knowledge in 1992, it has a negative effect in all other years in which it is significant.

[Table 2 here]

Table 2 also displays the extent to which the explained variance in interviewer assessments of political knowledge is produced by biasing factors in each year. This percentage is calculated by differencing the pseudo- R^2 , a measure of total variance explained by the model, in ordered logit with only the unbiased items included (*Knowledge Index* and *Voted*) from the pseudo R^2 in the equation with the biasing variables included. While the majority of variation in

interviewers' subjective assessments is explained by the objective knowledge index in each year, a sizable percentage of variance is attributable to bias. This percentage remains relatively stable across years, accounting for a low of 17.97% of the variance explained in 2012 and a high of 23.87% in 1992. There does not appear to be a consistent pattern of either increasing or decreasing levels of bias over time, as the percentage vacillates seemingly at random within this admittedly narrow range of elections. Across the five surveys here, the average bias is about 21.01%, a substantively significant amount.

To highlight the bias in the measure of interviewers' subjective assessments of political knowledge among females, a graph of marginal changes in predicted probabilities is presented in Figure 1. The figure shows the differences in predicted probabilities between interviewers' assessments of male and female respondents holding all other variables in the model, including objective knowledge, constant.³ As an example of interpretation, in the 2012 data, a female respondent has an approximately .04 lower probability of being assessed as having the highest level of political knowledge and an approximately .07 higher probability of being assessed as having average intelligence. Females are thus significantly less likely to be reported as having the highest two levels of political informedness and are significantly more likely to be reported in the lower three categories across each year of the ANES under study. This clear bias against female respondent in the subjective measure of political knowledgeable is perhaps made more curious by the fact that the vast majority of interviewers in the ANES are female (almost 90% in the cumulative file). We undertook several additional analyses in order to examine a number of plausible explanations here, including that females are more likely to respond "don't know" than males, or that male respondents rate female respondents as less intelligent. Neither of these

³ Variables held constant at means for continuous variables and at the mode for dichotomous measures. The critical knowledge index variable is held at 3.

explanations seemed to hold water, suggesting that interviewers of both genders were predisposed to rate women as less informed controlling for their objective knowledge and predisposition to make “don’t know” responses.⁴

[Figure 1 here]

Figure 2 details the biasing effects of education on the interviewers’ subjective assessment of political knowledge using similarly constructed changes in predicted probabilities. Again holding all other variables including objective knowledge constant, differences between high school graduates and those who have completed college are significant at alternative ends of the subjective political knowledge scale. In each year examined, interviewers are significantly more likely to place high school graduates in the lowest categories of political knowledge and college graduates in the highest knowledge categories, irrespective of the respondents’ objective level of political knowledge.

[Figure 2 here]

It would thus appear, as we have argued, that interviewers’ subjective assessments of survey respondents’ political knowledge are substantially (though clearly not entirely) influenced by interviewers’ biases toward the respondent. If this is true, any model incorporating these interviewer assessments of knowledge as an *independent* variable will likely suffer from the classic errors-in-variables problem. To demonstrate the potentially pernicious effects of measurement bias in interviewers’ subjective assessments, we construct several models of political participation and include as interviewers’ assessments as an explanatory variable. Drawing on pooled ANES data, when available, we construct models of respondents’

⁴ “Don’t Know” responses to two important questions—ideology and partisanship—were counted. This variable proved predictive, but it’s only effect was to decrease the importance of partisanship as an explanatory variable. Female respondents were still assessed as significantly lower in knowledge. These results available upon request.

engagement in four participatory activities: placing a campaign bumper sticker on one's car, voting in the presidential election, voting in the congressional election, and contacting one's member of Congress.

Given our evidence of bias, we employ (and recommend) the use of a straightforward errors-in-variables regression model. Since the model only requires information regarding the respondents' characteristics that might bias the interviewers' assessments, researchers can employ this corrective method even in cases where the objective *Knowledge Index* may not have been included in the survey. The model is constructed in the following manner:⁵ let

$$Y_i^* = \alpha + \beta X_i^* + \varepsilon_i^*$$

Where, Y_i^* represents the observed values of Y_i , X_i^* represents the observed values of X_i , and $\varepsilon_i^* = \varepsilon_i - \beta \xi_i$, so that ε is the standard regression disturbance term and ξ_i represents the errors in measuring X_i . To estimate the extent of measurement bias included in X_i^* regress X_i^* on the k instrumental (proxy) variables Z_{ki} posited to be the theoretical source of the bias:

$$X_i^* = \gamma + \delta Z_{ki} + \omega_i$$

In our case, the proxy variables, Z_{ki} , are the biasing variables from our earlier models of interviewer assessments, *Age, Black, Female, Education, Income, South, and Strength of Partisanship*. Incorporating the least squares residuals $\hat{\omega}_i$ from the model above into the model Y_i^* , results in

$$Y_i^* = \alpha + \beta \hat{X}_i^* + \theta \hat{\omega}_i + \varepsilon_i^*$$

If the resulting estimate, θ , is statistically significant, we can reject the null hypothesis of no systematic measurement error. The value of θ indicates the direction and extent of measurement

⁵ This discussion follows Gomez and Wilson (2006).

bias. Most importantly, the resulting β reflects the estimated effect of respondents' political knowledge, purged of any bias associated with the interviewers' subjective assessment.

Results of these errors-in-variables regressions are presented in Table 3. Each model includes the direct effects of the respondents' demographic characteristics and political orientations on the decision to participate in the respective political activity. For each activity, we provide a comparison of a model that includes an errors-in-variables correction for measurement bias in interviewers' assessments of political knowledge with a model that does not correct for measurement error. In each "corrected" model of political participation, the measurement error associated with the interviewer assessments is statistically significant. Most importantly, the results suggest that failure to account for this measurement error results in biased estimates of the effect of political knowledge on political participation. The changes in predicted probabilities presented at the bottom of Table 3 suggest that the marginal effect of political knowledge is substantially higher in the corrected models than in the uncorrected models.

[Table 3 here]

Discussion

This analysis endeavors to determine how well interviewers' subjective assessments of political knowledge can substitute for objective assessment of political knowledge. We found that, though objective knowledge is generally the strongest predictor of the interviewers' assessments, the measure is significantly affected by interviewers' biases toward the respondent. The bias associated with the subjective assessments of respondents' levels of political knowledge makes the measure inadvisable to use as a measure of the underlying latent concept of political knowledge without correction. Indeed, failing to account for bias could have important

consequences for scholars who utilize the interviewer assessments (Bartels 1996; Duff, Hamner, Park and White 2007). In circumstances where objective knowledge questions are not included in the study, we have offered a potential remedy to the bias problem through the use of a classic errors-in-variables approach that takes into account the biasing factors and recovers, to a large extent, the objective component of the interviewer assessments. This may allow researchers to build a more comprehensive picture of political knowledge over time, as the ANES has only included objective knowledge questions consistently since 1988, and problems have been identified with the objective measures even in more recent years (Krosnick, Debell, and Donakowski 2010) while the interviewer assessment has been consistently collected since 1966. The findings here may also be useful to scholars utilizing other data sets where interviewer assessments are the sole measure of knowledge, as other interviewers are likely to exhibit the same types of biasing described in this paper. That said, we would argue that the objective measures of political knowledge, despite their own problems, have greater face validity than subjective interviewer assessments and should be deemed preferable when available.

A potential counterargument to the results here is that the interviewer assessments is actually *meant* to capture things beyond what the objective knowledge questions can provide—the number of times the respondent said “uh” when asked a question or sought signs of confirmation before providing answers to questions—if this is the case, it suggests that greater work is needed on defining what we mean by political knowledge. If the interviewer assessment is indeed providing additional information about a respondent’s knowledge, the use of the four-item objective knowledge index may need to be reassessed.

Moving forward, researchers are encouraged, at minimum, to be cognizant of the bias in interviewers’ assessments of political knowledge and to take steps to attenuate it whenever

possible through errors-in-variables models that identify and remove the effects of biasing factors.

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TABLE 1. The Effect of Biased and Unbiased Factors on Interviewers' Subjective Assessments of Political Knowledge, Ordered Logit

VARIABLES	Interviewer Assessment
Knowledge Index	0.782*** (0.029)
Voted	1.022*** (0.069)
Age	0.011*** (0.002)
Black	-0.132* (0.071)
Female	-0.369*** (0.051)
Education	0.324*** (0.019)
Income	0.154*** (0.027)
South	0.188*** (0.053)
Married	0.011 (0.055)
Partisan	0.152*** (0.026)
Cut Point 1	0.427*** (0.147)
Cut Point 2	2.499*** (0.145)
Cut Point 3	4.977*** (0.155)
Cut Point 4	7.008*** (0.166)
Observations	7,229

Coefficients are maximum likelihood estimates. Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1, two-tailed test

TABLE 2. The Effect of Biased and Unbiased Factors on Interviewers' Subjective Assessments of Political Knowledge by Year, Ordered Logit.

VARIABLES	1992	1996	2000	2008	2012
<i>Knowledge Index</i>	0.785*** (0.066)	0.772*** (0.0602)	0.688*** (0.056)	0.766*** (0.056)	0.911*** (0.088)
<i>Voted</i>	0.961*** (0.151)	0.973*** (0.144)	1.317*** (0.157)	0.948*** (0.135)	0.931*** (0.207)
<i>Age</i>	0.014*** (0.004)	0.010*** (0.003)	0.017*** (0.003)	0.009*** (0.003)	0.006 (0.004)
<i>Black</i>	0.332* (0.176)	0.034 (0.190)	-0.537*** (0.177)	-0.269** (0.106)	-0.007 (0.211)
<i>Female</i>	-0.343*** (0.113)	-0.234** (0.110)	-0.446*** (0.112)	-0.414*** (0.091)	-0.377*** (0.142)
<i>Education</i>	0.434*** (0.043)	0.365*** (0.041)	0.368*** (0.041)	0.269*** (0.035)	0.251*** (0.048)
<i>Income</i>	0.143** (0.062)	0.189*** (0.061)	0.098* (0.058)	0.240*** (0.052)	0.111* (0.059)
<i>South</i>	0.089 (0.129)	-0.352*** (0.113)	0.262** (0.114)	0.357*** (0.091)	0.383** (0.153)
<i>Married</i>	0.042 (0.122)	-0.078 (0.114)	0.113 (0.120)	-0.111 (0.098)	0.122 (0.155)
<i>Partisan</i>	0.205*** (0.060)	0.224*** (0.058)	0.108* (0.057)	0.156*** (0.047)	0.099 (0.072)
% Variance from Bias	22.83%	22.81%	18.85%	21.05%	17.60%
Cut Point 1	2.203*** (0.326)	2.488*** (0.350)	2.568*** (0.327)	1.282*** (0.293)	-0.179 (0.378)
Cut Point 2	4.446*** (0.332)	4.626*** (0.359)	4.641*** (0.348)	3.211*** (0.286)	2.027*** (0.334)
Cut Point 3	7.267*** (0.375)	7.058*** (0.387)	7.113*** (0.385)	5.592*** (0.308)	4.463*** (0.355)
Cut Point 4	9.434*** (0.403)	9.092*** (0.411)	9.271*** (0.411)	7.579*** (0.326)	6.430*** (0.386)
Observations	1,281	1,347	1,299	1,826	1,476

Coefficients are maximum likelihood estimates. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

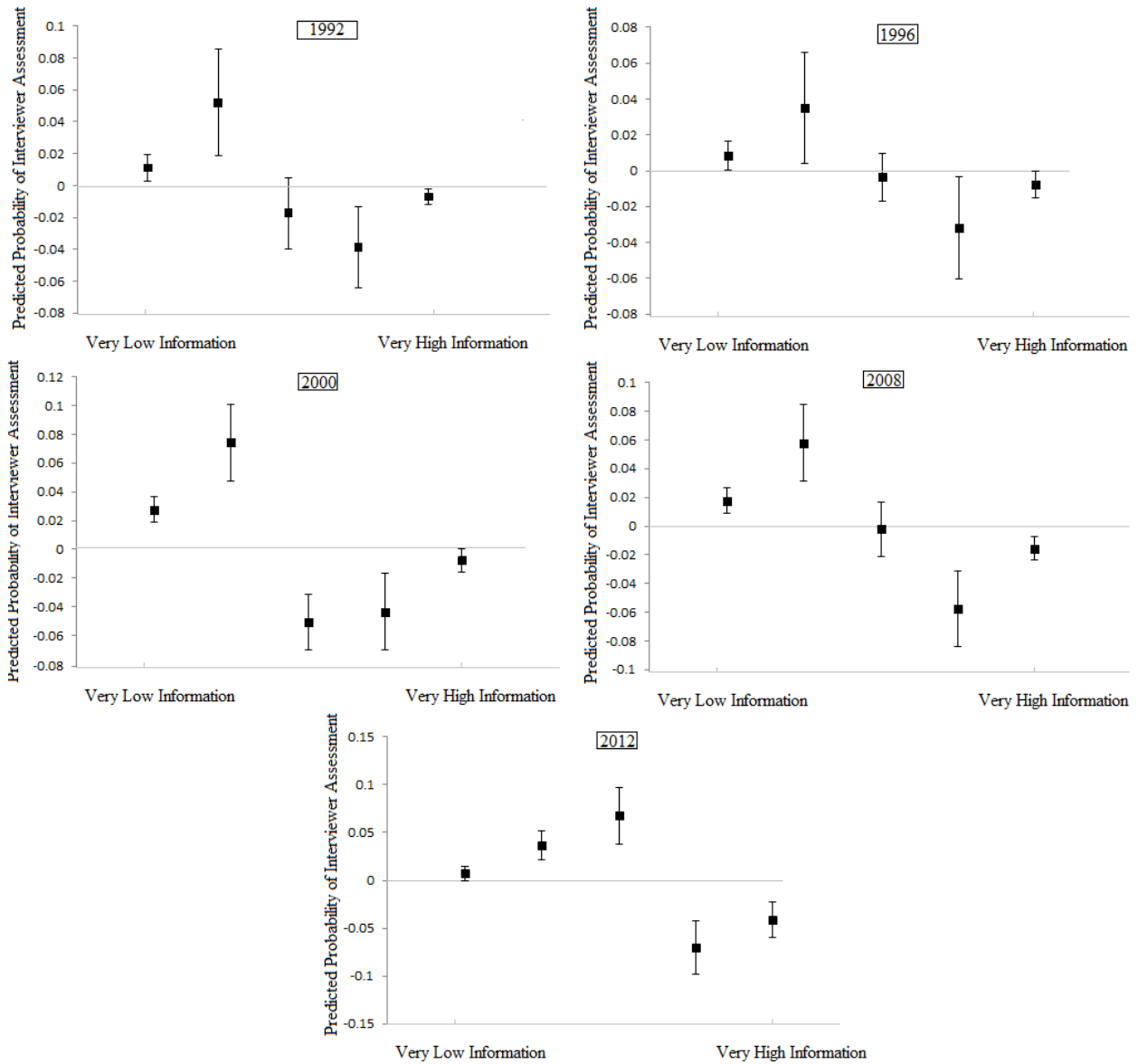
TABLE 3. Testing for Systematic Measurement Error in the Effect of Interviewers' Subjective Assessments of Political Knowledge on Political Participation.

	Uncorrected	Corrected	Uncorrected	Corrected	Uncorrected	Corrected	Uncorrected	Corrected
Variables	Bumper Sticker	Bumper Sticker	Voted President	Voted President	Voted Midterm	Voted Midterm	Contacted Congress	Contacted Congress
Interviewer-Assessed Knowledge	1.741*** (0.139)	4.507*** (0.355)	2.825*** (0.178)	4.885*** (0.384)	2.604*** (0.102)	5.586*** (0.243)	2.265*** (0.166)	4.743*** (0.420)
Black	0.270*** (0.087)	0.380*** (0.088)	0.129 (0.115)	0.237** (0.117)	0.034 (0.070)	0.124* (0.070)	-0.386*** (0.131)	-0.320** (0.132)
Partisan	0.422*** (0.036)	0.334*** (0.038)	0.398*** (0.037)	0.341*** (0.038)	0.346*** (0.023)	0.249*** (0.024)	0.059 (0.038)	-0.023 (0.040)
Female	-0.026 (0.061)	0.184*** (0.066)	0.246*** (0.075)	0.409*** (0.081)	0.140*** (0.045)	0.369*** (0.049)	0.227*** (0.073)	0.425*** (0.079)
Income	0.022 (0.029)	-0.055* (0.031)	0.293*** (0.037)	0.249*** (0.039)	0.234*** (0.022)	0.148*** (0.023)	0.104*** (0.036)	0.023 (0.037)
Age	-0.012*** (0.002)	-0.020*** (0.002)	0.026*** (0.002)	0.021*** (0.003)	0.035*** (0.001)	0.027*** (0.002)	0.007*** (0.002)	-0.001 (0.002)
Education	-0.013 (0.022)	-0.207*** (0.032)	0.223*** (0.029)	0.068* (0.039)	0.163*** (0.016)	-0.052** (0.023)	0.064** (0.025)	-0.108*** (0.036)
Residual		-3.228*** (0.392)		-2.473*** (0.411)		-3.502*** (0.257)		-2.908*** (0.439)
Constant	-3.260*** (0.205)	-3.246*** (0.205)	-4.313*** (0.237)	-4.323*** (0.239)	-5.011*** (0.143)	-4.959*** (0.144)	-4.107*** (0.210)	-3.996*** (0.197)
	16,307	16,172	5,168	5,129	12,387	12,286	6,815	6,745

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

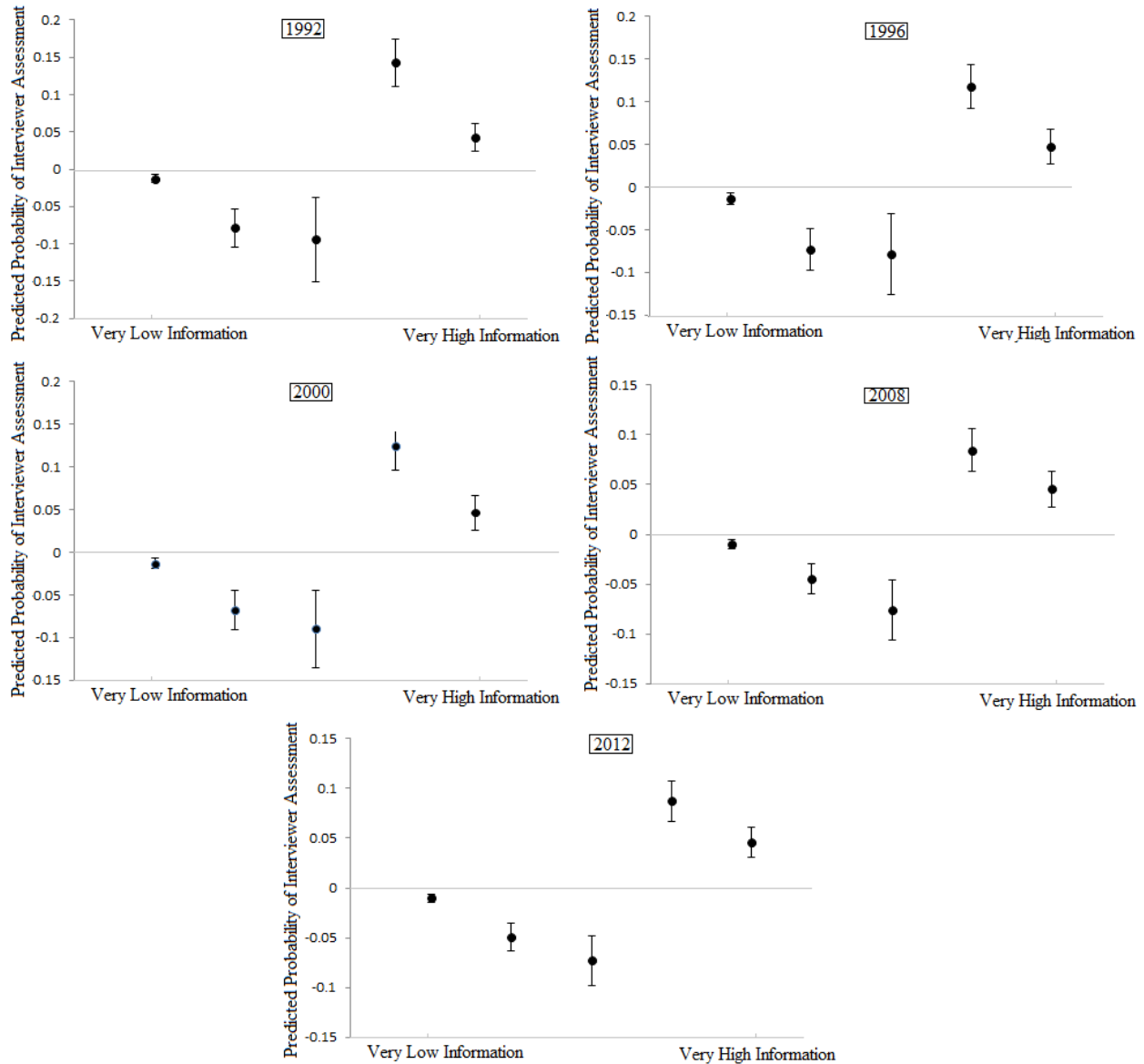
Change in Predicted Probability, Lowest to Highest Knowledge (Interviewer Assessment)		
Dependent Variable	Uncorrected	Corrected
Bumper Sticker	0.144 (0.013)	0.495 (0.048)
Voted President	0.484 (0.098)	0.560 (0.180)
Voted Congress	0.553 (0.016)	0.885 (0.013)
Contacted Congress	0.268 (0.031)	0.660 (0.062)

FIGURE 1. Changes in Predicted Probability of Interviewer Assessment, Male to Female.



Note: Figure represents the change in predicted probability of selection of each category of IA when the gender of a respondent shifts from female to male. All other variables held constant at their mean for continuous variables and the most common variable for dummy variables. Objective knowledge is held slightly above average, at “3.” The results do not change substantially with other values for other variables.

FIGURE 2. Changes in Predicted Probability of Interviewer Assessment, HS to College Grad



Note: Figure represents the change in predicted probability of selection of each category of IA when the reported education of a respondent shifts from “high school graduate” to “college graduate.” All other variables held constant at their mean for continuous variables and the most common variable for dummy variables. Objective knowledge is held slightly above average, at “3.” The results do not change substantially with other values for other variables.