

Another Look at the Measurement of Political Knowledge

Jason Barabas

*Department of Political Science, Southern Illinois University,
Carbondale, IL 62901-4501
e-mail: barabas@siu.edu*

Many theorists argue that deliberation helps citizens become more informed, but to what degree does discussion affect actual levels of political knowledge? I examine the potential for enlightenment through political discussion by replicating and extending Jeffery J. Mondak's "Reconsidering the Measurement of Political Knowledge" (*Political Analysis* 2000, 8:57–82) and then cross-validating his study through similar analyses with a new data set. Mondak demonstrated that political discussion in the 1992 National Election Studies survey reduced the proportion of "don't know" responses relative to the proportion of correct answers. My analysis using the same grouped-data multinomial logit model on the same data produces identical results. I obtain similar results in an extension of his 1992 NES analysis when I include 215 cases that were excluded; the direction and statistical significance remain the same, but small differences in the magnitude of specific coefficients and their standard errors are observed. A third investigation generates a comparable pattern of increased proportions of correct knowledge relative to the "don't know" responses in two cross-sectional surveys conducted by Princeton Survey Research Associates in 1998. Taken together, these analyses reveal that discussion increases political knowledge, but it does so selectively. While grouped-data multinomial logit models may be used in this manner to detect subtle differences in forms of information, they still might not be a solution to the fundamental validity problem plaguing studies of political knowledge.

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Many theorists argue that deliberation helps citizens become more informed, but to what degree does discussion affect actual levels of political knowledge? I examine the potential for enlightenment through political discussion by replicating and extending Jeffery J. Mondak's (2000) article in *Political Analysis*, and then cross-validating his study through similar analyses with a new data set. Mondak demonstrated that political discussion in the 1992 National Election Studies survey reduced the proportion of "don't know" responses relative to the proportion of correct answers. My analysis using the same grouped-data multinomial logit model on the same data produces identical results. I obtain similar results in an extension of his 1992 NES analysis when I include 215 cases that were excluded; the direction and statistical significance remain the same, but small differences in the magnitude of specific coefficients and their standard errors are observed. A third investigation generates a comparable pattern of increased proportions of correct knowledge relative to the "don't know" responses in two cross-sectional surveys conducted by Princeton Survey Research Associates in 1998. Taken together, these analyses reveal that discussion increases political knowledge, but it does so selectively. While grouped-data multinomial logit models may be used in this manner to detect subtle differences in forms of information, they still might not be a solution to the fundamental validity problem plaguing studies of political knowledge.

1 Introduction

Knowledge has emerged as one of the most important variables in the study of political behavior. While most scholars conclude that citizens possess low levels of information (Delli Carpini and Keeter 1996; Converse 1990), many studies reach these dire conclusions based upon simple additive scales that tally the number of items a person

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Jason Barabas

answers correctly on a battery of factual questions. Zaller (1992) uses such indices as proxies for media awareness in his treatment of mass public opinion, and similar knowledge scales have been used elsewhere while to model political opinions and voting (Gilens 2001; Althaus 1998; Goren 1997; Delli Carpini and Keeter 1996; Bennett 1989; Lau and Redlawsk 1997).

Recent empirical evidence points to the need for a deeper understanding of political information. For example, in their comprehensive study of political knowledge, Michael X. Delli Carpini and Scott Keeter (1996) argue that to be misinformed means something different than to be uninformed. In a related article, Jeffery Mondak (2000) shows that summing correct answers to political knowledge questions is of uncertain validity at best. The problem is that such a procedure treats "don't know" (hereafter "DK") and incorrect answers equally. Mondak concludes that knowledge may not be discrete and that giving respondents a DK option on surveys conflates personality traits and political knowledge.¹ He argues to be misinformed implies that exposure to information occurred and that the processing and storage of that information was somehow flawed. In contrast, to be uninformed implies that no information was received and stored (59).

From Mondak's perspective, four states of knowledge exist – fully informed, partially informed, misinformed, and uninformed – which should be separated for analytical purposes (see also Kuklinski et al., 2000; Hochschild 2001). To explore these various types of knowledge, Mondak constructs a series of grouped-data multinomial logit models with knowledge as the dependent variable, which he separates into proportions of correct, incorrect, and DK responses.² He finds deficiencies in conventional knowledge measures and concludes unequivocally, "The common practice of grouping incorrect answers and DKs must be discontinued" (2000, 80).

In the next subsection, I replicate, extend, and then cross-validate Mondak's findings. While taking another pass at these data, I note that Mondak's model predicting knowledge in the 1992 NES uses the same variable – discussion of politics – that is of interest to those who study the effects of deliberation in more formal settings (Luskin and Fishkin 1998; Luskin et al. 1999; Barabas 2000). In particular, the grouped-data maximum likelihood technique that Mondak advocates sheds additional light on an important substantive distinction – whether discussion helps correct factual errors or simply provides information for people who were previously uninformed. This study confirms the wisdom of separating political knowledge into correct, incorrect, and don't know responses for analytical purposes.

¹ Converse (1964) recognized shades of being informed and devised an ordinal scale that awarded incorrect answers higher than DKs. Luskin (1987) rejected this logic on the argument that the differences in DK and incorrect answers were the product of personality traits rather than differences in respondents' sophistication.

² See Greene (2000) and Mondak (2000) for more on the grouped-data multinomial logit model.

2 Another Look at the Measurement of Political Knowledge

In the first part of his article titled “Reconsidering the Measurement of Political Knowledge,” Mondak performed a series of analyses on a collection of surveys from the National Election Studies (NES). These data are random selection surveys of all adults in the continental U.S. that have been administered on a bi-annual basis since the late 1940s with additional pilot studies in many of the off-election years. Readers interested in learning more about sampling procedures and methodology should consult the NES web site at the University of Michigan.³

My analysis proceeded in three steps. First, I re-ran Mondak’s analyses on the NES data using the data files from the *Political Analysis* web site in an attempt to replicate his findings concerning knowledge as a dependent variable. Other models that Mondak presents in his article on personality effects and knowledge as an independent variable have not been replicated here.⁴ Next, due to discrepancies with the number of cases in the NES surveys and the tables reported in the article, I obtained a copy of the 1992 NES data (Sapiro et al. 1998) and re-estimated the models for this year by approximating as best I could the coding decisions that Mondak made in his article. This phase of the analysis constitutes a relatively straightforward extension of Mondak’s work.

Finally, to cross-validate Mondak’s work, I also analyzed a pooled data set composed of two random selection national surveys conducted by Princeton Survey Research Associates (hereafter “PSRA”) in 1998. The first of these surveys was fielded in March. A separate randomly selected cross-section of over one-thousand adults was interviewed in July. The two PSRA surveys are useful for cross-validation purposes because they include many of the same or similar items that Mondak employed in his study. In particular, PSRA respondents were asked a series of knowledge questions relating to Social Security and a specific question about discussion which read, “Have you ever discussed your views about the way the Social Security program might be changed with a friend, neighbor, family member, or co-worker?” The appendix describes the details of the survey methodology and coding.

2.1 Replication

Descriptive data for the knowledge scales are listed in Table 1. The three columns of results for the replication studies are identical to Mondak’s (2000) and reveal that the average respondent answered more than half of the items correctly while DKs outnumbered incorrect answers. Such agreement is reassuring but perhaps not

³ For more on the NES see their web site at the following URL: <http://www.umich.edu/~nes/>

⁴ The survey data from the Florida State University undergraduates for the personality studies were not included in the replication data set on the Political Analysis web site so I did not replicate those analyses. With respect to the second issue, treating knowledge as a dependent variable raises endogeneity concerns if we use that same variable as an independent variable. Other articles take up this issue explicitly (Alvarez and Glasgow 2000), and are not the concern of this study.

Table 1 Correct, incorrect, and "don't know" responses on knowledge scales:
Descriptive statistics^a

	Replication			Extension	Cross-validation
	1992 NES	1994 NES	1996 NES	1992 NES	1998 PSRA
Number of items in scale	9	9	7	9	7
Mean proportion answered correctly	0.514 (0.287)	0.540 (0.291)	0.642 (0.269)	0.466 (0.299)	0.668 (0.187)
Mean proportion answered incorrectly	0.144 (0.132)	0.164 (0.135)	0.136 (0.143)	0.150 (0.139)	0.215 (0.172)
Mean proportion answered "don't know"	0.342 (0.281)	0.296 (0.262)	0.221 (0.245)	0.384 (0.304)	0.117 (0.155)
Number of cases	2244	1771	1480	2459	2402

^a *Source:* National Election Studies (NES) data from 1992, 1994, and 1996. Princeton Survey Research Associates (PSRA) data are pooled from two surveys in March and July of 1998. Standard deviations in parentheses.

surprising since it merely entails re-running analyses on data sets that the author supplied. Table 1 also includes two columns presenting the number of items and proportions of correct, incorrect, and DK information for the upcoming extension and cross-validation studies, which will be discussed later.

The next step of replicating Mondak's analyses for the 1992, 1994, 1996, and 1998 NES also achieved a perfect match for the multinomial models. Using the LIMDEP 7.0 statistical software package, every coefficient equaled those reported in the original article for the 1992 and 1998 data and the estimates reported in the expanded version of the paper on the *Political Analysis* web site for the 1994 and 1996 data. I found identical results for all but three coefficients for the OLS and logit models for the 1996 NES data in the unpublished paper. These minor differences do not alter any of the substantive conclusions.⁵ No table appears for these findings due to space limitations and the close correspondence with the figures reported in Mondak's article.

⁵ For the 1996 NES model, my estimates for the coefficient on whether the respondent answered the income item were -0.001 with a standard error of 0.031 while Mondak's were -0.023 with a standard error of -0.028. For that same independent variable, my logit estimates are 0.002 with a standard error of 0.301 while Mondak reported the same coefficient with a standard error of 0.161. Finally, Mondak's more comprehensive paper on the *Political Analysis* web site does not include a standard error for the political discussion variable in the 1996 NES model, which I estimated at 0.029.

2.2 Extension

In an effort to extend Mondak's work, I examined the 1992 NES data from a CD-ROM distributed by the Inter-university Consortium for Political and Social Research (Sapiro et al. 1998). As previously mentioned, the descriptive statistics for these data are presented in the two columns of Table 1 under the heading "extension." These figures are very close to what Mondak (2000) reported with a decreased proportion of correct answers and the larger number of cases most likely resulting from differences in coding procedures.⁶ For the 1992 NES, the table reveals that the average respondent answered almost 47% of the items correctly and that DKs accounted for 38% of the responses, or more than twice the proportion of incorrect answers.

The main focus of this aspect of the analysis concerns whether or not the addition of new cases and small changes in the variable coding influences any of Mondak's substantive conclusions. Following Mondak's procedures,⁷ I constructed three models – OLS, logit, and grouped-data multinomial logit – with terms commonly thought to influence political knowledge: education, age, race, sex, income, interest in politics, political discussion, and internal efficacy. Table 2 presents the results of this extension analysis.

Overall, my estimates are similar to Mondak's with regard to sign and significance; some coefficients, such as whether respondents answered the income item, become significant at the $p < .10$ level in the OLS model instead of the $p < .001$ level in the original article. A visual inspection of the coefficients reveals only slight differences in the significance levels for the income coefficient in the logit and multinomial logit models. The same holds for the interest in politics and the political discussion contrasts in the final column of the multinomial logit model. Otherwise, every coefficient takes the same sign and significance as in Mondak's original study.

Most of the variables included in the grouped-data multinomial logit model affect DKs relative to correct answers. In fact, for the DK/correct comparison in the first column of the multinomial estimates in Table 2, every term except whether the respondent answered the income item attains statistical significance (at least $p < .05$); all the negatively signed variables in the first column of multinomial estimates reduce the proportions of DK responses except gender and race which are positive. Being a woman or African-American increases the proportion of DK responses relative to the correct response. Female and black respondents also tend to have more incorrect answers

⁶ Mondak's total number of cases in Table 1 of his article was 2244, a figure that is smaller than mine by 215 cases. Whenever possible I followed his exact coding procedures. However, there were times when no guidance was given. For example, it is not clear how Mondak treated the respondents who refused to answer several of the questions in the information battery. I included these responses in the DK proportions. Similarly, we do not know if he used the variable for personal income or family income. I used family income in the analyses reported here. Substituting personal income does not alter the substantive implications of the results.

⁷ As Mondak notes on page 67, he was using variables from Delli Carpini and Keeter (1996, 182-183).

Table 2 NES extension analyses: Binomial and multinomial estimates^a

	Binomial estimates		Multinomial estimates	
	OLS	Logit	Don't know/correct	Incorrect/correct
Constant	0.013 (0.024)	-2.296 *** (0.274)	2.233 *** (0.303)	0.355 (0.368)
Education	0.058 *** (0.003)	0.272 *** (0.034)	-0.330 *** (0.040)	-0.183 *** ^a (0.045)
Age	0.003 *** (0.000)	0.015 *** (0.003)	-0.016 *** (0.003)	-0.013 * (0.004)
Black	-0.110 *** (0.013)	-0.542 *** (0.148)	0.561 *** (0.162)	0.518 ** (0.189)
Female	-0.095 *** (0.009)	-0.449 *** (0.096)	0.569 *** (0.110)	0.280 * ^b (0.127)
Answered income item	-0.032 # (0.019)	-0.159 (0.215)	0.189 (0.234)	0.209 (0.296)
Income	0.006 *** (0.001)	0.029 ** (0.009)	-0.035 *** (0.010)	-0.017 (0.012)
Interest in politics	0.079 *** (0.005)	0.372 *** (0.058)	-0.478 *** (0.064)	-0.156 * ^a (0.078)
Political discussion	0.011 *** (0.002)	0.052 * (0.024)	-0.074 ** (0.028)	-0.023 (0.031)
Internal efficacy	0.017 *** (0.003)	0.082 * (0.035)	-0.087 * (0.040)	-0.069 (0.047)
R^2	0.513	--	--	--
X^2	--	388.9	469.8	--

^a Source: 1992 National Election Studies data. Standard errors in parentheses. Superscript letters in the last column indicate statistically significant differences between the don't know/incorrect paired contrast in the multinomial model; these contrasts function as a test of the equality of the coefficients for the don't know/correct and incorrect/correct estimates: (a) $p < .001$; (b) $p < .10$. *** $p < .001$; ** $p < .01$; * $p < .05$; # $p < .10$; $N=2180$.

relative to their correct responses as we see from the 0.518 and 0.280 coefficients on these two significant variables in Table 2. Other factors – education, age, and interest in politics – tend to reduce the proportions of incorrect answers while holding all else constant.

Part of the rationale behind the use of a grouped-data multinomial logit model is that it provides additional substantive leverage unavailable with the least squares or binomial logit specifications, which do not distinguish between the finer shades of knowledge. This point becomes clearer for three reasons that Mondak proposed. First, were it acceptable to combine forms of information, the significant coefficients for the

absence of knowledge (incorrect and DK) should be the same, but they are not. The predictors better differentiate DK from correct than incorrect from correct. Second, the variance in coefficient magnitude is systematic. All eight significant coefficients for the DK/correct contrast are larger than those for the incorrect responses. Third, if the categories were the same then the variance in the magnitude of the coefficients should be statistically insignificant. However, comparing the eight pairs of the coefficients for terms other than the constant (i.e. the superscript letters in the last column) we see that education, gender, and interest in politics are all significantly different ($p < .001$ for education and interest in politics, $p < .10$ otherwise). The only variable that fails to match Mondak's in the contrast analysis for the 1992 NES model is the political discussion test which was only marginally significant ($p < .10$) in the original article and nearly misses that threshold this time ($p < .14$).

Although arguably close, the fact that this contrast fails to attain even relaxed standards of significance has important substantive implications. Table 2 shows that discussion of politics leads to a very specific form of enlightenment. The more often individuals report discussing politics with friends and family, the less likely they are to respond DK ($p < .05$). This effect remains in the same direction but diminishes in significance for incorrect versus correct answers. Since the contrast failed to detect a difference in the variance of the magnitude of the coefficient, we cannot say that political discussion in the 1992 NES data leads respondents exclusively to the correct answer versus DK as it did in Mondak's work.⁸ In other words, to isolate the effect of political discussion on political knowledge, we must move beyond the NES data.

2.3 Cross-validation

The preceding analyses demonstrate that Mondak's main substantive findings withstand replication and extension. Other than a few minor changes in significance levels of some coefficients, the only notable inconsistency between the two analyses in the preceding subsections was the extent to which discussion reduced proportions of DK or incorrect knowledge. On three out of four contrasts between the two columns of multinomial estimates, the same variables were significantly different, which reaffirms the logic of using the grouped-data multinomial logit model to study political information. However, the extension and replication studies diverged on political discussion since that coefficient was significant in the DK versus correct contrast ($p < .10$) in the replication but not in the extension. To the extent that passing the .10 threshold is meaningful, one way of adjudicating is to consider a separate source of non-NES survey data that contains many of the same questions that were asked in a policy specific context – the PSRA survey on Social Security.

Recall from the last column under the “cross-validation” header of Table 1 that the PSRA respondents had an “easier” seven-item information battery in the sense that the average respondent answered more than 67% of the questions correctly.

⁸ In the expanded version of the paper on the *Political Analysis* web site, the political discussion contrast is insignificant in both the 1994 and 1996 NES analyses.

Jason Barabas

Specifically, respondents were asked what proportion of the federal budget is devoted to Social Security, what happens to the taxes that the government collects for Social Security, and five questions about Social Security eligibility. The hardest item seemed to be the federal budget spending question where approximately one-third of the respondents answered DK or refused in each of the 1998 surveys. This and the benefits structure question proved to be much more difficult for respondents to answer correctly than any of the five questions on eligibility for Social Security benefits. The appendix contains details about wording and coding, but the important point is that unlike the NES analyses which had a greater proportion of DK and incorrect responses, incorrect answers in the PSRA data were about twice as likely as DKs.

This increase in the proportion of incorrect responses and the offsetting decrease in DK for the PSRA data relative to the NES data may be a function of increased familiarity with Social Security, but the more likely explanation comes from differences in the question wording employed by the two survey organizations. The NES knowledge questions often include introductions such as "do you happen to know," which encourage DK responses. In contrast, the PSRA introductory phrase of "as far as you know" seems to invite substantive responses rather than DKs. Other studies explore this issue in more depth (Mondak 2000; 2001; Mondak and Davis forthcoming), and it is entirely possible that knowledge batteries with high DK rates contain systematic error.⁹

As in Mondak's original article, our impression of what influences political knowledge looks a lot different depending on how the model is specified. In particular, Table 3 contains the estimates of the OLS, logit, and grouped-data multinomial logit models for the PSRA data. Other than the inclusion of an additional term to distinguish between the March and July studies for the pooled data set, the same variables or proxies of the terms used in the previous subsections appear in these models.¹⁰

One notable feature of the findings in Table 3 is that under the OLS specification many factors – age, income, and whether respondents follow, discuss or understand Social Security – increase the proportion of correct knowledge. The only statistically significant term which has a negative effect on correct information, the dummy variable for the July 1998 study ($p < .001$), also tends to reduce correct information according to estimates for the logit model in the second column. Beyond that, the only other variable in the logit model that attains statistical significance is age, which once again has a positive effect ($p < .05$). These stark differences between OLS and logit models lead to different substantive conclusions. In the OLS model, a variety of factors appear to influence knowledge, mostly in a positive direction, while only age and certain

⁹ I appreciate Jeff Mondak's helpful comments on this point.

¹⁰ Whenever possible I tried to use identical variables. In cases where this was not possible, I used a question asking respondents whether they follow Social Security as a proxy for interest in politics, whether respondents discuss specific Social Security reforms as a proxy for generic political discussion, and whether respondents think they understand Social Security as a proxy for internal efficacy. See the appendix for wording and coding.

Table 3 Cross-validation analyses: Binomial and multinomial estimates^a

	Binomial estimates		Multinomial estimates	
	OLS	Logit	Don't know/correct	Incorrect/correct
Constant	0.517 *** (0.020)	0.027 (0.232)	-1.181 *** (0.339)	-0.493 # (0.275)
Education	0.003 (0.003)	0.012 (0.031)	-0.009 (0.046)	-0.011 (0.036)
Age	0.002 *** (0.000)	0.007 * (0.003)	0.006 (0.004)	-0.014 *** ^a (0.003)
Black	-0.007 (0.012)	-0.032 (0.142)	0.067 (0.218)	0.016 (0.164)
Female	0.011 (0.007)	0.047 (0.089)	0.150 (0.136)	-0.150 ^b (0.103)
Answered income item	-0.005 (0.015)	-0.024 (0.181)	-0.385 (0.254)	0.306 ^a (0.221)
Income	0.010 *** (0.003)	0.045 (0.030)	-0.021 (0.046)	-0.055 (0.034)
Follows Soc. Sec.	0.011 * (0.005)	0.050 (0.058)	-0.096 (0.086)	-0.026 (0.067)
Discusses Soc. Sec. policy reforms	0.032 *** (0.008)	0.141 (0.095)	-0.308 * (0.143)	-0.048 (0.112)
Understands Soc. Sec.	0.016 ** (0.005)	0.072 (0.062)	-0.182 # (0.095)	-0.018 (0.071)
July 1998	-0.061 *** (0.007)	-0.274 ** (0.088)	0.165 (0.133)	0.331 ** ^b (0.102)
R^2	0.095	--		--
X^2	--	34.9		40.1

^a Source: Princeton Survey Research Associates data. Standard errors in parentheses. Superscript letters in the last column indicate statistically significant differences between the don't know/incorrect paired contrast in the multinomial model; these contrasts function as a test of the equality of the coefficients for the don't know/correct and incorrect/correct estimates: (a) $p < .001$; (b) $p < .10$. *** $p < .001$; ** $p < .01$; * $p < .05$; # $p < .10$; $N=2,351$.

characteristics of respondents in the July survey tend to affect knowledge in the logit model.

Moving to the multinomial models provides leverage on the substantive question at hand: whether DKs and incorrect answers differ and whether discussion has a significant effect on knowledge. The three categories of the dependent variable are the proportion of items a person answered correctly, the proportion answered incorrectly, and the proportion answered DK. Correct answers serve as the baseline category,

which means that the first set of coefficients illustrate the effect of the independent variables on the proportion DK responses relative to the proportion of correct responses; the second column compares the incorrect and correct proportions. The coefficients can be compared directly with the binomial estimates (although the signs are opposite) because the correct answer category acts as the contrast category in the multinomial model. For example, the 0.007 coefficient for age in the logit model should be approximately -0.007 in each of the columns of the multinomial logit if the estimates are similar.

The last two columns of Table 3 contain the estimates for the grouped-data multinomial logit model for the PSRA data. These estimates further demonstrate why disaggregated information scales matter. Considering only the substantive coefficients (i.e. not the constant), we see that age is highly statistically significant ($p < .001$) but only for the incorrect/correct comparison. As expected, the negative coefficient (-0.014) indicates that older respondents provide fewer incorrect responses relative to the right ones. The significant contrast for this variable denoted by the superscript “a” reveals that this term is significantly different ($p < .001$) than the age coefficient in the DK/correct column. Other significant contrasts (at $p < .10$ or better) in the grouped-data multinomial logit model were the dummy variables for gender, whether the respondent answered the income question, and the July 1998 survey indicator. In these cases, the differences between the binomial and multinomial differences were large enough to warrant moving to the second specification, but only in the case of the July 1998 term was the coefficient itself significant ($p < .01$).

The opposite is true of the political discussion term and the coefficient for respondents’ self-rated understanding of Social Security. In the DK/correct column, these two variables are significant at $p < .05$ and $p < .10$ respectively, but the same terms are not significantly different from the estimates for the incorrect/correct side of the model. The failed contrast for political discussion is particularly noteworthy. Although arguably close to meeting conventional standards, the significance level for this contrast falls shy at $p < .11$. Is this difference meaningful? Probably not. However, part of the inspiration for moving to the PSRA analyses was to resolve discrepancies between the replication and extension analyses of the 1992 NES data. Technically speaking, political discussion reduces DK responses relative to the correct response ($p < .05$), but a statistical test fails to distinguish between this -0.308 coefficient and the one on the incorrect/correct side of the model at -0.048. Thus, like the general form of political discussion in the NES in the extension analysis, discussion of Social Security policy reforms diminishes DK responses and increases Social Security specific knowledge, but not to the point where we can comfortably rule out a similar effect on incorrect knowledge.

3 Conclusion

While additional research is needed, the fundamental conclusion that knowledge is not discrete still stands. Wrong answers and “don’t know” responses do not mean the same thing. In particular, we observe important differences when knowledge components are

separated. By separating the categories, we can see that increases in knowledge stem from unavoidable changes such as growing older, which reduces incorrect responses, and elective activities like political discussion, which reduces DK responses. Importantly, such detailed conclusions are made possible through the use of a more detailed political knowledge index and the grouped-data multinomial logit model, which distinguishes between incorrect and DK responses instead of treating them both as uninformed. As Mondak (2000) argues and as the results here show more broadly, DK and incorrect responses should be considered separate concepts.

Although the grouped-data multinomial logit models fit the data better than the OLS and logit specifications, this study does not explore what knowledge batteries actually measure. Researchers should be aware that it is entirely possible that knowledge batteries which encourage DKs through subtle or not-so-subtle question wording may generate systematic error. Indeed, in the conclusion of Mondak's article (2000) and in his subsequent work (Mondak 2001; Mondak and Davis forthcoming), he argues that researchers might be better off randomly assigning, or at least discouraging, DK responses. Thus, while grouped-data multinomial logit models may be used appropriately for diagnostic purposes, they still might not be a solution to the fundamental validity problem plaguing studies of political knowledge.

A Appendix

The Princeton Survey Research Associates data are based on telephone interviews with nationally representative samples of adults age 18 and older living in the continental United States. Interviews were conducted in English and Spanish from March 13-22 ($N=1202$) and July 8-22 ($N=1200$) of 1998.

The sample for these surveys was designed to be fully representative of adults nationwide, but also to over-sample adults age 50 and older in the two surveys in 1998 (see weighting subsection below for more on the oversample). The sample was selected by Survey Sampling, Inc. (SSI) of Connecticut, based on specification provided by Princeton Survey Research Associates (PSRA).

The sample is a random-digit telephone sample, with telephone numbers selected from telephone exchanges in proportion to the size of the exchange. The first eight digits of the sampled telephone numbers (area code, telephone exchange, bank number) were selected proportionally by county and by telephone exchange within the county. Only working banks of telephone numbers were selected. A working bank is defined as 100 contiguous telephone numbers containing three or more residential listings. The last two digits of the telephone numbers were randomly generated so that unlisted numbers had the same probability of selection in the sample as numbers that are listed in telephone directories.

At least ten attempts were made to complete an interview at every sampled telephone number. The calls were staggered over times of day and days of the week to maximize the chances of making a contact with a respondent. After 1,000 interviews were completed with a representative sample of adults age 18 and older, interviewers

Jason Barabas

continued screening households to complete an additional 200 interviews with adults age 50 and older in the March 1998 survey.

The weighting of these survey data was accomplished through a two-stage weighting procedure by Princeton Survey Research Associates. The first stage of the weighting process involved the calculation of weights necessary to compensate for the disproportionate number of adults age 50 and older in the two 1998 surveys. Demographic weighting was used in the second stage of the weighting process to bring the characteristics of the sample into alignment with the demographic characteristics of the population.

The demographic weighting parameters were derived from a special analysis of the most recently available Census Bureau Annual Demographic File (from the March 1996 Current Population Survey). This analysis produced population parameters for the demographic characteristics of adults living in telephone households in the continental U.S. These population parameters were then compared with the sample characteristics to construct sample weights. The data were weighted on the demographic distributions of age by gender, education by gender, region of residence, race, and Hispanic identity.

The final weights were derived using an iterative technique that simultaneously balances the distribution of all weighting parameters and takes into account the first stage weight. After an optimum balancing solution was reached, the weights were constrained to fall within the range of 1 to 3.18. All the analyses presented here for the PSRA data were conducted with the sampling weights applied.

Question Wording and Coding

Correct Knowledge Proportion: Records percentage of correct factual information. Wording for the seven items was as follows: “As far as you know, about what proportion of the federal budget is spent on the Social Security program? Is it...less than five percent, about ten percent, about twenty percent (*), about forty percent, fifty percent or more”; “As far as you know, which of the following types of people are eligible for Social Security benefits? Are/is [INSERT] eligible or not?...Workers of any age who become disabled and cannot work...People over the age of 65 who have a part-time job...People who retire in their early 60s...Children under the age of 18 whose employed mother or father has retired or died...The husband or wife of a worker who has died” (An affirmative response was correct for all eligibility items); “As far as you know, which of the following statements describes what happens to money the government now collects in Social Security taxes?...It is ALL used to pay the benefits of people who are already receiving Social Security...Some of it is used to pay Social Security benefits and the government BORROWS the rest with a promise to pay it back with interest (*)...Some of it is used to pay Social Security benefits and the government SPENDS the rest to pay for other things, or...It is held in trust or reserve for individuals until they are eligible to receive benefits” (*=denotes correct response; 1=All correct; 0=None correct).

Incorrect Knowledge Proportion: Records percentage of correct factual information. See above for items. (1=All incorrect; 0=None incorrect).

Don't Know Knowledge Proportion: Records percentage of don't know responses to information questions. See above for items. (1=All don't know responses; 0=No don't know responses).

Education: Educational attainment (6=Post graduate or professional degree; 1=Less than high school graduate).

Age: Age in years.

Black: A dummy variable indicating racial group (1=African American; 0=Non-African-American).

Female: A dummy variable indicating respondent's gender (1=Female; 0=Male).

Income: "Last year, that is in 1997, what was your total FAMILY income from all sources before taxes? Just stop me when I get to the right category" (7=\$100,000 or more; 1=Less than \$10,000).

July 1998: A dummy variable indicating the July 1998 PSRA data set (1=July 1998; 0=Not July 1998).

Follows Soc. Sec.: "There has been a lot of debate lately in Washington and around the country about the Social Security program. This is the government's program to provide income for older people. How closely have you been following this debate? Would you say very closely, fairly closely, not too closely, or not closely at all?" (4=Very closely; 1=Not closely at all).

Discusses Soc. Sec. Reforms: "Have you discussed your views about the way the Social Security program might be changed with a friend, neighbor, family member, or co-worker?" (1=Yes; 0=No).

Understands Soc. Sec.: "How would you rate your own understanding of what this Social Security debate is all about? Would you say your understanding of the Social Security debate is excellent, good, only fair, or poor?" (3=Excellent; 0=Only poor).

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Jason Barabas

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