

# Economics 215B

## (Lecture 1)

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# 1 Political Economy: An Overview

Preferences & Institutions determine

Determinants of Policies: Turnout, Parties, Preferences

Short Run Consequences: Impacts of Policies on Growth, Distribution

Long Run Consequences: Impacts of Institutions on Growth, Distribution

Determinants of Preferences

Aim of Empirical Research in Political Economy

## 2 Identification of Causation

- Godel's Theorem : Any logical system capable of whole number addition and multiplication will have question which can be asked and can not be answered true or false. Moreover, it is impossible to determine which questions can not be proven true or false.
  - Empirical Analogue: Empirical questions can be asked which may likely have no good answer.
- Ability to Understand the Past and Predict the Future
  - Making Progress on Identification to Important Questions: Acemoglu, Johnson and Robinson (2001)
  - "Clean Identification": Lee, Moretti, and Butler (2004)

- Establishing Empirical Facts:
  - \* Glaeser, Edward and Andrei Shleifer (2002), "Legal Origins", *Quarterly Journal of Economics*, (Common Law - High Income vs. Civil Law - Low Income)
  - \* Persson, Torsten and Guido Tabellini (2004), "Constitutional rules and fiscal policy outcomes?", *American Economic Review* 94, pp. 25-46 (Proportional Systems Spend More Than Majoritarian, Parliamentary More than Presidential)

- Hume's Problem

- Need for the Ceteris Paribus Assumption for Internal Identification
- Need for the Ceteris Paribus Assumption for External Validity

# 3 Empirical Approaches

- Identification of Causality: Experiments
  - Field
  - Laboratory
- Natural Experiments
  - Randomization
  - Conditional Randomization
- Identification of Parameters: Structural Estimation
- Stylized Fact Provision: Partial Sample Correlation

## 4 Course Outline

- Course Requirements
- Office Hours
- Syllabus
- Missed Dates

## 5 Rubin's Potential Outcome Model (1974)

- Treatment  $T$  is binary:  $\{0, 1\}$ .
- Outcome for Treatment is given by random variable  $Y_i^T$  and outcome for control:  $Y_i^C$
- Impact of Treatment given by Potential Outcomes:  
 $TY_i^T + (1 - T)Y_i^C(C)$
- Treatment Effect Without Randomization:

$$E[Y_i^T - Y_i^C] = E(Y_i^T | T) - E(Y_i^C | C) =$$

$$\{E(Y_i^T | T) - E(Y_i^C | T)\} + \{E(Y_i^C | T) - E(Y_i^C | C)\}$$

{Treatment Effect (on the treated)} + {Selection Bias}

- Treatment Effect With Perfect Randomization (S is the Selection Criterion for the experiment):

$$E(Y_i^T | S) - E(Y_i^C | S) = E(Y_i^T | T) - E(Y_i^C | T)$$

# 6 Experiments: An Introduction

- Experiments: Two Types
  - Laboratory:
    - \* Media Bias: Ansolabehere, Stephen and Shanto Iyengar (1997), **Going Negative**, Free Press.
    - \* showing face pictures of politicians: Bailenson, Jeremy N., Shanto Iyengar, Nick Yee, "Facial Similarity as a Voting Heuristic: Some Experimental Evidence", Mimeograph, Stanford University.
  - Field:
    - \* Government: Randomized Order of Candidates on Ballots (Impact of Candidate Order on Candidate Choice): Ho, Daniel E. and Kosuke Imai. (Forthcoming). "Estimating Causal Effects of Ballot Order from a Randomized Natural Experiment: California Alphabet Lottery, 1978-2002." *Public Opinion Quarterly*

- \* Political Organizations: Working with political parties: Vermeesch and Wantchekon (Forthcoming, *World Politics*)
  
- \* Own: Gerber and Green studies:
  - Turnout: Gerber and Green (2000)
  
  - Media Bias: Gerber, Karlan and Bergan (2006)
  
  - Wealth and Political Preference: Doherty, Daniel J., Alan S. Gerber, and Donald P. Green (2006), "Personal Income and Attitudes toward Redistribution: A Study of Lottery Winners", *Political Psychology* 27(3), pp. 441-458.

- Benefits

- Ability to control for selection
  
- Ability to design an experiment to ask exactly the question you wanted to answer

- Ability to commit to a research design ahead of time and reduce degrees of freedom for manipulation
  - \* Subgroups (variables and/or strata) as Degrees of Potential Manipulation
  - \* Tradeoff Between Ex-Post Learning and Ex-Ante
  - \* De Long, J. Bradford and Kevin Lang, "Are All Economic Hypotheses False?"
- Costs
  - External Validity
    - \* Moral Constraints

- \* Legal Constraints

- Attrition

- Substitution Bias (Heckman and Smith, 1995)

- Randomization Bias and Selection in Experiment Participation (Heckman and Smith, 1995)

- \* Effects of the Experiment Independent of the Treatment

- Hawthorne Effects: Changes in behavior among the treatment group

- John Henry Effects: Changes in behavior among the control group

- Internal Validity

- \* Attrition

- \* Externalities: SUTVA (Stable Unit Treatment Value Assumption) "General Equilibrium":  $E(Y_i^k | T)$  is independent of  $T_j$ . Originally from, Rubin, D. B. (1980). Discussion of Basu's "Randomization analysis of experimental data: The Fisher Randomization Test." *Journal of the American Statistical Association*, 75, pp. 591–593.

$$\begin{aligned} E(Y_i^T | T) - E(Y_i^C | C) &= E(Y_i^T - Y_i^C | T) \\ &= E(Y_i^T - Y_i^C) \end{aligned}$$

- \* Contamination (Difference With Substitution Bias)

- Treatment Doesn't Take Up
- Control Takes Up

– Small Sample Sizes:

- \* Power
- \* Identifying Heterogeneous Effects

- \* Identifying Population Average Treatment Effects
- Monetary Costs of Implementation

## 7 Power Calculations

$$Y_i = \alpha + \beta T_i + \epsilon_i$$

OLS Estimator is:

$$\min_{\alpha, \beta} \sum_{i=1}^I (Y_i - \alpha - \beta T_i)^2$$
$$\alpha : -2 \sum_{i=1}^I (Y_i - \alpha - \beta T_i) = 0$$
$$\beta : -2 \sum_{i=1}^I (Y_i - \alpha - \beta T_i) T_i = 0$$

This implies the following estimators for the treatment effect  $\beta$  :

$$\beta : \hat{\beta} = \frac{\sum_{i=1}^I (Y_i - \bar{Y}) (T_i - \bar{T})}{\sum_{i=1}^I (T_i - \bar{T}) (T_i - \bar{T})}$$

We can also compute the Standard Error by taking the  $V(\hat{\beta})$  : (and remembering that  $P(T = 1) = P$ )

$$SE(\hat{\beta}) = \sqrt{\frac{\sigma_{\epsilon}^2}{P(1-P)N}}$$

- Size and Power

- Size of a Test: Probability of a Type I Error (Probability of Failing to Reject a True Null) = 1 - Confidence Level.
- Power of a Test: 1 - Probability of a Type II Error (Probability of Rejecting a False Null Hypothesis)

	Do Not Reject $H_0$	Reject $H_0$
	Correct Decision	Type I Error
$H_0$ is True	$1 - \alpha$ : Confidence Level	$\alpha$ : Significance Level
	Type II Error	Correct Decision
$H_0$ is False	$\omega$	$1 - \omega$ : Power of Test

- In order to reject a null hypothesis of no effect at an  $\alpha$  level of confidence, we need:

$$\hat{\beta} > t_{\alpha} SE(\hat{\beta})$$

- If we want power of  $1 - \omega$  :

$$\hat{\beta} > (t_{1-\omega} + t_{\alpha}) SE(\hat{\beta})$$

$$SE(\hat{\beta}) = \sqrt{V(\hat{\beta})} = \sqrt{\frac{\sigma_{\epsilon}^2}{P(1-P)N}}$$

- Therefore the Minimum Detectable Effect (where  $\alpha$  is the size and  $1 - \omega$  is the power):

$$\hat{\beta} > (t_{1-\omega} + t_{\alpha}) \sqrt{\frac{\sigma_{\epsilon}^2}{P(1-P)N}}$$

- Treatment/Control Balance: Goal - maximize MDE choosing proportion of

$$\min_{N,P} (t_{1-\omega} + t_\alpha) \sqrt{\frac{\sigma_\epsilon^2}{P(1-P)N}} - \lambda [N(1-P)c_c + NPc_t - B]$$

– Solution:

$$\frac{P}{1-P} = \sqrt{\frac{c_c}{c_t}}$$

- Group Effects: Now suppose we have grouped data with group effects:  $v_j$ . Then, we estimate:

$$Y_{ij} = \alpha + \beta T_{ij} + v_j + \epsilon_{ij}$$

– where there are  $J$  clusters of size  $n$

–  $v_j \sim i.i.d. N(0, \tau^2)$  and  $\epsilon_{ij} \sim i.i.d. N(0, \sigma_\epsilon^2)$

– Then we get as our MDE:

$$\sqrt{\frac{1}{P(1-P)}} \sqrt{\frac{n\tau^2 + \sigma_\epsilon^2}{nJ}}$$

- With individual randomization, we would get:

$$\sqrt{\frac{1}{P(1-P)}} \sqrt{\frac{\tau^2 + \sigma_\epsilon^2}{nJ}}$$

- Ratio between the two =  $D = \sqrt{1 + (n-1)\rho}$   
 where  $\rho = \frac{\tau^2}{\tau^2 + \sigma_\epsilon^2}$

- With imperfect compliance:

$$\sqrt{\frac{1}{P(1-P)}} \sqrt{\frac{\sigma_\epsilon^2}{N} \frac{1}{c-s}}$$

- Variance of Stratified and Unstratified Random Samples: Imbens, G., G. King, and G. Ridder (2006): "On the Benefits of Stratification in Randomized Experiments," Mimeo, Harvard.

$$V(\text{Uncond.}) > V(\text{Cond.}) > V(\text{Stratified})$$

- Generally (with spherical disturbances): Standard Errors Given By:

$$\sigma_{\epsilon}^2 (X'X)^{-1}$$

- With stratification, this is a diagonal matrix in which case adding a dimension of stratification (constructed to be orthogonal to the other dimensions) will always reduce the standard errors.

## 8 Intention to Treat Estimates in Experiments

- Treatment:  $T$ , Assignment of Treatment:  $Z$

- Average Treatment Effect (ATE):

$$E(Y_i^T - Y_i^C)$$

- If you can actually randomize treatment

- Intention To Treat (ITT):

$$E(Y_i^T - Y_i^C | Z) = E(Y_i^T | Z = 1) - E(Y_i^T | Z = 0)$$

- If you can randomize access to Treatment but not Treatment itself

- Do we want the intention to treat estimate or the treatment effect?

# Gerber, Karlan and Bergan I

- Idea: Randomize Access to Newspapers of Different Biases to See Effect of Media Bias on Voting, Knowledge Preferences:

- The problem with just looking at voting patterns on newspaper reading:

$$V_j = \varpi + \lambda N_j + \pi_j$$

- Is that both are determined by a mutual variable ideology:

$$V_j = \alpha + \beta I_j + \varepsilon_j$$

$$N_j = \mu + \gamma I_j + \varepsilon_j$$

# Gerber, Karlan and Bergan II

- In the case where we run the naïve regression of voting on newspaper reading then (even if there is no direct effect of newspaper reading on voting), we get:

$$\lambda = \frac{\text{cov}(V_j, N_j)}{\text{var}(N_j)} = \frac{\beta\gamma\sigma_I^2}{\sigma_N^2}$$

- Gerber, Karlan and Bergan randomize access to newspapers to solve this problem of selection based on ideology.

# Gerber, Karlan and Bergan III

- Gerber, Karlan and Bergan did a baseline survey in September, 2005 (3347 responses, 1065 in follow up)
- In Prince William County, Virginia, 25 miles from Washington, DC
- Randomly selected participants from consumer database (46%) and voter registration database (54%)
- Dropped
  - people already subscribing to one of the two newspapers (the Washington Post and the Washington Times)
  - people who did not answer at least one question on the baseline survey

# Gerber, Karlan and Bergan IV

- Randomized into Washington Post, Washington Times, and Control based upon stratification by answers to question on:
  - Subscription to a magazine
  - Subscription to a non-Post and non-Times newspaper
  - Who they planned to vote for
  - Whether they said they wanted to read more news

# Gerber, Karlan and Bergan IV

- Double Coverage: 75 of those who participated already were receiving the Washington Post (maybe just Sunday), 5 already received the Washington Times
- Non-delivery: 76 households did not receive the Times because they were not in the delivery area, 1 in the Post area
- Attrition: 59 (out of 965) dropped their Post subscription, 54 (out of 950) dropped their Times subscription
- Attrition: 306 Post subscribers responded to the follow, 313 Times, and 446 control (1087 out of 3347 responded)

Table 1: Treatment Group and Control Group Assignment			
	Wave 1	Wave 2	Total
Post	605	360	965
	28.8	29.0	28.9
Times	595	355	950
	28.3	28.6	28.4
Control	904	528	1,432
	43.0	42.5	42.8
Totals	2,104	1,243	3,347
	<i>100</i>	<i>100</i>	<i>100</i>

Note: Cell entries indicate number of individuals assigned to each treatment group. Numbers in italics are column percentages.

**Table 2A: Summary Statistics from Baseline Survey**  
**Mean and standard errors**

Panel A: Baseline Survey Responses					
	Sample Average	Control	Post	Times	p-value
	(1)	(2)	(3)	(4)	(5)
% female	34.8 (0.8)	34.4 (1.3)	33.0 (1.5)	37.0 (1.6)	0.18
% voted in 2004	88.6 (0.8)	88.5 (1.2)	88.8 (1.4)	88.6 (1.4)	0.98
% voted in 2002	48.0 (1.2)	49.0 (1.9)	45.8 (2.3)	49.1 (2.3)	0.48
% voted in 2001	7.3 (0.6)	7.1 (1.0)	7.7 (1.2)	7.3 (1.2)	0.93
% from consumer list	50.9 (0.9)	52.6 (1.3)	50.0 (1.6)	49.3 (1.6)	0.24
% get news or political magazine	9.2 (0.5)	9.4 (0.8)	8.8 (0.9)	9.4 (0.9)	0.88
% prefers Democratic candidate for Governor in VA	14.4 (0.6)	14.5 (0.9)	14.6 (1.1)	14.1 (1.1)	0.94
% no preference in VA Gov. race	14.8 (0.6)	14.2 (0.9)	15.5 (1.2)	15.1 (1.2)	0.63
% in wave 2 of random assignment	37.1 (0.8)	36.9 (1.3)	37.3 (1.6)	37.4 (1.6)	0.96
% participating in follow-up	32.3 (0.8)	31.7 (1.2)	32.0 (1.5)	33.5 (1.5)	0.65
N	3347	1432	965	950	

  

Panel B: Baseline Survey Responses on the Sample of Those Who Completed the Follow-up Survey					
	Sample Average	Control	Post	Times	p-value
	(1)	(2)	(3)	(4)	(5)
% female	32.9 (1.5)	31.5 (2.2)	36.8 (2.8)	30.9 (2.6)	0.21
% voted in 2004	90.7 (1.2)	92.6 (1.7)	89.2 (2.5)	89.5 (2.3)	0.44
% voted in 2002	56.0 (2.1)	57.6 (3.3)	50.6 (4.0)	58.7 (3.8)	0.27
% voted in 2001	8.4 (1.2)	9.2 (1.8)	8.2 (2.2)	7.6 (2.0)	0.84
% from consumer list	48.3 (1.5)	49.6 (2.4)	48.9 (2.9)	45.9 (2.8)	0.59
% get news or political magazine	11.3 (1.0)	10.4 (1.4)	11.0 (1.8)	12.9 (1.9)	0.54
% prefers Democratic candidate for Governor in VA	19.4 (1.2)	19.6 (1.9)	21.0 (2.3)	17.6 (2.2)	0.55
% no preference in VA Gov. race	12.9 (1.0)	13.2 (1.6)	10.0 (1.7)	15.1 (2.0)	0.16
% in wave 2 of random assignment	35.1 (1.5)	35.0 (2.3)	38.5 (2.8)	31.8 (2.6)	0.21
N	1,065	446	306	313	

Note: Standard errors reported in parentheses. Column 5 reports the p-values for chi squared tests of independence between treatments for each baseline variable.

**Table 2B: Summary Statistics for Outcome Measures  
Mean and Standard Errors**

	Sample Avg.	Control	Post	Times
	(1)	(2)	(3)	(4)
Voted	.728 (.014)	.726 (.021)	.725 (.025)	.735 (.025)
Voted for Democrat	.446 (.019)	.411 (.029)	.490 (.035)	.451 (.034)
Did not Vote, But Preferred Democrat	.399 (.030)	.419 (.046)	.416 (.056)	.351 (.055)
Voted for or Preferred Democrat	.433 (.016)	.413 (.024)	.470 (.030)	.425 (.029)
Most important Problem (1=issue other than scandals, 0=scandals)	.078 (.008)	.08 (.013)	.068 (.014)	.086 (.016)
Most important issues in Iraq (1=constitution or Hussein trial)	.444 (.015)	.442 (.024)	.472 (.029)	.417 (.028)
Leak case (3=no one did anything wrong; 1=something illegal)	1.75 (.005)	1.74 (.038)	1.72 (.047)	1.79 (.045)
Alito confirmation (3=should confirm, 1=should not confirm)	2.34 (.021)	2.37 (.033)	2.27 (.040)	2.38 (.037)
Specific issue index (higher scores conservative)	.021 (.020)	.033 (.032)	-.028 (.039)	.051 (.035)
Bush Approval (4=strong approval, 1=strong disapproval)	2.43 (.043)	2.48 (.066)	2.37 (.079)	2.42 (.081)
Republican favorable (4=very favorable, 1=very unfavorable)	1.47 (.032)	1.50 (.050)	1.41 (.058)	1.48 (.059)
Conservatism (7=extreme conservative, 1=extreme liberal)	4.51 (.045)	4.56 (.069)	4.38 (.087)	4.58 (.083)
Broad policy index	.001 (.025)	.038 (.039)	-.066 (.046)	.014 (.047)
Broad and specific issue index	.010 (.021)	.033 (.032)	-.046 (.038)	.031 (.038)
Knew number dead in Iraq	.784 (.013)	.781 (.019)	.779 (.024)	.791 (.023)
Identified Libby as involved in leak	.739 (.013)	.754 (.020)	.705 (.026)	.748 (.025)
Identified Miers as Supreme Court nominee	.777 (.013)	.785 (.019)	.729 (.026)	.813 (.022)
Fact index	-.009 (.022)	.007 (.034)	-.079 (.043)	.035 (.040)
N	1065	446	306	313

**Table 4: Effect of Post or Times on Voting Behavior in Virginia Governors Race  
OLS**

	Voted			Voted for Democrat			Did not vote, but Preferred Democrat			Voted for or Preferred Democrat		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)	(4a)	(4b)	(4c)
Post	-.001 (.033)	.018 (.032)	-.008 (.034)	.079* (.045)	.086** (.043)	.114** (.046)	-.003 (.072)	-.011 (.081)	-.024 (.123)	.056 (.038)	.047 (.037)	.071* (.040)
Times	.009 (.033)	.026 (.031)	.012 (.034)	.040 (.044)	.053 (.042)	.074 (.046)	-.068 (.072)	-.026 (.085)	-.132 (.120)	.011 (.038)	.016 (.036)	.039 (.039)
N	1079	1040	1040	718	700	700	271	255	255	989	955	955
Refused	2	2	2	69	69	69	25	25	25	92	92	92
Does not know	0	0	0	0	0	0	0	0	0	0	0	0
Missing Cov.	0	39	39	0	18	18	0	16	16	0	34	34
Not asked	0	0	0	294	294	294	785	785	785	0	0	0
Total Surveyed	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081
R-squared	0.00	0.34	0.40	0.00	0.45	0.53	.00	.47	.72	0.00	0.37	0.44
Covariates	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Strata indicators	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Surveyor/Date indicators	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes

Note: Standard errors in parentheses. \*\* 95% significance, \* 90% significance. Dependent variables in the four sets of columns are as follows: self-reported voter turnout, voted for the Democratic candidate (among those who claimed to vote), preferred the Democrat (among those who did not vote), and either preferred the Democratic candidate (if they said they did not vote) or voted for the Democratic candidate (if they said they voted), respectively. In the row labeled “covariates”, we refer to data from the baseline survey: gender, reported age, three separate indicators for voting in the 2001, 2002 and 2004 general elections, an indicator for whether the respondent was drawn from a consumer list, self report of receiving any news or political magazines, and baseline survey self reports of preferring the Republican candidate in the gubernatorial election and having no preference in the gubernatorial election, and an indicator for wave of the study. In the row “strata indicators”, we include indicator variables for each strata formed prior to the randomization, which included unique combinations of the following: intention to vote, receive a paper (non-Post/non-Times), mentions ever reading a paper, gets a magazine, and asked whether they wish they read the paper more. “Surveyor/Date indicators” refers to a set of indicator variables for each unique combination of surveyor and date for the follow-up survey. All results remain qualitatively similar, and statistical significance remains as-is, using probit or ordered probit specifications instead of OLS.

**Table 5: The Effect of Treatment on Attitudes Towards National Politics**  
OLS

<i>Panel A: Specific Issues</i>															
	Most important problem (1=issue other than scandals,0=scandals)			Most important issues in Iraq (1=constitution or Hussein trial)			Leak case (3=no one did anything wrong; 1=something illegal)			Alito confirmation (3=should confirm, 1=should not confirm)			Specific Issue Index (higher scores conservative)		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)	(4a)	(4b)	(4c)	(5a)	(5b)	(5c)
Post	-.012	-.021	-.028	.038	.020	.051	-.015	.042	.023	-.099**	-.025	-.054	-.061	-.013	-.029
	(.021)	(.023)	(.025)	(.039)	(.039)	(.042)	(.061)	(.062)	(.067)	(.051)	(.052)	(.055)	(.049)	(.049)	(.052)
Times	.005	.013	.013	-.020	-.004	.013	.050	.027	.020	.019	.059	.036	.018	.013	-.001
	(.020)	(.023)	(.024)	(.038)	(.038)	(.041)	(.059)	(.059)	(.064)	(.050)	(.051)	(.054)	(.049)	(.048)	(.051)
N	1033	996	996	982	949	949	899	870	870	971	940	940	1081	1041	1041
Refused	7	7	7	19	19	19	37	37	37	10	10	10	0	0	0
DK	41	41	41	80	80	80	145	145	145	100	100	100	0	0	0
Missing Cov.	0	37	37	0	67	67	0	29	29	0	31	31	0	40	40
Total Surveyed	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081
R-squared	.00	.14	.24	.00	.30	.37	.00	.32	.41	.01	.30	.40	.00	.33	.40
Covariates?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Strata indicators?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Operator / date indicators?	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
<i>Panel B: Broad National Issues</i>															
	Bush Approval Rating (4=strong approval, 1=strong disapproval)			Republican Favorable (4=very favorable, 1=very unfavorable)			Conservatism (7=extreme conservative, 1=extreme liberal)			Broad policy Index			Broad and Specific Issue Index		
	(6a)	(6b)	(6c)	(7a)	(7b)	(7c)	(8a)	(8b)	(8c)	(9a)	(9b)	(9c)	(10a)	(10b)	(10c)
Post	-.114	-.046	-.164	-.096	-.015	-.086	-.174	-.101	-.161	-.104*	-.052	-.112*	-.079	-.029	-.067
	(.103)	(.097)	(.103)	(.077)	(.078)	(.082)	(.109)	(.110)	(.117)	(.061)	(.058)	(.061)	(.050)	(.047)	(.049)
Times	-.058	-.056	-.165	-.026	-.010	-.111	.021	.025	-.016	-.023	-.025	-.095	-.002	-.006	-.048
	(.103)	(.097)	(.102)	(.076)	(.077)	(.081)	(.109)	(.108)	(.116)	(.061)	(.057)	(.061)	(.050)	(.046)	(.048)
N	955	918	918	1021	985	985	1033	1000	1000	1074	1034	1034	1081	1041	1041
Refuse/missing	17	17	17	17	17	17	16	16	16	7	7	7	0	0	0
Does not know	109	109	109	43	43	43	32	32	32	0	0	0	0	0	0
Missing Cov.	0	37	37	0	36	36	0	33	33	0	40	40	0	40	40
Total Surveyed	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081
R-squared	.00	.40	.49	.00	.30	.39	.00	.30	.37	.00	.38	.46	.00	.40	.48
Covariates?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Strata indicators?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Operator/date indicators?	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes

Note: Standard errors in parentheses. \*\* 95% significance, \* 90% significance. Dependent variables in Panel A include response to closed-ended question about the most important problem facing the country, a closed ended question about the most important problems in the Iraq war, attitudes about the leak case, the Alito confirmation, and a specific issue index constructed from the most important problem, the most important issue in Iraq and attitudes about the leak case. Dependent variables in panel B include attitudes about general national issues, including Bush approval, favorability towards Republicans, Conservatism, and a policy index constructed from these previous three items. The “broad policy index” and the “specific issue index” are both constructed by summing the standard deviations from the mean for each of the three specific questions for that index. The “Broad and Specific Issue index” is constructed then by adding together the two indices. In the row labeled “covariates”, we refer to data from the baseline survey: gender, reported age, three separate indicators for voting in the 2001, 2002 and 2004 general elections, an indicator for whether the respondent was drawn from a consumer list, self report of receiving any news or political magazines, and baseline survey self reports of preferring the Republican candidate in the gubernatorial election and having no preference in the gubernatorial election, and an indicator for wave of the study. In the row “strata indicators”, we include indicator variables for each of the strata formed prior to the randomization, which included unique combinations of the following: intention to vote, receive a paper (non-Post/non-Times), mentions ever reading a paper, gets a magazine, and asked whether they wish they read the paper more. “Surveyor/Date indicators” refers to a set of indicator variables for each unique combination of surveyor and date for the follow-up survey. All results remain qualitatively similar, and statistical significance remains as-is, using probit or ordered probit specifications instead of OLS.

**Table 6: Effect of Treatment on Political Knowledge**  
OLS

	Knew number dead in Iraq			Identified Libby as involved in leak			Identified Miers as Supreme Court nominee			Fact Index		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)	(4a)	(4b)	(4c)
Post	-.002 (.030)	.018 (.033)	.021 (.034)	-.050 (.033)	-.024 (.034)	-.022 (.036)	-.057* (.031)	-.042 (.032)	-.034 (.034)	-.086 (.054)	-.036 (.056)	-.023 (.058)
Times	.010 (.030)	-.009 (.032)	.009 (.034)	-.006 (.032)	-.011 (.034)	.008 (.036)	.028 (.030)	.011 (.031)	.018 (.033)	.028 (.054)	-.004 (.055)	.032 (.057)
N	1077	1038	1038	1067	1029	1029	1074	1036	1036	1080	1041	1041
Refuse/missing	4	4	4	14	14	14	7	7	7	1	1	1
Does not know	0	0	0	0	0	0	0	0	0	0	0	0
Missing Cov.	0	39	39	0	38	38	0	38	38	0	39	39
Total Surveyed	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081	1081
R-squared	.00	.20	.29	.00	.21	.32	.01	.23	.32	.00	.25	.36
Covariates	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Strata indicators	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Surveyor/Date indicators	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes

Note: Standard errors in parentheses. \*\* 95% significance, \* 90% significance. Dependent variables are: ability to identify the number dead in Iraq in a closed-ended question, identified ‘Scooter’ Libby from a list of four individuals as Dick Cheney’s chief of staff who recently resigned, identified Harriett Miers from a list of four individuals as a recent supreme Court nominee, and an index created from these questions. In the row labeled “covariates”, we refer to data from the baseline survey: gender, reported age, three separate indicators for voting in the 2001, 2002 and 2004 general elections, an indicator for whether the respondent was drawn from a consumer list, self report of receiving any news or political magazines, and baseline survey self reports of preferring the Republican candidate in the gubernatorial election and having no preference in the gubernatorial election, and an indicator for wave of the study. In the row “strata indicators”, we include indicator variables for each strata formed prior to the randomization, which included unique combinations of the following: intention to vote, receive a paper (non-Post/non-Times), mentions ever reading a paper, gets a magazine, and asked whether they wish they read the paper more. “Surveyor/Date indicators” refers to a set of indicator variables for each unique combination of surveyor and date for the follow-up survey. All results remain qualitatively similar, and statistical significance remains as-is, using probit or ordered probit specifications instead of OLS.

Appendix Table 2: Stories About the Gubernatorial Race On the Front Page or the First Metro Page

	Post	Times
Kaine	4	1
Kilgore	1	1
Potts	1	0
Kaine Ahead in Polls	0	2
Bush Campaigns for Kilgore	1	0
Kilgore Does not Attend Va. Bush Speech	2	0
Kilgore Hurt by Republican party problems	0	1
Antitax Groups Do Not Support Kilgore	0	1
Other Stories	6	4

\* Cell entries are number of stories dealing with the gubernatorial race on each newspaper's front page from October 17, 2005 to the day of the gubernatorial election, November 8, 2005. "Kaine" refers to stories with headlines specifically about the Democratic Candidate, and "Kilgore" to stories about the Republican candidate. "Potts" refers to stories about the third party candidate.

**Appendix Table 3: Analysis of Participation in the Follow-Up Survey**  
**Probit**

**Dependent variable = 1 if Survey Successfully Completed in Follow-up Phone Call**

	(1)	(2)
Post treatment group	0.003 (0.020)	-0.048 (0.046)
Times treatment group	0.018 (0.020)	0.052 (0.050)
Female	-0.026 (0.017)	-0.040 (0.026)
Voted in 2002	0.095*** (0.024)	0.103*** (0.038)
From consumer database sample frame	0.044** (0.021)	0.046 (0.032)
Subscribes to news magazine	0.069** (0.029)	0.026 (0.043)
Reported preferring democratic candidate for governor	0.126*** (0.026)	0.126*** (0.040)
Wave 2 of Experiment	-0.037** (0.017)	-0.035 (0.026)
Post * Female		0.094** (0.045)
Post * Voted in 2002		-0.037 (0.054)
Post * From consumer database sample frame		0.011 (0.050)
Post * Subscribes to news magazine		0.053 (0.071)
Post * Reported preferring democratic candidate for governor		0.032 (0.059)
Post * Wave 2 of Experiment		0.043 (0.043)
Times * Female		-0.040 (0.040)
Times * Voted in 2002		0.014 (0.057)
Times * From consumer database sample frame		-0.018 (0.049)
Times * Subscribes to news magazine		0.092 (0.072)
Times * Reported preferring democratic candidate for governor		-0.031 (0.056)
Times * Wave 2 of Experiment		-0.048 (0.039)
Number of observations	3,347	3,347
Pseudo R-squared	0.018	0.023
Mean dependent variable	0.32	0.32
P(Times interaction variables ≈ 0)		0.56
P(Post interaction variables ≈ 0)		0.23

Note: Standard errors in parentheses. \*\*\* 99 % significance \*\* 95% significance \*90% significance. Indicator variable included (but not reported) if gender information is missing (applicable for 134 observations). All variables (except assignment to treatment and gender) are from the baseline survey.