

Online Supporting Information/Appendix

Treatment manipulations, Original Study

Strong numeric information

A study (commissioned by the Republican Party/commissioned by the Democratic Party/[empty]) argued that felons should be given probation sentences instead of prison. It found that it costs an average of \$79 per day to keep an inmate locked up, which is more than 20 times the cost of a day on probation. It also found that reducing incarcerations has a benefit-cost ratio on the order of 4:1, while the benefit-cost ratio for increasing spending on prison sentences is no more than 1:1. Overall, between 1973 and 2009, the nation's prison population grew by 705 %, resulting in about 1 in 100 adults behind bars, at a cost of \$75 billion.

Non sequitur, numeric information

A study (commissioned by the Republican Party/commissioned by the Democratic Party/[empty]) argued that felons should be given probation sentences instead of prison. It found that between 1999 and 2007 the number of violent crimes in this country went from 611 per 100,000 to 467 per 100,000, while the number of people that were returned to prison after being released decreased by about 5 % to almost 43 %. Looking at historical trends, the report finds that total government spending on prisons and jails increased over 250 % in the last 30 years, compared to the \$139 billion the federal government spent on transportation in 2012.

Party only information

A study commissioned by the (Democratic Party/Republican Party) argued that felons should be given probation sentences instead of prison.

Control [No information]

Please rate your agreement with the follow statement:

Probation should be used as an alternative form of punishment instead of prison for felons.

Strongly Disagree - Disagree – Somewhat Disagree - Neither Agree nor Disagree – Somewhat Agree - Agree – Strongly Agree – Don't Know

Treatment manipulations, Follow-Up Study

Strong verbal information

There has been debate in Washington in recent years to establish a national commission to examine the U.S. criminal justice system.

A study commissioned by the (Democratic/Republican/Empty) party argued that felons should be given probation sentences instead of prison. It found that it costs a large amount of money per day to keep an inmate locked up, which is a substantially larger cost than a day on probation. It also found that reducing incarcerations results in a larger benefit compared to the cost, while increasing spending on prison sentences has about the same benefit compared to the cost. Overall, in the last

few decades, the nation's prison population grew dramatically, resulting in a higher percentage of adults behind bars, at a substantial cost.

Non sequitur, verbal information

There has been debate in Washington in recent years to establish a national commission to examine the U.S. criminal justice system.

A study commissioned by the (Democratic/Republican/Empty) Party argued that felons should be given probation sentences instead of prison. It found that over the last few years the number of violent crimes in this country decreased somewhat, while the number of people that were returned to prison after being released decreased by a small amount, to a little less than half. Looking at historical trends, the report finds that total government spending on prisons and jails increased significantly in the last few decades, compared to the huge amount of money the federal government spent on transportation a couple of years ago.

Control [No information]

Please rate your agreement with the follow statement:

Probation should be used as an alternative form of punishment instead of prison for felons.

Strongly Disagree - Disagree – Somewhat Disagree - Neither Agree nor Disagree – Somewhat Agree - Agree – Strongly Agree – Don't Know

Follow-Up Study

We conducted a follow-up study to establish whether the differences found were driven by the physical appearance of numbers or the underlying information about costs and incarceration rates conveyed by those numbers. This follow-up study included the same measurements and four similar manipulations, except that instead of providing respondents with numerical messages, we substituted the numbers for analogous words instead.¹ Thus, the persuasive messages remained virtually identical, but for the use of purely non-numeric messages. Our theoretical argument implies

¹ Due to funding constraints, we only included the most theoretically interesting messages in this follow-up study: the strong message for the other party and the weak message for the same party, in addition to the non-partisan strong and weak messages, and the control. This design captures 3 out of the 4 conditions where high and low numerates diverged in our original study.

that the differences between high and low numerates will disappear when non-numeric messages are provided. The subjects were recruited from the same subject pool as the original study, using identical recruitment materials, posted at the same time of day, on the same day of the week, and with a similar screening procedure to ensure a balanced distribution across partisanship. This follow-up study therefore represents additional treatments on an equivalent sample to our original study.²

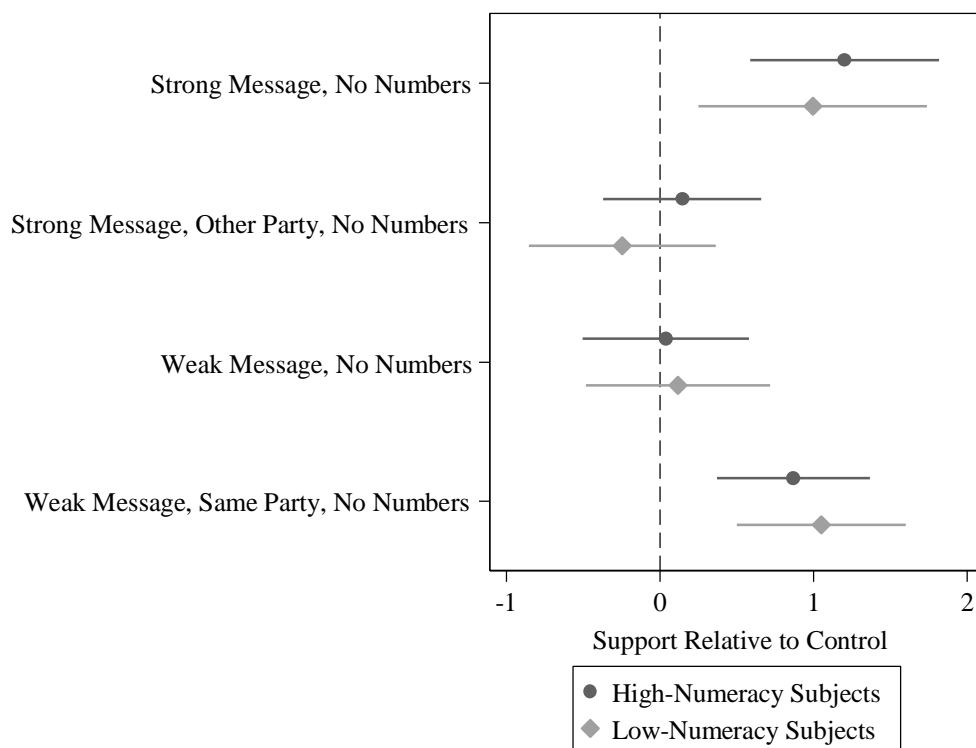
The results from this additional study are presented in Figure A1. Figure A1 represents the estimated treatment effects from a separate OLS regression for each numerate group, using robust standard errors and dummy variables for the four treatment conditions included in the follow-up study, with the control condition as the baseline. Figure 2 shows that when subjects are presented with the same persuasion message, using only non-numeric appeals, the differential effects between high and low numerates vanish. High numerates are now significantly persuaded by non sequitur messages that include their own party's label. As numeric information is not available, high numerates utilize the other salient information presented in the messages – party cues – to the same degree as low numerates do. Moreover, weak messages are no longer persuasive to low numerates, presumably because low numerates are no longer as impressed without an array of weak and inconsistent numbers.

When presenting non-numeric strong messages from the other party, neither high nor low numerates are significantly persuaded by the appeal. This finding is particularly noteworthy since this same condition, when utilizing numeric information, resulted in *more* persuasion among high numerates, and *less* persuasion among low numerates, as compared to the control. Removing quantitative information appears to make the message from the opposing party less threatening for

² The two samples did not differ significantly on the relevant variables, such as numeracy, age, education, race, gender and political interest.

low numerates, and less persuasive for high numerates. This shows that high numerates are no less partisan than low numerates in the absence of numeric information.³ We conclude that the results presented in the original study are primarily driven by the numeric information included in the messages; not the underlying cost and incarceration narratives, nor a differential weighting of strong appeals among subgroups. In other words, the different treatment effects between high and low numerates must be due to differences in *numeracy*, not variation in the propensity to weigh specific empirical facts across messages.

Figure A1. Treatment Effects, Follow-Up Study



These estimates are derived from an OLS estimation of the equation: $Support = \alpha + \beta Condition + \varepsilon$, estimated for high and low numeracy subjects separately, using robust standard errors. Higher values indicate greater persuasion (greater support for instituting probation for felons), compared to Control. The exact estimates that Figure A1 is based on are available in the online supporting information, Table A8.

³ Note also that numeracy is not related to strength of partisanship (coded 1 for strong Democrats and Republicans, 0 otherwise) across studies 1 and 2 ($r = 0.035$).

Table A1. Descriptive Statistics (Original Study)

| Variable | Mean (SD) | Range |
|--------------------|----------------------|--|
| Party ID | 1.98 (0.82) | 35% R, 33% D, 32% I |
| Age | 34.02 (12.50) | 16-78 |
| Political Interest | 2.19 (0.68) | 1 = Not at all interested 2 = Somewhat interested 3 = Very much interested |
| Education | 3.53 (0.85) | 1 = Did not complete HS 2 = HS graduate 3 = Some College 4 = College Graduate 5 = Postgraduate |
| Race | 1.83 (1.64) | 75% White European 2% Jewish 6% Latino 7% Asian-American 6% African-American 1% Native American 2% Other 1% Prefer not to respond |
| Sex | 1.43 (0.50) | 52% Male 48% Female |

Table A2. Numeracy Scale Questions and % Correctly Answered by Subjects (Original Study)

| Question | Percent correct |
|---|------------------------|
| Which of the following numbers represents the biggest risk of getting a disease: 1 in 10, 1 in 100, or 1 in 1,000? | 90 |
| Which of the following represents the biggest risk of getting a disease: 1%, 10%, or 5%? | 93 |
| If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 100? | 98 |
| If the chance of getting a disease is 10%, how many people would be expected to get the disease out of 1000? | 94 |
| If the chance of getting a disease is 20 out of 100, this would be the same as having a ___% chance of getting the disease. | 95 |
| If Person A's risk of getting a disease is 1% in ten years, and Person B's risk is double that of A's, what is B's risk? | 93 |
| If Person A's chance of getting a disease is 1 in 100 in ten years, and Person B's risk is double that of A, what is B's risk? | 92 |
| In the BIG BUCKS LOTTERY, the chances of winning a \$10.00 prize are 1%. What is your best guess about how many people would win a \$10.00 prize if 1,000 people each buy a single ticket from BIG BUCKS? | 80 |
| Imagine we roll a fair, six-sided die 1,000 times. Out of 1,000 rolls, how many times do you think the die would come up even (2, 4, or 6)? | 82 |
| The chance of getting a viral infection is .0005. Out of 10,000 people, about how many of them are expected to get infected? | 69 |
| In the ACME PUBLISHING SWEEPSTAKES, the chance of winning a car is 1 in 1,000. What percent of tickets in the ACME PUBLISHING SWEEPSTAKES win a car? | 47 |

Table A3. Political Knowledge Questions and % Correctly Answered (Original Study)

| Question | Percent correct |
|--|------------------------|
| Do you happen to know which party had the most members in the House of Representatives before the election in November 2012? | 60 |
| How much of a majority is required for the U.S. Senate and House to override a presidential veto? | 86 |
| Which political party is more conservative? | 94 |
| Whose responsibility is it to decide if a law is constitutional or not? | 84 |
| What job or political office does Joe Biden currently hold? | 97 |
| What job or political office is now held by David Cameron? | 62 |
| How many members are there in the U.S. House? | 30 |
| Whose responsibility is it to nominate judges to federal courts? | 72 |
| The U.S. Bureau of Labor Statistics counts a person as unemployed if they are not employed at any job and are looking for work. By this definition, what percentage of Americans was unemployed in December of 2012? | 43 |
| What was the outcome of the popular vote in the 2012 presidential election? (Obama/Romney win by more/less than 5 percentage points) | 33 |
| How long is the term for a U.S. Senator? | 58 |
| Of the 100 members of the U.S. Senate, how many are members of the Republican Party? | 15 |
| What job or political office does John G. Roberts currently hold? | 54 |
| Can a communist run for president in the United States? | 61 |
| How old must a person be to be elected to the U.S. House of representatives? | 30 |

Table A4. Need For Cognition Questions and Mean Response (Original Study)

| Question | Mean Response (SD) |
|--|-----------------------------------|
| Please rate your agreement with the following statement: I don't like to have the responsibility of handling a situation that requires a lot of thinking. (1 = strongly agree, 5 = strongly disagree) | 3.63 (1.03) |
| Please rate your agreement with the following statement: I would prefer complex to simple problems. (1 = strongly disagree, 5 = strongly agree) | 3.37 (1.06) |

Table A5. OLS estimates of treatment effects, Original Study

| Variable | High Numeracy | Low Numeracy | Democrat | Republican | High Knowledge | Low Knowledge | High Need for Cognition | Low Need for Cognition |
|-----------------------------|------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|------------------------|
| Conditions | | | | | | | | |
| Weak Message | 0.08 (0.25) | 0.97* (0.26) | 0.45 (0.27) | 0.56* (0.26) | 0.18 (0.28) | 0.59 (0.29) | 0.42 (0.26) | 0.46 (0.32) |
| Other Party, Weak Message | -0.26 (0.22) | -0.63* (0.30) | -0.13 (0.28) | -0.52 (0.27) | -0.58* (0.30) | -0.29 (0.29) | -0.44 (0.27) | -0.47 (0.33) |
| Other party only | 0.04 (0.26) | -0.12 (0.29) | 0.02 (0.28) | -0.09 (0.26) | -0.05 (0.27) | -0.04 (0.30) | -0.04 (0.26) | -0.07 (0.32) |
| Other Party, Strong Message | 1.24* (0.25) | -0.57* (0.26) | 0.61* (0.28) | 0.39 (0.26) | 0.41 (0.27) | 0.42 (0.32) | 0.41 (0.25) | 0.49 (0.34) |
| Strong Message | 1.17* (0.26) | 1.19* (0.28) | 1.09* (0.27) | 1.21* (0.26) | 1.03* (0.30) | 1.28* (0.30) | 1.18* (0.26) | 1.16* (0.31) |
| Same Party, Weak Message | 0.14 (0.23) | 1.72* (0.30) | 0.85* (0.27) | 0.63* (0.26) | 0.49 (0.27) | 0.54 (0.30) | 0.54* (0.26) | 0.95* (0.33) |
| Same Party Only | -0.07 (0.25) | 0.45 (0.29) | 0.36 (0.28) | -0.10 (0.26) | -0.14 (0.27) | 0.32 (0.30) | 0.10 (0.25) | 0.05 (0.32) |
| Same Party Strong Message | 1.11* (0.25) | 1.85* (0.27) | 1.20* (0.28) | 1.67* (0.26) | 1.61* (0.28) | 1.20* (0.29) | 1.15* (0.26) | 1.69* (0.33) |
| N | 677 | 505 | 598 | 584 | 607 | 575 | 724 | 456 |
| Adj. R ² | 0.11 | 0.23 | 0.06 | 0.16 | 0.14 | 0.10 | 0.10 | 0.16 |

*p < 0.05, two-tailed. Robust standard errors in parentheses. Positive coefficients indicate more support for the policy, compared to control. Treatment effect coefficients are relative to the control condition with neither a party label nor policy information.

Table A6. OLS estimates of moderated treatment effects, Original Study

| Variable | |
|---|-----------------------------|
| Conditions | |
| Weak Message | 0.97* (0.26) |
| Other Party, Weak Message | - 0.63* (0.30) |
| Other Party Only | -0.12 (0.29) |
| Other Party, Strong Message | - 0.57* (0.26) |
| Strong Message | 1.19* (0.28) |
| Same Party, Weak Message | 1.72* (0.30) |
| Same Party Only | 0.45 (0.29) |
| Same Party, Strong Message | 1.85* (0.27) |
| High Numeracy | 0.24 (0.24) |
| High Numeracy * Weak Message | 0.32 (0.27) |
| High Numeracy * Other party, Weak Message | -0.02 (0.24) |
| High Numeracy * Other party only | 0.28 (0.28) |
| High Numeracy * Other Party, Strong Message | 1.48* (0.27) |
| High Numeracy * Strong Message | 1.41* (0.27) |

| | |
|---------------------|--------------|
| High | 0.38 |
| Numeracy | (0.24) |
| * Same | |
| Party, | |
| Weak | |
| Message | |
| High | 0.17 |
| Numeracy | (0.26) |
| * Same | |
| Party Only | |
| High | 1.35* |
| Numeracy | (0.26) |
| * Same | |
| Party, | |
| Strong | |
| Message | |
| <hr/> | |
| N | 1,182 |
| Adj. R ² | 0.17 |

*p < 0.05, two-tailed. Robust standard errors in parentheses. Positive coefficients indicate more support for the policy, compared to control. Treatment effect coefficients are relative to the control condition with neither a party label nor policy information.

Table A7. OLS estimates of moderated treatment effects, numeracy continuous, Original Study

| Variable | |
|-------------------|--------------|
| <hr/> | |
| Conditions | |
| <hr/> | |
| Weak | 0.49* |
| Message | (0.18) |
| Other | - |
| Party, Weak | 0.39* |
| Message | (0.18) |
| Other Party | -0.04 |
| Only | (0.19) |
| Other | - |
| Party, | 0.49* |
| Strong | (0.19) |
| Message | |
| Strong | 1.10* |
| Message | (0.19) |
| Same Party, | 0.83* |
| Weak | (0.18) |
| Message | |
| Same Party | 0.15 |
| Only | (0.19) |
| Same Party | 1.22* |
| Strong | (0.18) |
| Message | |

| | |
|---------------------|-----------------------------|
| Numeracy | -0.02 (0.13) |
| Numeracy | -0.25 (0.22) |
| * Weak | |
| Message | |
| Numeracy | 0.21 (0.18) |
| * Other | |
| party, Weak | |
| Message | |
| Numeracy | 0.36 (0.19) |
| * Other | |
| party only | |
| Numeracy | 0.95* (0.19) |
| * Other | |
| Party, Strong | |
| Message | |
| Numeracy | 0.17 (0.17) |
| * Strong | |
| Message | |
| Numeracy | - 0.68* (0.21) |
| * Same | |
| Party, Weak | |
| Message | |
| Numeracy | 0.05 (0.20) |
| * Same | |
| Party Only | |
| Numeracy | 1.08* (0.20) |
| * Same | |
| Party, Strong | |
| Message | |
| N | 1,182 |
| Adj. R ² | 0.15 |

*p < 0.05, two-tailed. Robust standard errors in parentheses. Numeracy is continuous, using an index measure (where each correct answer on the scale represents 1 value in the index), which is mean centered and standardized, such that 1 unit represents 1 standard deviation.

Table A8. OLS estimates of treatment effects, Follow-Up Study

| Variable | High Numeracy | Low Numeracy |
|--|------------------------|------------------------|
| Conditions | | |
| Weak Message, No Numbers | 0.04 (0.29) | 0.12 (0.32) |
| Other party, Weak Message, No Numbers | 0.15 (0.28) | -0.25 (0.34) |
| Other party only | 0.87* (0.28) | 1.05* (0.33) |
| Other party, Strong Message, No Numbers | 1.20* (0.28) | 1.00* (0.33) |
| N | 270 | 242 |
| Adj. R ² | 0.09 | 0.09 |

* $p < 0.05$, two-tailed. Robust standard errors in parentheses. Positive coefficients indicate more support for the policy, compared to control. Treatment effect coefficients are relative to the control condition with neither a party label nor policy information.