# **Supplementary materials**

## Sample composition

In the following table we summarize the sample composition with regards to relevant variables.

**Table S1.** *Descriptive statistics, (N=1,015)*

|  |  |  |
| --- | --- | --- |
|  | Sample | General population |
| ***Age*** |  |  |
| All respondents, mean | 48.9 | 45.5 |
| >20 years old, n (%) | 18 (1.8) | (3.0) |
| 20-29 years old, n (%) | 129 (12.7) | (18.9) |
| 30-39 years old, n (%) | 155 (15.3) | (17.6) |
| 40-49 years old, n (%) | 206 (20.3) | (18.3) |
| 50-59 years old, n (%) | 203 (20.0) | (17.5) |
| 60-69 years old, n (%) | 197 (19.4) | (15.9) |
| 70-75 years old, n (%) | 107 (10.5) | (8.7) |
| ***Sex*** |  |  |
| Female, n (%) | 506 (49.9) | (49.3) |
| ***Education*** |  |  |
| Not finished compulsory school, n (%) | 7 (0.7) | - |
| Completed compulsory school, n (%) | 80 (7.9) | (14.9)1 |
| Completed upper secondary education, n (%) | 360 (35.5) | (44.8)2 |
| Studied at university or collage, n (%) | 154 (15.2) | (14.9)3 |
| Graduated from university or collage, n (%) | 414 (40.8) | (22.6)4 |
| ***Left-right political orientation*** |  |  |
| Very far left, n (%) | 15 (1.5) |  |
| Far left, n (%) | 54 (5.32) |  |
| Pretty far left, n (%) | 150 (14.8) |  |
| Weak tendency toward left, n (%) | 150 (14.8) |  |
| Neither left nor right, n (%) | 251 (24.7) |  |
| Weak tendency toward right, n (%) | 173 (17.0) |  |
| Pretty far right, n (%) | 154 (15.2) |  |
| Far right, n (%) | 39 (3.8) |  |
| Very far right, n (%) | 29 (2.9) |  |
| ***World-view ideology*** |  |  |
| Much more of a world-citizen, n (%) | 113 (11.1) |  |
| More of a world-citizen, n (%) | 159 (15.7) |  |
| Somewhat of a world-citizen, n (%) | 137 (13.5) |  |
| Equal parts world-citizen and Swede, n (%) | 218 (21.5) |  |
| Somewhat of a Swede, n (%) | 173 (17.0) |  |
| More of a Swede, n (%) | 127 (12.5) |  |
| Much more of a Swede, n (%) | 88 (8.7) |  |
| ***Numeracy score*** |  |  |
| 0, n (%) | 262 (25.8) |  |
| 1, n (%) | 189 (18.6) |  |
| 2, n (%) | 145 (14.3) |  |
| 3, n (%) | 108 (10.6) |  |
| 4, n (%) | 139 (13.7) |  |
| 5, n (%) | 100 (9.9) |  |
| 6, n (%) | 72 (7.1) |  |

**Note:** The data was collected in collaboration with CMA Research, and subjects were drawn from a sample of the general adult population. The subject are part of several panels owned by Cint. In terms of age and gender the sample is close to the general population. The educational measure is difficult to compare with data available from Statistics Sweden since our educational categories does not correspond to the ones available from them. 1Calculated using data from Statistics Sweden 2016, adding primary education shorter than 9 years with primary education 9 (10) years. 2Calculated using data from Statistics Sweden 2016, adding Secondary education maximum 2 years and Secondary education 3 years, 3Calculated using data from Statistics Sweden 2016, Tertiary education less than 3 years. 4Calculated using data from Statistics Sweden 2016, adding Tertiary education 3 years or more with Graduate studies. The percentages for the population does not sum to 100 percent since Statistics Sweden lacks information about some educations.

## Experimental structure

A short summary of each section included in the survey.

|  |  |
| --- | --- |
| Introduction |  |
| ↓ |  |
| **Section 1** | Participants read a text about a research study and were asked to state which conclusion was supported. Participants were randomly allocated to read either about a neutral topic (skin cream effectiveness on a rash) or about a politically loaded topic (refugee intake and crime rate). |
| ↓ |  |
| **Section 2** | Four questions about how participants see themselves in terms of traditional and modern ideological labels.  Do you personally believe that economic equality or economic freedom is relatively more important?  Do you describe yourself as relatively more conservative or liberal in social questions?  Do you describe yourself as a “World-citizen” or as a “Swede”?  Do you describe yourself as someone finding free speech or concern for not hurting the feelings of others more important? |
| ↓ |  |
| **Section 3** | The Moral Foundations Questionnaire (30 items, available in full from *http://moralfoundations.org/questionnaires*). Between the moral foundations judgment items and the moral foundations relevance items were questions measuring just-world belief (8 items), religious beliefs (2 items), religious identity (1 item), spiritual universalism (2 items), , preference for equality (4 items), and resistance to change (4 items). Results involving these scales are presented in a separate manuscript. |
| ↓ |  |
| **Section 4** | Three numeracy questions followed by three CRT questions (all open-ended)   1. In a small American lottery the chance of winning 10 dollars is 1%. How many do you guess will win 10 dollars if 1000 persons by one ticket each? 2. Imagine that we throw a five-sided die 50 times. How many of these 50 throws will this die eventually land on an uneven number (1, 3 or 5)? 3. Out of 1000 people in a town, 500 are members of a choir. Out of these 500 choir-members, 100 are men. Out of the 500 people not members of a choir, 300 are men. What is the probability that a randomly drawn man is a member of a choir? 4. A bat and a ball cost $110 in total. The bat costs $100 more than the ball. How much does the ball cost? 5. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? 6. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? |
| ↓ |  |
| **Section 5** | Bullshit-receptivity and profoundness-receptivity. |
| ↓ |  |
| **Section 6** | Participants read and responded to three hypothetical moral dilemmas where they were forced to prioritize among two suggested helping projects. Participants were randomly allocated to respond to how they *would* choose, how they *should* choose or what would be the *moral choice.* |
| ↓ |  |
| **Section 7** | Similar task as in Section 1. Participants doing the task in Section 1 in a neutral context did it in the loaded context in Section 7 and vice versa. |
| ↓ |  |
| **Section 8** | Mood check 1: Participants rated how happy, sad, and irritated they felt at this specific moment. |
| ↓ |  |
| **Section 9** | Volunteering decision question |
| ↓ |  |
| **Section 10** | Mood check 2: Same as in Section 8 |
| ↓ |  |
| **Section 11** | Demographics: Participants responded to the following questions in this order   1. Sex 2. Current age 3. Highest completed education 4. Frequency of religious activities 5. Donation experience question 6. Perceived importance of 17 charitable causes rated on a scale ranging from 1 = *not at all important to me* to 5 = *very important to me*. 7. Have you during the past year given money or in any other way helped begging EU-migrants 8. Do you think it should be legal to beg in Sweden? 9. Political self-placement: “Do you perceive yourself as politically to the left or to the right” 10. If there was an election today, which party would you vote for? |

## Experiment instructions

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scenario 1**  **In this section your task is to read about a study and thereafter respond which conclusion that is supported by the results in the study. Read the text carefully and respond by marking the alternative that best represent your answer.**  **Researchers have developed a new skin cream for treating a specific rash. New treatments sometimes work but other times they make the problems worse. Also, even in those cases where the cream has no effect, the rash sometimes gets better or worse for different reasons. It is therefore necessary to test all new skin creams in controlled studies to see if they aggravate or improves skin rashes.**  **Researcher have conducted a study on patients with the specific rash. In this study, one group of patients used the new skin cream for a two week period whereas another group did not use the new skin cream.**  **The number of patients with reduced skin problems and the number of patients with increased skin problems in respective groups can be seen in the table below. The total number of patients in the groups are not the same, but it is still possible to evaluate how effective the skin cream is.**  **Your task is to evaluate if the study shows that it is likely that patients using the new skin cream will get decreasing or increasing skin rash problems compared to the patients not using the new skin cream.**  Results   |  |  |  | | --- | --- | --- | |  | **Reduced skin problems** | **Increased skin problems** | | **Number of patients using the new skin cream** | 223 | 75 | | **Number of patients not using the skin cream** | 107 | 21 |   **Which conclusion is supported in this study?** |

|  |  |
| --- | --- |
|  | It is likely that patients who use the new cream will have reduced skin problems compared to those who do not use the new cream. |
|  | It is likely that patients who use the new cream will have increased skin problems compared to those who do not use the new cream. |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scenario 2**  **In this section your task is to read about a study and thereafter respond which conclusion that is supported by the results in the study. Read the text carefully and respond by marking the alternative that best represent your answer.**  **Researchers have developed a new skin cream for treating a specific rash. New treatments sometimes work but other times they make the problems worse. Also, even in those cases where the cream has no effect, the rash sometimes gets better or worse for different reasons. It is therefore necessary to test all new skin creams in controlled studies to see if they aggravate or improves skin rashes.**  **Researcher have conducted a study on patients with the specific rash. In this study, one group of patients used the new skin cream for a two week period whereas another group did not use the new skin cream.**  **The number of patients with reduced skin problems and the number of patients with increased skin problems in respective groups can be seen in the table below. The total number of patients in the groups are not the same, but it is still possible to evaluate how effective the skin cream is.**  **Your task is to evaluate if the study shows that it is likely that patients using the new skin cream will get decreasing or increasing skin rash problems compared to the patients not using the new skin cream.**  Results   |  |  |  | | --- | --- | --- | |  | **Increased skin problems** | **Reduced skin problems** | | **Number of patients using the new lotion** | 223 | 75 | | **Number of patients not using the new lotion** | 107 | 21 |     **Which conclusion is supported in this study?** |

|  |  |
| --- | --- |
|  | It is likely that patients who use the new cream will have reduced skin problems compared to those who do not use the new cream. |
|  | It is likely that patients who use the new cream will have increased skin problems compared to those who do not use the new cream. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scenario 3**  **In this section your task is to read about a study and thereafter respond which conclusion that is supported by the results in the study. Read the text carefully and respond by marking the alternative that best represent your answer.**  **Some Norwegian communities receives refugees whereas other do not. Sometimes crime rate increase when refugees arrive, and at other times it decrease. Also, in communities that does not receive refuges, the crime rate can decrease or increase for different reasons. It is therefore necessary to use controlled studies for testing what effect receiving refugees has on the crime rate.**  **Researchers in Norway have investigated how the crime rate changed over the past five years in small Norwegian communities that either received or did not receive refugees during this period.**  **The number of Norwegian communities that received/did not receive refugees and the crime rate decreased together with the number of Norwegian communities that received/did not receive refugees and the crime rate increased are shown in the table below. The total number of communities receiving/not receiving refugees are not the same, but it is still possible to evaluate how acceptance of refugees and criminality rate are related.**  **Your task is to evaluate if the study shows that it is likely that the crime rate has increased or decreased in Norwegian communities that received refugees, compared to Norwegian communities that did not receive refugees.**  Results   |  |  |  | | --- | --- | --- | |  | **Crime rate has decreased over the last five years** | **Crime rate has increased over the last five years** | | **Number of Norwegian communities that received refugees during the last five years** | 181 | 61 | | **Number of Norwegian communities that did not receive refugees during the last five years** | 87 | 17 |   **Which conclusion is supported in this study?** | |
|  | It is likely that crime rate has decreased over the last 5 years in Norwegian communities that have received refugees, compared to communities that did not. | |
|  | Crime rate has increased over the last 5 years in Norwegian communities that have received refugees, compared to communities that did not. | |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Scenario 4**  **In this section your task is to read about a study and thereafter respond which conclusion that is supported by the results in the study. Read the text carefully and respond by marking the alternative that best represent your answer.**  **Some Norwegian communities receives refugees whereas other do not. Sometimes crime rate increase when refugees arrive, and at other times it decrease. Also, in communities that does not receive refuges, the crime rate can decrease or increase for different reasons. It is therefore necessary to use controlled studies for testing what effect receiving refugees has on the crime rate.**  **Researchers in Norway have investigated how the crime rate changed over the past five years in small Norwegian communities that either received or did not receive refugees during this period.**  **The number of Norwegian communities that received/did not receive refugees and the crime rate decreased together with the number of Norwegian communities that received/did not receive refugees and the crime rate increased are shown in the table below. The total number of communities receiving/not receiving refugees are not the same, but it is still possible to evaluate how acceptance of refugees and criminality rate are related.**  **Your task is to evaluate if the study shows that it is likely that the crime rate has increased or decreased in Norwegian communities that received refugees, compared to Norwegian communities that did not receive refugees.**  Results   |  |  |  | | --- | --- | --- | |  | **Criminality rate increased the past 5 years** | **Criminality rate decreased  the past 5 years** | | **Number of Norwegian communities that received refugees during the last five years** | 181 | 61 | | **Number of Norwegian communities that did not receive refugees during the last five years** | 87 | 17 |   **Which conclusion is supported in this study?** | |
|  | It is likely that crime rate has decreased over the last 5 years in Norwegian communities that have received refugees, compared to communities that did not. | |
|  | Crime rate has increased over the last 5 years in Norwegian communities that have received refugees, compared to communities that did not. | |

## Robustness checks of main specification, comparing different specifications of the world-view measure

**Table S2.** *Linear probability regressions on motivated reasoning, treating the world-view variable as continuous.*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) |
|  | Crime increase | Crime decrease | Rash increase | Rash decrease |
|  |  |  |  |  |
| World-viewa | 0.051\*\*\* | -0.064\*\*\* | 0.016 | -0.021\* |
|  | (0.012) | (0.012) | (0.013) | (0.012) |
| Control variables included | YES | YES | YES | YES |
| Observations | 529 | 486 | 486 | 529 |
| R-squared | 0.067 | 0.087 | 0.062 | 0.023 |

Note: The dependent variable is the assessments provided to the experimental scenarios, 1 if the correct assessment was indicated and 0 otherwise. a World-view is treated as a continuous variable ranging from 1 (representing very far left) to 7 (representing very far right). Robust standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|  | Crime increase | Crime decrease | Rash increase | Rash decrease | Crime increase | Crime decrease | Rash increase | Rash decrease |
|  |  |  |  |  |  |  |  |  |
| World-viewa | 0.054\*\*\*  (0.012) | -0.066\*\*\*  (0.012) | 0.013 (0.013) | -0.021\*  (0.012) | 0.087\*\*\*  (0.017) | -0.059\*\*\*  (0.018) | 0.016  (0.018) | -0.028  (0.019) |
| Numeracy score | 0.029\*\* | 0.050\*\*\* | 0.080\*\*\* | 0.011 | 0.083\*\*\* | 0.062\*\* | 0.086\*\*\* | -0.001 |
|  | (0.012) | (0.011) | (0.011) | (0.012) | (0.024) | (0.024) | (0.025) | (0.025) |
| Numeracy score\*World-view |  |  |  |  | -0.014\*\*\*  (0.005) | -0.003  (0.006) | -0.002  (0.006) | 0.003  (0.006) |
| Control variables included | YES | YES | YES | YES | YES | YES | YES | YES |
| Observations | 529 | 486 | 486 | 529 | 529 | 486 | 486 | 529 |
| R-squared | 0.078 | 0.120 | 0.149 | 0.025 | 0.089 | 0.120 | 0.149 | 0.025 |

**Table S3.** *Linear probability regressions on the role of numeracy, treating the world-view variable as continuous.*

Note: The dependent variable is the assessments of the experimental scenarios, 1 if the correct assessment was made and 0 otherwise. a World-view is treated as a continuous variable ranging from 1 (representing very far left) to 7 (representing very far right) b The low significance of the numeracy score for the rash decrease scenario is due to the large differences in correct assessments for participants with a numeracy score of zero, excluding this part of the sample yield results similar to that of the other regressions. Robust standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table S4.** *Linear probability regressions on motivated reasoning and the role of numeracy, comparing strong tendencies on the world-view Likert scale.*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|  | Crime increase | Crime decrease | Rash increase | Rash decrease | Crime increase | Crime decrease | Rash increase | Rash decrease |
|  |  |  |  |  |  |  |  |  |
| Strongly nationally orienteda | 0.313\*\*\*  (0.062) | -0.338\*\*\*  (0.064) | 0.013  (0.065) | -0.121\*  (0.067) | 0.491\*\*\*  (0.087) | -0.304\*\*\*  (0.093) | 0.060  (0.095) | -0.140  (0.100) |
| Numeracy score | 0.031\* | 0.054\*\*\* | 0.076\*\*\* | 0.016 | 0.062\*\*\* | 0.060\*\*\* | 0.085\*\*\* | 0.013 |
|  | (0.016) | (0.016) | (0.016) | (0.017) | (0.020) | (0.020) | (0.020) | (0.021) |
| Numeracy score\*Strongly nationally oriented |  |  |  |  | -0.080\*\*\*  (0.028) | -0.015  (0.028) | -0.020  (0.029) | 0.009  (0.033) |
| Control variables included | YES | YES | YES | YES | YES | YES | YES | YES |
| Observations | 256 | 231 | 231 | 256 | 256 | 231 | 231 | 256 |
| R-squared | 0.145 | 0.213 | 0.147 | 0.036 | 0.169 | 0.214 | 0.149 | 0.036 |

Note: The dependent variable is the assessments of the experimental scenarios, 1 if the correct assessment was made and 0 otherwise. a Strongly nationally oriented is a dichotomous variable; 1 indicating that participants marked 6 or 7 on the Likert scale and 0 if participants marked 1 or 2 on the Likert scale (participants indicating neither were excluded from the analysis). b The low significance of the numeracy score for the rash decrease scenario is due to the large differences in correct assessments for participants with a numeracy score of zero, excluding this part of the sample yield results similar to that of the other regressions. Robust standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table S5.** *Linear probability regressions on motivated reasoning and the role of numeracy, comparing the weak tendencies on the world-view Likert scale.*

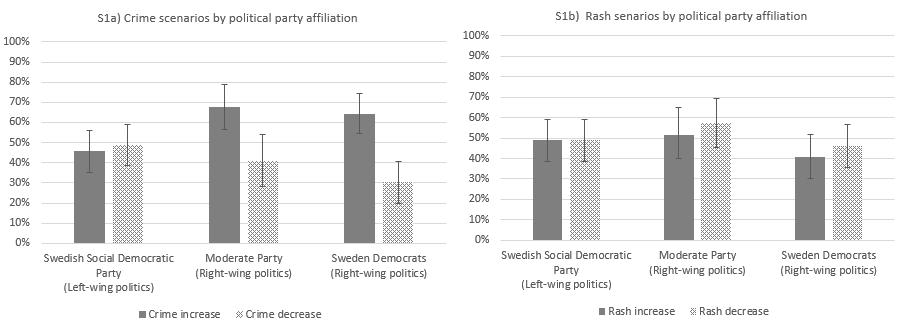
|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|  | Crime increase | Crime decrease | Rash increase | Rash decrease | Crime increase | Crime decrease | Rash increase | Rash decrease |
|  |  |  |  |  |  |  |  |  |
| Weakly nationally orienteda | -0.000  (0.085) | -0.011  (0.080) | 0.127\*  (0.077) | 0.041  (0.081) | -0.044  (0.144) | -0.051  (0.141) | 0.052  (0.130) | -0.072  (0.135) |
| Numeracy score | 0.055\*\* | 0.047\*\* | 0.075\*\*\* | 0.016 | 0.046 | 0.040 | 0.061\*\* | -0.009 |
|  | (0.022) | (0.021) | (0.020) | (0.022) | (0.034) | (0.030) | (0.028) | (0.031) |
| Numeracy score\*Weakly nationally oriented |  |  |  |  | 0.017  (0.042) | 0.016  (0.042) | 0.030  (0.038) | 0.044  (0.041) |
| Control variables included | YES | YES | YES | YES | YES | YES | YES | YES |
| Observations | 155 | 155 | 155 | 155 | 155 | 155 | 155 | 155 |
| R-squared | 0.057 | 0.064 | 0.175 | 0.074 | 0.058 | 0.064 | 0.178 | 0.081 |

Note: The dependent variable is the assessments of the experimental scenarios, 1 if the correct assessment was made and 0 otherwise. a Weakly nationally oriented is a dichotomous variable; 1 indicating that participants marked 5 on the Likert scale and 0 if participants marked 3 on the Likert scale (participants indicating neither were excluded from the analysis). b The low significance of the numeracy score for the rash decrease scenario is due to the large differences in correct assessments for participants with a numeracy score of zero, excluding this part of the sample yield results similar to that of the other regressions. Robust standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Robustness analyses for political orientation

In order to check the robustness of the results found for world-view ideology we repeat the analysis but consider two other group affinities, namely political party affiliation and left-right political orientation. Since political right orientation usually expresses tradition, conformity and security values this type of values should correspond to a nationally oriented world-view. Political left orientation expresses universalism and, to a lesser extent, benevolence values (Piurko et al., 2011), i.e. more in line with a globally oriented world-view. Due to the political landscape in Sweden with several political parties receiving well below 10 percent of the total votes[[1]](#footnote-1) we restrict our analysis to the three largest parties, i.e. the Swedish Social Democrats, the Moderate Party and the Sweden Democrats. According to Table 2, people who would vote for Swedish Social Democrats self-classify as politically left oriented, and 48.9 percent think of themselves as globally oriented. Those who would vote for the Moderate party self-classify as politically right oriented and 50.8 percent think of themselves as nationally oriented. Those who report that they would vote for the Sweden Democrats also self-classify as politically right oriented (although quite weakly so) and 77.9 percent consider themselves to be nationally oriented.

Figure S1 show the percent of correct assessments to each experimental scenario depending on political party affiliation. Of the Social Democratic Party voters 45.6 percent made the correct assessment in the crime increase scenario and 48.9 percent made the correct assessment in the crime decrease scenario (χ2=0.20, p=0.654). For participants who indicated that they would vote for the Moderate Party 67.6 percent made the correct assessment in the crime increase scenario and 41.1 made the correct assessment in the crime decrease scenario (χ2=8.79, p=0.003). For participants who indicated that they would vote for the Sweden Democrats 64.4 percent made the correct assessment in the crime increase scenario and 30.3 percent made the correct assessment in the crime decrease scenario (χ2=18.89, p<=0.001). Hence, participants who would vote for the two latter parties display motivated reasoning with regards to immigration. No polarization emerges in the rash scenarios shown in Figure S1b.

****Figure S1.** *Percent of correct assessments by political party affiliation.*

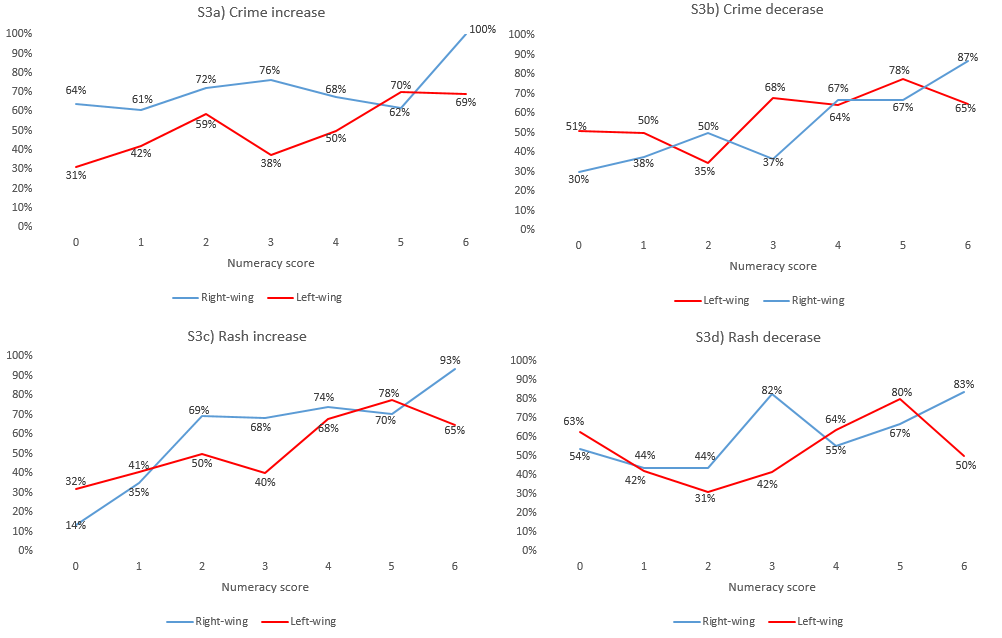
Note: The error bars show the 95% confidence interval.

Out of the 1,015 participants 369 reported being politically left-oriented and 395 reported being politically right-oriented. The remaining 251 participants answered that they did not considered themselves leaning politically left or right (in the proceeding analysis these participants were excluded). Figure S2 shows the percent of correct assessments in each experimental scenario with the sample divided by political left and right orientation.

The only difference that is statistically significant between the two political orientations is that observed in the crime increase scenario. Hence, partly supporting motivated reasoning. In this scenario 69.1 percent of the politically right oriented participants made the correct assessment while 47.6 percent of the politically left oriented participants made the correct assessment (χ2(1, N=392)=18.68, p<=0.001). In the crime decrease scenario 55.4 percent of the politically left oriented participants made the correct assessment while 50.0 percent of the politically right oriented participants provided the correct assessment (χ2(1, N=372)=1.10, p=0.294). Hence, people only display motivated reasoning with regards to the crime increase scenario, not to the crime decrease scenario as we observed in the analysis on world-view ideology. No polarization emerges in either of the rash scenarios shown Figure S2 (Rash increase: χ2(1, N=372)=1.54, p=0.215; Rash decrease: χ2(1, N=392)=0.37, p=0.543).

**Figure S2.** *Percent of correct assessments depending on left-right orientation.*   
Note: The error bars show the 95% confidence interval.

Considering the role of numeracy, Figure S3 show the percent of correct assessments as a function of numeracy score with participants divided by political orientation. The correct assessments made by politically right oriented participants are depicted in blue and the correct assessments made by politically left oriented participants are depicted in red. All plots in Figure S3 show an increasing trend, indicating that higher levels of numeracy is associated with a higher likelihood of correctly interpreting the quantitative information, no matter what scenario a participant faced. We observe some support for motivated reasoning in Figure S3a, Those who indicate that they are politically right oriented tend to be better at interpreting the numerical information when the data is in line with their political view. That is, they are likelier to correctly interpret the crime increase scenario in Figure S3a, with the exception for numeracy level five. However, importantly, the plot show an increasing trend indicating that numeracy help reduce the prevalence of motivated reasoning. In Figure S3b, depicting the crime decrease scenario no clear patterns emerge depending on political orientation. Examining the plots for the rash scenarios, Figure S3c and S3d, no dividing effect for political orientation can be observed. Still, the trend in the plots are positive, more numeric individuals are better at making the correct judgment in the non-polarizing rash scenarios.

****Figure S3.** *Percent of correct assessments by numercay score depending on left or right political orientation.*

Note: Comparing the level of numeracy between left and right political orientation reveals no statistical difference. For participants leaning politically right the mean numeracy score was 2.54 (n=395, SD=1.98) and for participants leaning politically left the numeracy score was 2.33 (n=369, SD=1.96), (t(-1-484), p=0.138).

Table S6 show the result form the regression analyses. Models 1 and 2 in Table S6 show the results for the crime scenarios, the results partly supports motivated reasoning. For the crime increase scenario political orientation is a statistically significant predictor. A participant who indicated being politically right oriented is 20.8 percentage points more likely to make the correct assessment in the crime increase scenario than someone indicating being politically left oriented, supporting motivated reasoning. No such effect is observed for the crime decrease scenario, the coefficient is negative which would be in line with motivated reasoning, but it is not statistically significant. The coefficient indicating political right orientation is not a predictor in either of the rash scenarios.

Turning to the role of numeric ability, the coefficient for numeracy is positive and statistically significant in three models (and marginally so in the fourth model) in Table S2. For Model 1 this would indicate that one more accurate answer to the numeracy questions is associated with a 3.9 percentage point increase in probability of interpreting the numerical information correctly. To evaluate the case for motivated reasoning-as-analysis or for motivated reasoning-as-feelings we add an interaction term to our specifications. The results are shown in Models 5 through 8. Considering the crime scenarios in Models 5 and 6, the interaction term is negative in Model 5 and not statistically significant, in Model 6 the interaction term is marginally significant and positive. Hence, we find no support for the motivated reasoning-as-analysis hypothesis, if anything, we again find results in favor of the motivated reasoning-as-feelings hypothesis. Models 7 and 8 in Table S2 show the results for the rash scenarios. Surprisingly, the interaction term is statistically significant and positive in Model 7.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|  | Crime increase | Crime decrease | Rash increase | Rash decrease | Crime increase | Crime decrease | Rash increase | Rash decrease |
|  |  |  |  |  |  |  |  |  |
| Right-wing orienteda | 0.208\*\*\* | -0.079 | 0.016 | 0.034 | 0.272\*\*\* | -0.182\*\* | -0.111 | -0.043 |
|  | (0.049) | (0.051) | (0.049) | (0.051) | (0.078) | (0.080) | (0.073) | (0.082) |
| Numeracy score | 0.039\*\*\* | 0.055\*\*\* | 0.083\*\*\* | 0.025\*b | 0.052\*\*\* | 0.033\* | 0.056\*\*\* | 0.011 |
|  | (0.013) | (0.014) | (0.012) | (0.014) | (0.018) | (0.019) | (0.018) | (0.019) |
| Numeracy score\*Right-wing oriented |  |  |  |  | -0.026  (0.024) | 0.043\*  (0.025) | 0.053\*\*  (0.023) | 0.032  (0.025) |
|  |  |  |  |  |  |  |  |  |
| Control variables included | YES | YES | YES | YES | YES | YES | YES | YES |
| Observations | 392 | 372 | 372 | 392 | 392 | 372 | 372 | 392 |
| R-squared | 0.091 | 0.080 | 0.165 | 0.031 | 0.094 | 0.087 | 0.176 | 0.035 |

**Table S6**. *Linear probability regressions on motivated reasoning and numeracy.*

Note. The dependent variable is the assessment provided to the experimental scenarios, 1 if the correct assessments was made and 0 otherwise a Political orientation is a dichotomous variable; 1 indicating that participants consider themselves politically right oriented and 0 if participants consider themselves politically left oriented (participants indicating that they lean neither to the left or right were excluded from the analysis).b The low significance of the numeracy score for the rash decrease scenario is due to the large differences in correct assessments for participants with a numeracy score of zero, excluding this part of the sample yields the results similar to that of the other regressions. Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## A note about the difference between numeracy and CRT

In our study we use six items to measure what we call numeracy for convince, but these items consist of three numeracy items and three CRT items. Kahan et al. (2017) use a nine point scale to measure numeracy, it is our understanding that among these nine items three CRT questions are included. Pennycook and Rand (2018) use seven CRT items to measure analytical thinking. Even though numeracy and CRT items are sometimes used together there is a conceptual difference between them. CRT is design to measure the ability to override an intuitively correct answer in favor for a more effortful analytically correct answer. Numeracy measures a person’s affluence with numbers, i.e. their ability to understand, for example, percentages and division.

In a robustness check we split our six items into a numeracy part and a CRT part and rerun the main analysis. The results are shown in Table S7 and S8. Overall the same pattern emerges with a two important differences. One difference is the significance of the interaction term between numeracy and nationally oriented, this term is significant for the numeracy items but not for the CRT items. In the numeracy case were the term is significant, the estimate is negative, supporting the motivated reasoning-as-feelings hypothesis. This finding suggest that the contradicting results in Kahan et al. (2017) and Pennycook and Rand (2018) might be driven, at least in part, by differences in how one measures cognitive ability. More research is however needed to determine the robustness of these findings.

The other interesting finding is for the rash decrease scenario, here the estimate for the CRT items is significant and positive but, but the numeracy estimate is not significant. Perhaps the odd finding with regards to the rash decrease scenario might be explained by this, i.e. that the intuitive answer is that the skin cream helps reduce skin problems.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|  | Crime increase | Crime decrease | Rash increase | Rash decrease | Crime increase | Crime decrease | Rash increase | Rash decrease |
|  |  |  |  |  |  |  |  |  |
| Nationally oriented | 0.182\*\*\*  (0.050) | -0.199\*\*\*  (0.050) | 0.063  (0.050) | -0.053  (0.051) | 0.325\*\*\*  (0.079) | -0.143\*  (0.079) | 0.065  (0.078) | -0.097  (0.081) |
|  |  |  |  |  |  |  |  |  |
| Only numeracy itemsb | 0.049\*\*  (0.025) | 0.084\*\*\*  (0.024) | 0.120\*\*\*  (0.023) | -0.004  (0.025) | 0.101\*\*\*  (0.033) | 0.103\*\*\*  (0.030) | 0.121\*\*\*  (0.031) | -0.020  (0.033) |
| Only numeracy items  \*Nationally oriented |  |  |  |  | -0.107\*\*  (0.045) | -0.043  (0.045) | -0.002  (0.044) | 0.033  (0.046) |
| Control variables included | YES | YES | YES | YES | YES | YES | YES | YES |
| Observations | 411 | 386 | 386 | 411 | 411 | 386 | 386 | 411 |
| R-squared | 0.066 | 0.107 | 0.128 | 0.022 | 0.079 | 0.109 | 0.128 | 0.024 |

**Table S7**. *Linear probability regressions on the role of numeracy.*

Note: The dependent variable is the assessments of the experimental scenarios, 1 if the correct assessment was made and 0 otherwise. a Nationally oriented is a dichotomous variable; 1 indicating that participants consider themselves as being more nationally (Swedish) oriented and 0 if participants considers themselves as being globally oriented (participants indicating neither were excluded from the analysis). b In this regression we have separated the numeracy items from the CRT items and only include the answers to the numeracy items. Robust standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|  | Crime increase | Crime decrease | Rash increase | Rash decrease | Crime increase | Crime decrease | Rash increase | Rash decrease |
|  |  |  |  |  |  |  |  |  |
| Nationally oriented | 0.183\*\*\*  (0.050) | -0.198\*\*\*  (0.050) | 0.065  (0.050) | -0.050  (0.051) | 0.231\*\*\*  (0.070) | -0.209\*\*\*  (0.068) | 0.088  (0.067) | -0.121\*  (0.071) |
|  |  |  |  |  |  |  |  |  |
| Only CRT itemsb | 0.061\*\*\*  (0.023) | 0.075\*\*\*  (0.023) | 0.113\*\*\*  (0.023) | 0.055\*\*  (0.023) | 0.082\*\*\*  (0.031) | 0.070\*\*  (0.030) | 0.123\*\*\*  (0.030) | 0.025  (0.031) |
|  |  |  |  |  |  |  |  |  |
| Only CRT items  \*Nationally oriented |  |  |  |  | -0.043  (0.042) | 0.011  (0.043) | -0.022  (0.042) | 0.065  (0.043) |
| Control variables included | YES | YES | YES | YES | YES | YES | YES | YES |
| Observations | 411 | 386 | 386 | 411 | 411 | 386 | 386 | 411 |
| R-squared | 0.073 | 0.106 | 0.129 | 0.036 | 0.076 | 0.106 | 0.130 | 0.041 |

**Table S8***. Linear probability regressions on the role of CRT.*

Note: The dependent variable is the assessments of the experimental scenarios, 1 if the correct assessment was made and 0 otherwise. a Nationally oriented is a dichotomous variable; 1 indicating that participants consider themselves as being more nationally (Swedish) oriented and 0 if participants considers themselves as being globally oriented (participants indicating neither were excluded from the analysis). b In this regression we have separated the numeracy items from the CRT items and only include the answers to the CRT items. Robust standard errors in parentheses\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

1. The criteria to be in parliament is to have at least 4 % of the total votes. [↑](#footnote-ref-1)