Online Appendix to

"Politics in the Mind's Eye:

Imagination as a Link between Social and Political Cognition"

January 2013

Contents

A1. The Short Imagination Scale: S-IM scale

A key feature of the article is to construct a scale to allow us to measure differences in imagination. Trait psychologists often use lengthy question batteries to measure personality traits (e.g., McCrae and Costa 1992), the advantage being that they increase reliability, but they can also be unfeasible and costly to apply outside of the laboratory. While political scientists have succeeded in crafting short-form scales of the global personality traits in the Five-Factor Model (Mondak et al. 2010), no short-form scale of the sub-trait imagination existed. Consistent with the strategy developed by Mondak et al. (2010, 8), our ambition was therefore to create a short but reliable scale that can easily be included in future surveys and applied cross-nationally with satisfactory reliability.

We began with the primary open-access inventory of personality scales, the International Personality Item Pool (IPIP), which includes measures for all of the global traits and sub-traits included in the Five-Factor Model (Goldberg 1999). Consistent with our theoretical argument, we selected the three standard items from the IPIP imagination scale which most directly focused on the decoupled cognition aspect of imaginative processes ("I have a vivid imagination," "I do not have a good imagination," and "I have difficulty imagining things"). Excluded items focused on more fantasy-like aspects of imagination and involuntary thought processes, such as daydreaming. To the three selected items from the IPIP scale we added a fourth, self-formulated item ("I can easily imagine persons I hear or read about"), which also focuses exclusively on the decoupled cognition aspect of imaginative processes. The respondents were asked to indicate how accurately these statements describe them on 7-point scales ranging from "very inaccurate" to "very accurate."

In total, we have implemented this scale in nine different samples, including nationally representative samples in the US and Denmark, and among a range of convenience samples in Denmark including student samples and samples of older individuals. For all of these

diverse samples, the scale demonstrates satisfactory levels of reliability and consistent distributional properties. Table A1 provides an overview of the reliability, mean, and standard deviations of the S-IM scale across the nine samples.

Table A1. The S-IM Scale across 9 Samples.

	Summary of sample characteristics	Reliability of S-IM (α)	Mean of S-IM	Std.dev. of S-IM
Study A	Approx. nationally representative sample of Danes 40+ in age	0.74	0.72	0.20
Study B	Danish approx. nationally representative sample	0.77	0.68	0.21
Study C	Danish student sample with various degrees	0.78	0.75	0.15
Study D	Danish student sample of political science undergraduates	0.79	0.74	0.16
Studies 1 & 3	US approx. nationally representative sample	0.67	0.71	0.17
Studies 2 & 4	Danish approx. nationally representative sample	0.72	0.72	0.19
Study 5	Student sample of political science students	0.78	0.69	0.17
Study 6	Danish approx. nationally representative	0.67	0.74	0.18
Study 7	Danish student sample with various degrees	0.88	0.77	0.18

Notes: All details on the sample characteristics can be found in the descriptions of the individual studies in the Online Appendix.

A2. Description of Validation Studies A–D

Study A

The aim of Study A was to provide a face valid demonstration that the imagination scale does in fact gauge individual differences in imagination. As we wanted to establish the convergent validity of our measure outside a political context, we focused on an everyday situation in which decoupled cognition is highly engaged: the reading of fiction. The extent to which individuals are absorbed by a story can be described using the concept of transportation. More formally, transportation can be defined as "a convergent process where all mental systems and capacities become focused on events occurring in the narrative" (Green and Brock 2000, 701). Thus transported, readers of a story "see the action of the story unfolding before them and respond emotionally to story events" (Mazzocco et al. 2010, 361, see also Escaladas 2004; Green and Brock 2000; Wang and Calder 2006). Furthermore, prior research has found a significant effect of mental simulation on narrative transportation (Escaladas 2004). Thus, Study A allows us to verify the predictive validity of the S-IM scale outside of a political context by testing whether our measure tracks individual differences in the engagement of decoupled cognition in the transportation of narratives when reading fiction.

Study A was fielded over the Internet to a quota sample on dimensions of gender, education, and age (40+) drawn from the standing web panel of a leading Danish survey agency, Epinion. The quotas were used to ensure approximate nationally representativeness on these variables. 164 subjects completed the study. Of these 45.7% were female and the average age was 56.4. In terms of education 32.3% had completed primary and lower secondary school, 23.8% had vocational training, 17.1% had completed an upper secondary education, 4.9% short or middle-cycle tertiary education, and 22.0% a long cycle higher education. In terms of ideology, the average self-placement was 3.9 on a 1–7 scale with endpoints labeled "extremely left-wing" (1) and "extremely right-wing" (7).

In the study, the participants read a short, fairytale-like story (*Heartache*, by Hans Christian Andersen).[1] The story focuses on the death and interment of a dog owned by a lady of a manor—and the heartache of a little girl who cannot see the dog's grave because she cannot pay a trouser button, which is the price asked by the other children to allow her to see the grave.

After reading the story, subjects answered nine items from the well validated transportation scale (Green 1996; Green and Brock 2000). When relevant, the wording of the items was adjusted to focus on the characters relevant to the story read by the subjects in our study (items 7–9). Specifically, subjects were asked to indicate the extent to which they agreed or disagreed with the following nine items (see Green and Brock 2000):

1. While I was reading the narrative, I could easily picture the events in it taking place.
2. While I was reading the narrative, activity going on in the room around me was on my mind (reverse coded).
3. I was mentally involved in the narrative while reading it.
4. I wanted to learn how the narrative ended.
5. The narrative affected me emotionally.
6. I found my mind wandering while reading the narrative (reverse coded).
7. While reading the narrative, I had a vivid image of the dog.
8. While reading the narrative, I had a vivid image of the grave of the dog.
9. While reading the narrative, I had a vivid image of the girl appearing in the end of the narrative.

All items were measured on a 7-point scale anchored at "strongly disagree" and "strongly agree." A "don't know" option was also included. The nine items were combined to form a reliable scale (α = 0.87. "Don't know" answers were excluded from the scale).

[1] The story can be located at http://www.andersen.sdu.dk/vaerk/hersholt/Heartache.html?oph=1

After answering the items from the transportation scale, subjects engaged in a free association task in which they were first asked to list the words they would use to describe one of the main characters to another person and, second, to list the words they would use to describe the story as such. To obtain a measure of the elaborateness of the mental representation of the characters in the story and the story as such, we made an overall count of the number of associations returned by the respondents to describe the girl and the story.

Finally, Study A also contained the S-IM scale and a range of control variables of both closely related personality constructs (general openness to experience, adventurousness, need for closure, and political ideology) and variables tracking cognitive abilities (need for cognition and need to evaluate). Hence, as imagination forms part of the larger Big Five trait, openness to experience, other subparts of openness or indeed the general openness trait itself could potentially confound the effects of the S-IM scale. Similarly, because high imagination allows for a deeper cognitive processing of information, the effects of imagination could be confounded by other measures of cognitive ability. By directly operationalizing such potential confounds, we are able to validate the existence of a unique imagination trait with distinct effects.

Imagination was measured using the four items from the S-IM scale, which were summed to form a reliable scale ($\alpha = 0.74$).

Openness to experience was measured using the two items from Mondak et al.'s (2010) two-item Big Five scale ($r = 0.56$). Answers to the items were summed into a single scale. To follow Mondak et al.'s (2010, 8) procedure, we use a logarithmic transformation in the construction of the final openness scale.

Adventurousness was measured using four items from the International Personality Item Pool: "I like to visit new places," "I prefer new challenges to the daily routine," "I prefer things which I already know" (reverse coded), and "I do not like change" (reverse coded). The respondents were

asked to indicate how accurately these statements describe them on 7-point scales ranging from "very inaccurate" to "very accurate" (Goldberg 1999). The four items were combined to form a satisfactorily reliable scale ($\alpha = 0.63$).

Need for closure was measured using six items from Roets and Van Hiel's (2011) brief, 15-item "need for closure" scale, which was developed from Kruglanski and colleagues' original scale (Kruglanski, Webster, and Klem 1993; Webster and Kruglanski 1994). Specifically, the respondents indicated the extent to which the following statements were accurate descriptions of them: "I dislike questions which could be answered in many different ways," "I feel uncomfortable when I don't understand the reason why an event occurred in my life," "I feel irritated when one person disagrees with what everyone else in a group believes," "When I have made a decision, I feel relieved," "I find that establishing a consistent routine enables me to enjoy life more," "I don't like situations that are uncertain". Answers were measured on a 7-point scale ranging from "very inaccurate" to "very accurate" ($\alpha = 0.77$).

Political ideology was measured using the following question: "In politics, people often talk about left and right. Do you think of yourself as either left-wing or right-wing? Place yourself on the scale below." Answers were measured on a 7-point scale ranging from "extremely left-wing" to "extremely right-wing."

Need for cognition was measured using the Danish version of two ANES questions (Bizer et al. 2000). The Danish version was developed for the Framing Danish Politics survey (Lecheler, de Vreese, and Slothuus 2009; Slothuus and de Vreese 2010). Specifically, the respondents were asked the following two questions: "Some people like to have responsibility for handling situations that require a lot of thinking, whereas others don't like to be responsible for such situations. Which of the following statements are most characteristic of you?" "1. I like to be responsible for handling situations that require a lot of thinking" "2. I don't like to be responsible for handling situations that

require a lot of thinking" "3. Don't know" (reverse coded), and "Some people prefer to solve simple problems instead of complex ones, whereas other people prefer to solve more complex problems. Which type of problem do you prefer to solve?" "1. I prefer to solve simple problems," "2. I prefer to solve complex/complicated problems," "3. Don't know" (r = 0.54, "don't know" answers were excluded when constructing the scale).

Need to evaluate was measured using the Danish version of two ANES questions (Bizer et al. 2000). The Danish version was developed for the Framing Danish Politics survey (Lecheler, de Vreese, and Slothuus 2009; Slothuus and de Vreese 2010). Specifically, the respondents were asked the following two questions: "Some people have opinions about almost everything; other people have opinions about just some things; and still other people have very few opinions. Which of the following statements are the most accurate for you?" "1. I have an opinion on almost everything," "2. I have an opinion on most things," "3. I have few opinions," "4. I have very few opinions," "5. Don't know" (reverse coded), and "Compared to the average person, do you have fewer opinions about whether things are good or bad, about the same number of opinions, or more opinions?" "1. Many fewer opinions," "2. Fewer opinions," "3. About the same number of opinions," "4. More opinions," "5. Many more opinions," "6. Don't know" (r = 0.20, "don't know" answers were excluded from the scales).

Study B

The aim of Study B was to provide evidence for the predictive validity of the S-IM scale. Specifically, we wanted to investigate the extent to which it tracked individual differences in abilities in decoupled cognition using a behavioral task. The best validated behavioral tasks of visual imagery (a key component of decoupled cognition) in psychology are Mental Rotation Tasks (MRT) (e.g., Cohen et al. 1996; Cooper 1976; Shepard and Metzler 1971). Thus, a high success rate

in solving mental rotation tasks provides a clear behavioral indication of high abilities for visual imagination.

More formally, mental rotation ability, as measured in terms of MRT, is the ability to mentally "rotate figures in their mind's eye" (Peters and Battista 2008, 261). Specifically, in Study B we rely on Peters et al.'s (1995) Redrawn Vandenberg and Kuse MRT. In Peters et al.'s (1995) Redrawn Vandenberg and Kuse MRT, subjects are provided with 24 sets of five figures (see also Peters 1995). Each set includes a target figure and four other figures. Two of these other figures are rotated versions of the target, while the two others are mirrored versions (i.e., the target figure cannot be rotated to match them). The subjects are asked (under significant time pressure) to indicate the two figures that match the target in each set. A high success rate provides a clear behavioral indication of high abilities for visual imagination.

To investigate whether our imagination scale predicts success on the mental rotation, Study B was fielded over the Internet to a quota sample on dimensions of gender, education, and age drawn from the standing web panel of the Epinion survey agency, a leading survey agency in Denmark. The quotas were used to ensure approximate nationally representativeness on these variables. 81 participants completed the MRT and the S-IM scale online. Of these, 51.9% were female and the average age was 52.1. In terms of education, 2.5% had only completed primary and lower secondary school, 30.0% had vocational training, 17.5% had completed an upper secondary program, 22.5% a short or medium-cycle tertiary education, and 27.5% a long cycle tertiary education.

In the study, the participants first completed four training tasks to familiarize them with the principle of the MRT. Second, they were provided with 12 new sets of figures and provided a time period of three minutes to indicate for each set of figures which two figures matched the target figure in each set. They then filled in the S-IM scale before being presented with

the last 12 sets of figures and provided another three minutes to indicate for each set of figures which two figures matched the target figure in each set.

The four items from the S-IM scale were combined to form a reliable scale ($\alpha = 0.77$). The number of correctly indicated figures in all 24 sets was summed for each participant. As reported in the main text, we observe a non-trivial, highly significant correlation between imagination as measured by the scale and the total number of correctly identified figures ($r = 0.35$, $p = 0.001$). To provide additional validation of this result, we also calculate a formal MRT score by counting the number of sets in which the participant had marked *both* stimulus figures which matched the target correctly and *only* these figures (compare Peters 1995). This coding procedure is more restrictive than simply counting the total number of correctly identified figures and requires participants to be fully familiar with the requirements of the task. This is not normally a problem, as the MRT is completed in a lab setting using dedicated and attentive subjects who are able to ask the experimenter questions. Study B, however, was collected as an online survey. Given this, it is not surprising that only 37% of the participants managed not to make mistakes regarding how many figures to mark in a given set when filling out the MRT. All other participants at least once marked either just a single rather than two figures in a set or, less frequently, marked three rather than two figures. The high error frequency leads us to be cautious about using this measure in the online survey context. In the main text, we therefore rely on the more simple coding procedure of counting the number of correctly identified figures. In support of the validity of the S-IM scale, however, we find a correlation of $r = 0.23$ ($p = 0.04$) between imagination and the more restrictive MRT scoring.

Study C

Our key argument is that imagination links social and political cognition. At its core, social cognition is emotional in nature and, hence, our argument hinges on the power of imagined, mental

simulations to engage these deeper emotional mechanisms. The aim of Study C was to provide evidence regarding the predictive validity of the S-IM scale in this regard and test whether it does track relevant individual differences in the engagement of more basic psychological and emotional processes. To this end, we recruited 58 students from a major Danish university to participate in a lab experiment (31 females, 27 males, and average age was 23.60; 55% of the participants with a party preference would vote center-left).

Emotional stimuli. Study C provided a test of the effect of imagination on responses to still images designed to engage the emotions (either positive or negative). All of the images of interest were strictly non-political: a bright beautiful flower, a happy baby, a foot with a disgusting, infected wound, and a large scary-looking spider.

Emotional reactions. To obtain an unobtrusive and direct measure of the engagement of basic emotional mechanisms, we relied on a physiological reaction measure in the form of skin conductance response (SCR) during the presentation of images. SCR provides a valid measurement of the activation of the sympathetic nervous system, which is a key circuit in the generation of emotional arousal (Figner and Murphy 2011). If imagination as measured by our S-IM scale allows for more vivid processing of the stimuli and this processing engages basic emotional mechanisms, the S-IM scale ought to predict physiological reactions to the images. In the study, subjects were placed in front of a computer screen and asked simply to sit and look at the images. The images were presented on screen for 10 seconds each with interstimulus intervals of 10 seconds. SCR was measured as the mean area bound by the response curve during the presentation of all four images from one second after the onset of the stimuli to the stimuli disappeared from the screen.

Imagination was measured using the four items from the S-IM scale, which were summed to form a reliable scale ($\alpha = 0.78$).

Political awareness. Of additional relevance, we obtained measures of political awareness using seven factual knowledge questions.

Study D

Study D allows us to further validate the S-IM scale by 1) investigating the reliability of the scale in a student sample and 2) checking the extent to which the imagination scale overlapped with answers to other well-used cognitive moderators in the political science literature.

Specifically, Study D was fielded as a pencil-and-paper survey to a sample of 242 first-year political science students at a Danish university. Of these, 57.7% were female, and the mean age was 20.7. In terms of ideological orientation on the economic left-right dimension in Danish politics, the average position was 0.41 on a 0–1 scale, where higher values indicate a more right-wing position and lower values a more left-wing position. In terms of ideological orientation on the libertarian-authoritarian value dimension in Danish politics, the average position was 0.28 on a 0–1 scale, where higher values indicate a more authoritarian position and lower values indicate a more libertarian position.

In the study, the participants filled in the four item S-IM scale. The study also contained two of the most prominent measures of cognitive ability in the political science literature: need for cognition (Cacioppo and Petty 1982) and need to evaluate (Jarvis and Petty 1996). To measure the need for cognition and need to evaluate, we translated and included the relevant ANES questions. In addition, as a measure of general cognitive ability, Study D included a question about the students' grade point average, which is used for university admission (similar to SAT scores). The Danish grading system was recently changed, and three participants indicated their admission grades using the old grading system. These are converted to the new system using official conversion procedures.

A3. Correlations between the S-IM scale and Other Individual Difference Measures

On the basis of the validation studies, Table A3 reports the correlations between imagination and individual difference measures of cognitive ability (need for cognition, need to evaluate, political awareness, and grade point average) and personality (need for closure, adventurousness, openness, ideology). These correlations establish the divergent validity of the S-IM scale; that is, that it does not overlap substantially with hitherto considered psychological moderators. Because imagination forms part of the larger Big Five trait, openness to experience, the S-IM scale could potentially be redundant with measures of other subparts of openness such as adventurousness or with measures of the general openness trait itself. Moreover, because individual differences in imagination are related to individual differences in information processing, the S-IM scale could potentially be redundant with previously established measures of cognitive ability. As revealed in Table A3, however, there does not appear to be any strong overlaps with other available measures.

As can be seen from Table A3, imagination correlates more strongly with our measure of adventurousness than with our measure of openness. From a measurement perspective, this might seem odd as openness is a compound of the imagination and adventurousness sub-traits and, hence, should correlate more strongly with imagination than adventurousness alone. It should, however, be noted that the measure of openness we use is not a literal summary of our imagination and adventurousness scales but rather the two item openness scale developed and validated by Mondak et al. (2010). While such two item scales are popular, they are obviously less reliable than the multiple items scales used to measure the adventurousness and imagination sub traits (Credé et al. 2012) and this could account for the lower correlation. Furthermore, there is some disagreement about what exactly the general openness trait is a compound of (McCrae 1994) and, hence, it might tap facets not covered by the adventurousness and imagination scales that lower the correlations with imagination.

In addition to the correlations reported below between our imagination scale and the four measures of cognitive ability, previous findings on imagination and cognitive abilities are also noteworthy. Overall, in their meta-analysis of personality-intellectual ability correlations, Ackerman and Heggestad (1997: 231) find an estimated population correlation of .33 ($p < .05$) between openness to experience and general intelligence, which is a "substantial positive" correlation (Ackerman and Heggestad 1997: 232). But Ackerman and Heggestad do not investigate the correlation between intellectual ability and the openness subfacets. Yet Wainwright et al. (2008, 208) report a number of phenotypic correlations between the openness subfacets and cognitive measures. Consistent with the correlations we report below but measuring imagination using the questions from the NEO PI-R, they find that imagination (as they label fantasy) only has a phenotypic correlation of 0.011 with verbal IQ, of 0.07 with performance IQ, and of 0.12 with the Queensland Core Skills Test score. In contrast they find strong correlations between the cognitive measures and ideas (correlations range between .28 and .42) and values (correlations range between .17 and .32). Consistent with this pattern of correlations, in their study of the relationship between fluid intelligence scores and Openness to Experience, Moutafi, Furnham and Crump (2006) find that intelligence is positively correlated with Openness ($r = .09$) and that this correlation is significant at the .001-level. Importantly, however, when analyzing the correlation between fluid intelligence and the Openness sub-facets Moutafi, Furnham and Crump only find a significant correlation at the .001 level with ideas (.20, $p < .001$) and actions (.07, $p < .001$) on intelligence whereas the correlation with imagination ($r = .05$, here labeled fantasy) not is significant at the .001 level, the only alpha level reported in the study.

Table A3. Correlations between the S-IM Scale and Other Individual Differences Measures

	Study A		Study C		Study D		Study 6		Study 7	
	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value
Need for cognition[1]	0.18	0.03	–	–	0.09	0.19	–	–	0.26	0.05
Need to evaluate[2]	0.25	0.001	–	–	0.10	0.11	–	–	0.07	0.61
Political awareness[3]	–	–	0.07	0.59	–	–	–	–	–0.10	0.44
Grade point average	–	–	–	–	0.06	0.40	–	–	–	–
Need for closure[4]	–0.14	0.09	–	–	–	–	–	–	–0.28	0.04
Adventurousness[5]	0.32	< 0.001	–	–	–	–	0.25	< 0.001	0.32	0.02
Openness[6]	0.24	0.002	–	–	–	–	–	–	0.17	0.21
Ideology[7]	–0.10	0.21	–	–	–	–	–	–	0.01	0.93
N	151–164		58		234–241		203		52-58	

Entries are correlation coefficients and p-values (two-sided).

[1] In Studies A and D, "need for cognition" was measured using the Danish version of two ANES questions (Bizer et al., 2000). These questions were developed for the Framing Danish Politics survey (Lecheler, de Vreese, and Slothuus 2009; Slothuus and de Vreese 2010). Specifically, the respondents were asked the following two questions: "Some people like to have responsibility for handling situations that require a lot of thinking, and other people don't like to have responsibility for situations like that. Which of the following statements are most characteristic of you?" "1. I like to be responsible for handling situations that require a lot of thinking" "2. I don't like to be responsible for handling situations that require a lot of thinking" "3. Don't know" (reverse coded), and "Some people prefer to solve simple problems instead of complex ones, whereas other people prefer to solve more complex problems. Which type of problem do you prefer to solve?" "1. I prefer to solve simple problems," "2. I prefer to solve complex/complicated problems," "3. Don't know" ($r_{study\ A} = 0.55$, $r_{study\ D} = 0.21$). "Don't know" answers were excluded when constructing the scale. In Study 7, "need for cognition" was measured using a Danish translation of the six items from Cacioppo, Petty, and Kao's (1984) 18-item "need for cognition" scale. Specifically, the respondents were asked to indicate how accurately the following statements described them: "I would prefer complex to simple problems," "I like to have the responsibility of handling a situation that requires a lot of thinking," "Thinking is not my idea of fun" (reverse coded), "I would rather do something that requires little thought than something that is sure to challenge my thinking abilities" (reverse coded), "I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something" (reverse coded), and "I find satisfaction in deliberating hard and for long hours." Answers were measured on a 7-point scale ranging from "very inaccurate" to "very accurate" ($\alpha_{study\ 7} = 0.66$).

[2] In Studies A and D, "need to evaluate" was measured using the Danish version of two ANES questions (Bizer et al., 2000). The Danish version was developed for the Framing Danish Politics

survey (Lecheler, de Vreese, and Slothuus 2009; Slothuus and de Vreese 2010). Specifically, the respondents were asked the following two questions: "Some people have opinions about almost everything; other people have opinions about just some things; and still other people have very few opinions. Which of the following statements are most accurate of you?" "1. I have an opinion about almost everything," "2. I have an opinion about most things," "3. I have few opinions," "4. I have very few opinions," "5. Don't know" (reverse coded), and "Compared to the average person, do you have fewer opinions about whether things are good or bad, about the same number of opinions, or more opinions?" "1. Many fewer opinions," "2. Fewer opinions," "3. About the same number of opinions," "4. More opinions," "5. Many more opinions," "6. Don't know" ($r_{studyA} = 0.34$, $r_{study\ D} = 0.43$, "don't know" answers were excluded from the scales). In Study 7, "need to evaluate" was measured using five items from the scale items translated into Danish by Slothuus et al. (2010) using Jarvis and Petty (1996) as the point of departure. Specifically, the respondents indicated how accurately the following statements described them: "I have an opinion about everything," "It is very important to me to hold strong opinions," "I have many more opinions than the average person," "I like to have strong opinions, even when I'm not personally involved," and "When somebody asks me my opinion, I almost immediately know what I think." Answers were measured on a 7-point scale ranging from "very inaccurate" to "very accurate" ($\alpha_{Study\ 7} = 0.85$).

[3] In Study C, political awareness was measured using seven factual knowledge questions. In Study 7, political awareness was measured using five factual knowledge questions.

[4] Need for closure was measured using six items from Roets and Van Hiel's (2011) brief, 15-item need for closure scale which was developed from Kruglanski and colleagues' original scale (Kruglanski, Webster, and Klem 1993; Webster and Kruglanski 1994). Specifically, the respondents indicated the extent to which the following statements were accurate descriptions of them: "I dislike questions which could be answered in many different ways," "I feel uncomfortable when I don't understand the reason why an event occurred in my life," "I feel irritated when one person disagrees with what everyone else in a group believes," "When I have made a decision, I feel relieved," "I find that establishing a consistent routine enables me to enjoy life more," "I don't like situations that are uncertain" Answers were measured on a 7-point scale ranging from "very inaccurate" to "very accurate" ($\alpha_{Study\ A} = 0.73$; $\alpha_{Study\ 7} = 0.70$).

[5] Adventurousness was measured using four items from the International Personality Item Pool: "I like to visit new places," "I prefer new challenges to the daily routine," "I prefer things which I already know" (reverse coded), and "I don't like change" (reverse coded). The respondents were asked to indicate how accurately these statements describe them on 7-point scales ranging from "very inaccurate" to "very accurate" (Goldberg 1999). The four items were combined to form a satisfactorily reliable scale ($\alpha_{Study\ A} = 0.71$; $\alpha_{study\ 6} = 0.72$; $\alpha_{study\ 7} = 0.82$).

[6] Openness to experience was measured using the two items from Mondak et al.'s (2010) two-item Big Five scales – both reversed scored ($r_{study\ A} = 0.52$; $r_{study\ 7} = 0.37$). Following Mondak et al. (2010, 8), we use a logarithmic transformation in the construction of the final openness scale.

[7] Ideology was measured using the following question: "In politics, people often talk about left and right. Do you think of yourself as either left-wing or right-wing? Place yourself on the scale below." Answers were measured on a 7-point scale ranging from "extremely left-wing" to "extremely right-wing."

A4. Education as Proxy for Cognitive Ability and Personality

The results presented in the Online Appendix A3 demonstrate that there is no substantial overlap between imagination as measured by the S-IM scale (with a focus on decoupled cognition) and the moderators considered in previous research. This suggests that the effects of imagination that we predict and report in the main text are not confounded by these alternative moderators. To further verify this, we directly control for these alternative moderators in some of the studies presented in the main text in order to demonstrate the lack of confound. Still, it is not always possible (for reasons related to resources and survey fatigue among the participants) to include extended question batteries related to a long range of control variables. In most analyses, we therefore use the most widely used proxy of cognitive ability in political science: education (Sniderman et al. 1991). To verify this less restrictive control strategy, we report the correlations from Study A between educational level and the available measures of personality and cognitive ability.

As revealed in Table A4, our analysis in this regard converges with previous studies demonstrating that educational achievement does track individual differences in the need for cognition (e.g., Elias and Loomis 2006). Hence, as is widely assumed in the political science literature, education is indeed a robust proxy for the primary measure of cognitive ability. As the need for cognition was also one of the constructs that was most consistently correlated with imagination, this constitutes an important validation of our use of education as a control measure. Furthermore, by controlling for education, we are also able to control—at least partially—for overall individual differences in the general personality trait, openness. As revealed in the table, education and openness are highly significantly correlated, which has also been documented in previous research (McCrae 1994). Again, this is important as imagination was unsurprisingly found to be correlated with general openness. Importantly, we do not find that imagination itself is

correlated with education, which provides further evidence that imagination is qualitatively different from the constructs used previously.

In sum, these analyses support that education can be used as an important control of the effects of imagination for otherwise related individual differences in the need for cognition and general openness to experience.

Table A4. Correlations between Education and Personality Traits and Cognitive Ability

	Imagi-nation	**Need for cognition**	**Need to evaluate**	**Need for closure**	**Adventuro usness**	**Openness**	**Ideology**
Education	0.02	0.29***	0.02	–0.10	0.10	0.35***	–0.02

Notes: Data from Study A. For measurement details, see information about Study A in the Online Appendix A2. Pearson's r reported. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

A5. Additional Analysis of Validation Study A: Inclusion of Control Variables

The findings from the validation studies presented in the main text show the basic effects of imagination as measured by the S-IM scale on the range of validation constructs. Here, we provide additional analyses of Study A, wherein we measured a full range of control variables related to personality and cognitive ability. The analyses show that the effect of imagination is robust to these controls. This further bolsters the construct validity of the S-IM scale and documents that the imagination scale uniquely tracks how vividly individuals experience descriptions of unseen people and events as well as how vividly they recollect these descriptions.

As reported in the main text, Study A showed that the S-IM scale significantly and strongly correlated with differences in the degree to which individuals felt mentally transported into the story ($r = 0.43$, $p < 0.001$), the number of associations they freely recollected when describing the main character ($r = 0.33$, $p < 0.001$), and when describing the short story as a whole ($r = 0.24$, $p < 0.002$). Testifying to the construct validity of the scale, these findings support that the imagination scale uniquely tracks how vividly individuals experience descriptions of unseen people and events as well as how vividly they recollect these descriptions.

The analyses in the tables below bolster this conclusion by reporting estimates from more elaborate models controlling the effect of imagination for personality related constructs (M1–M4 and M6 in both tables) and cognitive ability measures in particular (M5–6) estimated using OLS regression. Entries are unstandardized regression coefficients with standard errors in parentheses. All variables range from 0 to 1.

The first column (M1) in the three tables reports the effect of imagination on overall mental transportation into the short story and the number of associations returned to describe the main character and the story as such. The second column (M2) reports the effect of general openness to experience on the same dependent variables, while the third column (M3) in the tables

reports the effect of imagination controlling for openness. The fourth column (M4) in the tables reports the effect of imagination controlling for adventurousness, need for closure, and ideology. The fifth column (M5) shows the effect of imagination controlling for the cognitive ability measures need to evaluate and need for cognition. Finally M6 shows a full model including all of the above-mentioned control variables simultaneously.

In all of the models in Tables A5–A7, imagination is a consistently powerful predictor of mental transportation into the short story (Table A5) and of the number of free associations returned to describe the girl in the story (Table A6) and the story as a whole (Table A7). The findings also systematically support that imagination is a much stronger predictor of the effects on the dependent variables than general openness to experience. We only find a significant effect of openness in one of the tables (Table A6), while imagination has strong effects across all three tables. Still, while general openness to experience has a significant effect on the number of free associations about the girl in the story, the effect of imagination on this variable remains robust even when directly controlling for openness to experience (see Table A6, M3). Furthermore, the effects of imagination are robust to control for adventurousness (Goldberg 1999), which, as an expression of "active pursuit of novelty" according to McCrae (1994, 258), constitutes the other half of openness to experience. Likewise, the effect of imagination also remains robust to controlling for the need for closure and ideology (Table A5–7, M4 and M6). Importantly, these findings also support that the imagination effect is not driven by traditional cognitive ability factors, as the effect also remains robust when controlling for the need to evaluate and need for cognition.

Table A5. Effect of Imagination on Transportability Controlling for Personality-Related Constructs and Cognitive Ability Measures

	Mental transportation into the story					
	M1	M2	M3	M4	M5	M6
Constant	0.26 (0.06)***	0.57 (0.04)***	0.27 (0.06)***	0.08 (0.11)	0.30 (0.09)***	0.11 (0.15)
Imagination	0.46 (0.08)***		0.48 (0.08)***	0.49 (0.08)***	0.48 (0.09)***	0.49 (0.09)***
Openness[1]		0.06 (0.09)	–0.07 (0.09)			0.002 (0.10)
Need to evaluate					–0.04 (0.13)	–0.03 (0.14)
Need for cognition					–0.03 (0.04)	–0.02 (0.04)
Adventurousness				0.06 (0.10)		0.06 (0.11)
Need for closure				0.14 (0.09)		0.13 (0.11)
Ideology				0.13 (0.08)		0.14 (0.09)
$\mathbf{R^2}$	0.18	0.002	0.19	0.22	0.18	0.21

Notes: Entries are unstandardized OLS regression coefficients. Standard errors are reported in parentheses. All variables range from 0 to 1, detailed description of the measurement of these variables can be found in Online Appendix A2.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All p-values are two-tailed.
[1]The entries for the effect of openness are based on the logged scale consistent with Mondak et al.'s (2010) procedure. The pattern of the effects in the table remains the same using the openness scale without logarithmic transformation.

Table A6. Effect of Imagination on Number of Associations Returned to Describe the Girl in the Story Controlling for Personality-Related Constructs and Cognitive Ability Measures

	Number of associations returned to describe the girl					
	M1	M2	M3	M4	M5	M6
Constant	0.06 (0.07)	0.23 (0.04)***	0.02 (0.07)	–0.05 (0.13)	–0.03 (0.10)	0.12 (0.15)
Imagination	0.39 (0.09)***		0.34 (0.09)***	0.36 (0.09)***	0.34 (0.10)***	0.30 (0.10)**
Openness[1]		0.30 (0.10)**	0.21 (0.10)*			0.24 (0.11)*
Need to evaluate					0.20 (0.15)	0.13 (0.15)
Need for cognition					0.01 (0.05)	–0.01 (0.05)
Adventurousness				0.16 (0.12)		0.08 (0.13)
Need for closure				0.04 (0.11)		0.10 (0.12)
Ideology				0.02 (0.10)		–0.02 (0.10)
$\mathbf{R^2}$	0.11	0.06	0.13	0.12	0.12	0.15

Notes: Entries are unstandardized OLS regression coefficients. Standard errors are reported in parentheses. All variables range from 0 to 1. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All p-values are two-tailed. The dependent variable "Number of associations returned to describe the girl" is measured on a scale ranging from 0 (lowest number of observed associations—0 concretely) to 1 (highest number of observed associations—12 concretely). All other variables equally range from 0 to 1, detailed description of the measurement of these variables can be found in the Online Appendix A2. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All p-values are two-tailed.

[1] The entries for the effect of openness are based on the logged scale consistent with Mondak et al.'s (2010) procedure. The pattern of the effects in the table remains the same using the openness scale without logarithmic transformation. Only the p-values for the effect of openness in M2 -3 and M6 become a little weaker.

Table A7. Effect of Imagination on Number of Associations Returned to Describe the Story as such Controlling for Personality-Related Constructs and Cognitive Ability Measures

	Number of associations returned to describe the story as such					
	M1	M2	M3	M4	M5	M6
Constant	0.06 (0.05)	0.20 (0.03)***	0.06 (0.06)	0.03 (0.08)	0.18 (0.10)†	0.20 (0.13)
Imagination	0.24 (0.07)**		0.23 (0.08)**	0.22 (0.08)**	0.21 (0.08)**	0.21 (0.08)*
Openness[1]		0.09 (0.08)	0.03 (0.08)			-0.03 (0.09)
Need to evaluate				0.02 (0.13)		0.003 (0.13)
Need for cognition				0.05 (0.04)		0.04 (0.04)
Adventurousness					0.03 (0.10)	–0.02 (0.11)
Need for closure					–0.17 (0.09)†	–0.16 (0.10)
Ideology					–0.06 (0.08)	–0.06 (0.08)
$\mathbf{R^2}$	0.06	0.01	0.06	0.08	0.10	0.10

Notes: Entries are unstandardized OLS regression coefficients. Standard errors are reported in parentheses. The dependent variable, "Number of associations returned to describe the story as such," is measured on a scale ranging from 0 (lowest number of observed associations—0 concretely) to 1 (highest number of observed associations—13 concretely). All other variables equally range from 0 to 1. Detailed description of the measurement of these variables can be found in the Online Appendix A2. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All p-values are two-tailed.
[1]The entries for the effect of openness are based on the logged scale consistent with Mondak et al.'s procedure (2010). The pattern of the effects in the table remains the same using the openness scale without logarithmic transformation.

A6. Measurement Details for Studies 1 and 2

To test the predictions in Studies 1 and 2, we were required to operationalize three measures aside from individual differences in imagination: first, a measure to gauge differences in attitude strength on the issue of social welfare; second, a measure of the degree to which an individual engages in memory-based processing when forming opinions on social welfare; and fourth, a measure of the vividness of the individuals' mental image of welfare recipients.

Social welfare attitudes and attitude strength. To measure political attitudes in the issue domain of social welfare, we apply a general question battery asking the respondents to indicate the extent to which they agree or disagree with the following statements: "To create progress in society, we have to accept some level of inequality," "It is only natural that there is economic inequality in a society," "Abolishing the differences between the rich and the poor is not a goal in itself," "High incomes should be taxed harder than is the case today" (reverse coded), "Politics should strive to give everybody the same economic conditions, regardless of education and employment" (reverse coded), and "The richest should give more money to the least well-off" (reverse coded). Answers were measured on 7-point scales ranging from "strongly *dis*agree" to "strongly agree." Although not ideal, the scale measuring attitudes toward social welfare has satisfactory levels of reliability, both overall ($\alpha = 0.78$) and in the individual countries ($\alpha_{US} = 0.64$; $\alpha_{DK} = 0.87$). Following Krosnick et al. (1993), we focus on attitude strength as a measure of attitude structure. A range of scaling techniques has been developed to measure attitude strength. Based on a detailed examination of the available measures, Bassili (1996) shows how attitude extremity is a simple but powerful and unobtrusive measure of attitude strength. Following standard procedures for measuring strength in this manner, we fold the attitude scale down the middle so that higher values on the attitude strength scale indicate stronger attitudes in either direction (Krosnick et al. 1993).

Memory-based versus online-based processing. To assess the respondents' processing modes when forming opinions, we used response latencies. For each respondent, we obtained the time in seconds used to answer the opinion battery on support for economic redistribution. As the measure was obtained over the Internet with no control of the respondent setting, we corrected for the potential measurements errors caused by prolonged respondent inattentiveness and differences in the quality of the respondents' Internet connection. Here, we follow past studies and ranked the response times lowest through highest (Petersen et al. 2011). At the same time, this procedure addresses the caveats raised by Bargh and Chartrand (2000) about the need for correcting response latencies for skewness and outliers in the distribution. Finally, the ranked response latencies were recoded to vary between 0 and 1, higher values indicating longer response latency.

Vividness of mental images. To measure the vividness of the relevant mental representations that the respondents utilize when forming opinions, they were asked to engage in a free association task immediately after finishing the opinion battery. Specifically, they were asked to write the words they would use to describe people who receive social welfare in up to 20 boxes, one word in each box. The content of the respondents' associations was subsequently coded by two student coders applying a coding scheme based on Van Oorschot's (2000) review of deservingness criteria. The coding scheme enabled the coders to identify whether each association entailed higher or lower recipient deservingness (or alternatively, did not indicate anything regarding deservingness). We performed intercoder reliability tests based on the coding of the first two association boxes for 5% of the respondents in both countries. Intercoder reliability tests reached satisfactory levels (Krippendorff's alpha equals 0.80 and 0.85 for the coding of the first and second association boxes, respectively). Based on the coded associations, we created two measures, each tapping a distinctive aspect of the respondents' mental images of welfare recipients.

First, to obtain a measure of the elaborateness of the mental representation, we made an overall count of the number of deservingness-relevant associations returned by the individual respondent. Second, we generated a measure of association consistency by subtracting the number of deserving associations from the number of undeserving associations and obtained the numerical value of this calculation, higher values indicating more consistent associations in either direction.

Control variables. In the analyses, we control for gender (1 = female), age (in years), and length of education (five categories ranging from “grade school or less” to “graduate degree or higher” in the US study, seven categories in the Danish study ranging from “primary and lower secondary school” to “PhD degree”).

A7. Measurement Details for Studies 3 and 4

To test the predictions in Studies 3 and 4, we were required to operationalize two types of measures aside from individual differences in imagination: measures about the content of stereotypes about welfare recipients and measures about the emotional reactions to welfare recipients.

Stereotypes. To measure stereotypes, we adapted standard measures from ANES. Stereotypes regarding welfare recipients' efforts were measured using the following question: "Now we have some questions about how you perceive people on social welfare. In your opinion, are most people on welfare making an effort or are they lazy?" Subjects were asked to provide their opinion on a 7-point scale, the end points labeled "making an effort" (0) and "lazy" (6). Similarly, an alternative stereotype focusing on the competence of welfare recipients was measured by asking: "In your opinion, are most people on welfare intelligent or unintelligent?" Answers were provided on a 7-point scale, the end points labeled "intelligent" (0) and "unintelligent" (6). In the United States, responses were evenly distributed around the scale midpoint, while the Danish responses about the laziness stereotype displayed a large negative skew (i.e., only 6% of the answer fell below the midpoint and indicated perceptions of welfare recipients as making an effort). Following normal procedures (Hippel 2003), we correct the Danish measure for negative skewness using a quadratic transformation.

Emotions. To measure emotions, we rely on the standard self-report format for measuring distinct but closely related emotions (Marcus et al. 2006). Specifically, subjects were presented with a list of three emotions—anger, compassion, and concern—after being asked, "How do you feel, when you hear or read about people on social welfare?" For each emotion, subjects were asked to indicate their experience of the specific emotion on a 7-point scale with the endpoints "not at all" (0) and "very strongly" (6). While anger and compassion constitute our two focal

emotional measures, concern was chosen as the anxiety-related emotion most applicable to social welfare issues. All measures are recoded to vary between 0 and 1.

A8. Measurement Details for Study 6

In Study 6, we embedded an experiment varying the presence of vivid social cues in an online survey. In addition to the S-IM scale, participants complete measures of their stereotypes and their adventurousness.

Experimental design. In the experiment, the respondents were randomly assigned to one of three experimental conditions, each depicting a social welfare recipient, and then asked, "Do you agree or disagree that the eligibility requirements for social welfare should be made stricter for people like him?" Answers were measured on a 7-point scale ranging from "strongly disagree" to "strongly agree" and recoded to vary between 0 and 1, higher values indicating stronger support for stricter eligibility requirements. To keep the perceptions of the gender and race of the welfare recipient constant across the experimental conditions, the wording of the stimuli made clear that the individual featured in all three conditions was a male with a traditional Danish background. The stimuli were therefore constructed so that the respondents in all of the experimental conditions were asked to evaluate a fictive individual named Lars Jørgensen. This is a common Danish name: according to Statistics Denmark, as of January 1, 2011, "Lars" was the third most popular (male) name for all Danes, and "Jørgensen" was the tenth most popular surname (http://www.dst.dk/Statistik/emner/navne/popall.aspx). To maximize the experimental control, the descriptions of the welfare recipient were designed to vary only in terms of the vividness of the available cues but were constant in terms of the strength of these cues. Figure A1 summarizes the wording of the experimental stimuli material and manipulation checks.

Figure A1. Description of Experimental Stimuli and Manipulation Checks

Condition	Content	Perceived Vividness	Average Support for Tougher Means-Testing
Low Vividness	"Imagine a man, Lars Jørgensen, who is on social welfare. He has never had a regular job but is in good health. He is not motivated to get a job."	0.12[b,c]	0.78
High Vividness I	"Imagine a man, Lars Jørgensen, who is on social welfare. He has never had a regular job but is in good health. In his neighborhood, there have often been relevant job ads, for example, as a janitor and cleaning assistant. But he has never gotten around to applying. He is not motivated to get a job and is, in many ways, happy living off social welfare."	0.32[a]	0.77
High Vividness II	Same description as in High Vividness I + a photo of Lars sitting on his couch.	0.32[a]	0.81

Notes: Entries in the column "Perceived Vividness" represent the proportion of individuals answering that they found it "very easy" to picture Lars Jørgensen based on the information they had been given. Entries in the column "Average Support for Tougher Means-Testing" represent mean opinions about tightening the eligibility requirements for the recipient on a scale from 0 to 1.

[a] $p < 0.05$ of difference from Low Vividness condition, [b] $p < 0.05$ of difference from High Vividness I condition, [c] $p < 0.05$ of difference from High Vividness II condition.

Manipulation checks. As a manipulation check, the respondents in all conditions were asked after the experiment how easily they were able to picture Lars Jørgensen based on the information provided. The proportion of individuals answering "very easy" is indicated in Figure A1 for each condition. This manipulation check supports that the stimuli generally varied in the intended manner. While we had expected a more gradual increase in the vividness of the three conditions, we find that the conditions fall in two blocks: low and high vividness. The respondents in the two "high vividness" conditions featuring elaborate cues about Lars found it significantly easier to picture the welfare recipient than the respondents in the "low vividness" condition, but no substantial or significant differences were found across the two high vividness conditions. As also seen in Figure A1, independent of this variation in perceived vividness, all recipients are—on average—seen as equally undeserving. The last column reports the average opinions expressed towards the welfare recipient in the experiment, and no significant differences can be observed across the conditions.

Randomization check. A randomization check was conducted to check that the respondents in the experimental groups are in fact identical in relation to central demographic background variables. We checked for significant differences in the level of education, age, income, and occupation across the cells without finding any.

Stereotypes. Given the large negative skewness of the stereotype measure used in Study 4, we devised another measure for Study 6. The respondents' prior stereotypes about welfare recipients were measured using agreement with the following two statements as explanations for why people are in need: "They are lazy and lack willpower" and "They find it easier and more satisfying to live off the efforts of others." Answers were measured on a 7-point scale ranging from "not at all" to "very much" and combined into a single scale of prior stereotypes ranging from 0 to

1, the higher values indicating that welfare recipients are stereotyped as lazy (the correlation between the individual items was $r = 0.72$).

Adventurousness. To measure adventurousness, we selected four items from the International Personality Item Pool to develop a measure of adventurousness which was equally fine-grained as our measure of imagination. Specifically, the following four items were included to measure adventurousness: "I like to visit new places," "I prefer new challenges to the daily routine," "I prefer things which I already know" (reverse coded), and "I do not like change" (reverse coded). The respondents were asked to indicate how accurately these statements describe them on 7-point scales ranging from "very inaccurate" to "very accurate" (Goldberg 1999). The four items were combined to form a satisfactorily reliable scale ($\alpha = 0.72$) ranging from 0 to 1, the higher values indicating stronger adventurousness.

A9. Measurement Details for Study 7

To test the predictions in Study 7, we operationalized two sets of measures aside from individual differences in imagination: a measure of social welfare attitudes and behavioral measures of charity donations. The latter measures are fully described in the main text and, hence, this appendix section contains information about the social welfare measure used in Study 7. In addition, we operationalized a number of control variables that are also described.

Social welfare attitude. In Study 7, we wanted to obtain a morally binding measure of social welfare attitudes that could be expected to guide subjects' subsequent behavior. To this end, we devised a new scale based on Turiels' (1983) conceptualization of morally charged attitudes and asked subjects about the extent to which they viewed helping the poor and disadvantaged as a moral responsibility that is (1) serious to violate, (2) exists independently of cultural traditions, and (3) independently of the discretion of political authorities. These features were measured by asking the respondents how much they agree or disagree with the following nine statements: "It is immoral for the community to not help those without jobs," "It is a moral obligation to help people in financial need," "That we help the poor in this country is an expression of more or less arbitrary cultural traditions rather than what is morally right" (reserve coded), "Practically everyone would agree that society should take care of the poor to some extent," "Countries with minimal welfare states such as the US ought to do more to help the poor," "All countries in the world ought to do more to help those who cannot take care of themselves—no matter the country's cultural and religious background," "One cannot judge whether other countries should help the poor more or less—what is right and wrong depends on the specific countries' traditions" (reserve coded), "No matter what the majority of Danes and politicians think, I believe that the only right thing to do is to help social welfare recipients as much as possible," and "Even if the Parliament were to pass a bill about cutting social welfare benefits, I would believe that the morally correct policy would be to increase

the benefits." Answers were measured on a 7-point scale with end points labeled "Strongly disagree" and "Strongly agree." The answers were added together to form a reliable scale (α = 0.81).

As the demonstrated effects of imagination are argued to be specific for imagination rather than related psychological constructs, Study 7 includes a large battery of cognitive and personality measures to use as control variables:

Openness to Experience. Openness was measured using the two items from Mondak et al.'s (2010) two-item Big Five scales (r = 0.37).

Need for Cognition. In Study 7, "need for cognition" was measured using a Danish translation of the six items from Cacioppo, Petty, and Kao's (1984) 18-item need for cognition scale. Specifically, the respondents were asked to indicate how accurately the following statements described them: "I would prefer complex to simple problems," "I like to have the responsibility of handling a situation that requires a lot of thinking," "Thinking is not my idea of fun" (reverse coded), "I would rather do something that requires little thought than something that is sure to challenge my thinking abilities" (reverse coded), "I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something" (reverse coded), and "I find satisfaction in deliberating hard and for long hours." Answers were measured on a 7-point scale ranging from "very inaccurate" to "very accurate" (α = 0.66).

Need to Evaluate. Need to evaluate was measured using five items from the scale items translated into Danish by Slothuus et al. (2010) using Jarvis and Petty (1996) as the point of departure. Specifically, the respondents indicated how accurately the following statements described them: "I have an opinion about everything," "It is very important to me to hold strong opinions," "I have many more opinions than the average person," "I like to have strong opinions, even when I am not personally involved," and "When somebody asks me my opinion, I almost

immediately know what I think." Answers were measured on a 7-point scale ranging from "very inaccurate" to "very accurate" ($\alpha = 0.85$).

Political Awareness. Political awareness was measured using five factual knowledge questions ($\alpha = 0.64$).

Adventurousness. Adventurousness was measured using four items from the International Personality Item Pool: "I like to visit new places," "I prefer new challenges to the daily routine," "I prefer things which I already know" (reverse coded), and "I do not like change" (reverse coded). The respondents were asked to indicate how accurately these statements describe them on 7-point scales ranging from "very inaccurate" to "very accurate" (Goldberg 1999). The four items were combined to form a satisfactorily reliable scale ($\alpha = 0.82$).

Need for Closure. Need for closure was measured using six items from Roets and Van Hiel's (2011) brief, 15-item "need for closure" scale, which was developed from Kruglanski and colleagues' original scale (Kruglanski, Webster, and Klem 1993; Webster and Kruglanski 1994). Specifically, the respondents indicated the extent to which the following statements accurately described them: "I dislike questions which could be answered in many different ways," "I feel uncomfortable when I don't understand the reason why an event occurred in my life," "I feel irritated when one person disagrees with what everyone else in a group believes," "When I have made a decision, I feel relieved," "I find that establishing a consistent routine enables me to enjoy life more," "I don't like uncertain situations." Answers were measured on a 7-point scale ranging from "very inaccurate" to "very accurate" ($\alpha = 0.70$).

Political Ideology. Ideology was measured using the following question: "In politics, people often talk about left and right. Do you think of yourself as either left-wing or right-wing? Place yourself on the scale below." Answers were measured on a 7-point scale ranging from "extremely left-wing" to "extremely right-wing."

All measures were recoded to vary between 0 and 1.

A10. Additional Analysis of Studies 1 and 2

Studies 1 and 2 analyze the strength of individuals' social welfare opinions as well as the total number of associations they have about social welfare recipients. In these analyses, any ideological direction of the effects is left untested; for example, whether imagination increases the strength of pro- as well as con-welfare opinions. In this appendix section, we provide analysis showing that the effects of imagination are not limited to a specific ideological direction.

Table A8 shows the effects of imagination on opposition against welfare as measured by our opinion scale (i.e., the directional measure of welfare opinions from which we have derived our measure of attitude strength) and, for comparison, also provides the results of the effects of imagination on the measure of attitude strength. We provide these analyses for the combined US and Danish samples as well as for each sample separately. Overall, we do not find any effect of imagination on the direction of welfare opinions (Table A8, M1). For both countries, the more imaginative do not tend to be more supportive of social welfare or more opposed to social welfare than the less imaginative. As revealed in Model 2 (and cf. the main text), imagination has strong effects on attitude strength in the combined sample. Hence, imagination makes opinions stronger in either direction.

When examining the separate samples, we again (as reported in the main text) see clear and significant effects of imagination on attitude strength in both the US (Model 4) and Denmark (Model 6). The analysis of the effects of imagination on welfare opposition also reveals a tentatively interesting pattern. In the US, there is a small but significant effect such that the imaginative are more opposed to social welfare than the less imaginative (Model 3). In contrast, among Danes, there is a small and marginally significant effect ($p = 0.066$) effect in the *opposite* direction; that is, there is a slight tendency for the imaginative to be more supportive of social welfare than the less imaginative. Trying to account for this difference in effects will, of course, be

a purely speculative endeavor but could suggest that the imaginative take in the surrounding cultural climate to a greater extent (which is more hostile to social welfare in the US than in Denmark). This is something for future research to address. For now, the important observation is that in both the US and in Denmark, the effect of imagination is stronger for attitude strength than for the directional attitude measure, which again suggests that the effects of imagination run in both ideological directions.

Table A9 focuses on the free associations about social welfare recipients provided by the respondents. Again, to investigate any ideological directionality of the effects of imagination on associations, we differentiate here between whether the associations reflect a mental representation of welfare recipients as deserving or undeserving and report the effects of imagination on the total number of deserving and undeserving associations. The interesting question here is whether imaginative people tend to report more of both kinds of associations or whether they are only associations in a specific direction. Again, for comparison, we also report the effects on the total number of associations. As seen in the analyses of the combined sample reported in Models 1–3, imagination has an overall effect on all three association measures. Hence, imagination increases the total number of associations reported (cf. also the main text), the number of associations depicting welfare recipients as deserving, and the number of associations depicting them as undeserving. Furthermore, we find that the effects of imagination are strongest on the total number of associations, suggesting that this combined measure gauges the relevant variance left untapped by the directional measures. This in turn suggests that the effects of imagination run in both ideological directions. When considering the US and Danish samples separately, we generally find this same pattern in both countries, although the effect of imagination on the number of undeserving associations fails to reach statistical significance in the Danish case (Model 6). Still, however, this

effect in Denmark is positive, showing that the imaginative do tend to report more undeserving associations.

Table A8. Effect of Imagination on Welfare Support and Attitude Strength across US and Denmark

	Overall		US Sample		Danish Sample	
	Welfare Opposition M1	Attitude Strength M2	Welfare Opposition M3	Attitude Strength M4	Welfare Opposition M5	Attitude Strength M6
Intercept	0.50 (0.03)***	0.11 (0.03)***	0.40 (0.03)***	0.02 (0.04)	0.66 (0.04)***	0.26 (0.06)***
Imagination	0.01 (0.03)	0.18 (0.03)***	0.07 (0.03)**	0.20 (0.06)***	–0.08 (0.04)†	0.13 (0.06)*
Female	–0.03 (0.01)**	–0.06 (0.01)***	–0.03 (0.01)*	–0.05 (0.02)**	–0.03 (0.02)*	–0.08 (0.02)***
Education	0.09 (0.02)***	0.10 (0.02)***	0.07 (0.02)***	0.07 (0.03)*	0.11 (0.03)***	0.14 (0.04)***
Age	< 0.001 (< 0.001)	0.002 (< 0.001)***	0.001 (< 0.001)***	0.003 (0.001)***	–0.001 (0.001)**	< 0.001 (0.001)
Adjusted R^2	0.01	0.04	0.02	0.05	0.03	0.04
N	1973	1973	997	997	976	976

Notes: Entries are unstandardized OLS regression coefficients. Standard errors are reported in parentheses. All variables range from 0 to 1. † p = 0.066, * p < 0.05, ** p < 0.01, *** p < 0.001. All p-values are two-tailed.

Table A9. Effect of Imagination on total number, number of deserving and number of undeserving free associations about social welfare recipients across US and Denmark.

	Overall			US Sample			Danish Sample		
	Number of Associations M1	Number of Deserving Associations M2	Number of Undeserving Associations M3	Number of Associations M4	Number of Deserving Associations M5	Number of Undeserving Associations M6	Number of Associations M7	Number of Deserving Associations M8	Number of Undeserving Associations M9
Intercept	0.74** (0.27)	0.37 (0.21)	0.37* (0.17)	0.97 (0.41)*	0.94** (0.33)	0.03 (0.90)	0.28 (0.32)	–0.48 (0.25)	0.76*** (0.22)
Imagination	1.59*** (0.27)	1.22*** (0.22)	0.37* (0.17)	1.84 (0.42)***	1.23*** (0.34)	0.61* (0.25)	1.42 (0.32)***	1.35*** (0.25)	0.07 (0.22)
Female	0.34*** (0.10)	0.36*** (0.08)	–0.01 (0.06)	0.43 (0.16)**	0.45*** (0.13)	–0.02 (0.86)	0.26 (0.11)*	0.29*** (0.09)	–0.04 (0.08)
Education	0.72*** (0.19)	0.35* (0.15)	0.37** (0.12)	0.54 (0.30)	0.06 (0.24)	0.47** (0.18)	0.75 (0.21)***	0.56*** (0.16)	0.19 (0.14)
Age	0.01 (0.003)	0.003 (0.003)	0.002 (0.002)	0.01 (0.01)	–0.002 (0.004)	0.01* (0.003)	0.01 (0.004)**	0.01*** (0.003)	–0.003 (0.003)
Adjusted R^2	0.03	0.02	0.01	0.03	0.03	0.02	0.04	0.06	0.00
N	1988	1988	1988	1002	1002	1002	986	986	986

Notes: Entries are unstandardized OLS regression coefficients. Standard errors are reported in parentheses. All variables range from 0 to 1 except the association variables, which are measured in whole numbers from 0 to 20. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All p-values are two-tailed.

A11. Additional Discussion and Analyses of Study 5

The IAT was administered using the *Free*IAT software (Mead 2009). As the IAT exclusively relies on comparisons of response latencies rather than self-reports, the measures obtained are fully unobtrusive and widely argued to reflect implicit associations (Greenwald et al. 2003; Lane et al. 2007, 66). In Study 5 we use the IAT to measure implicit stereotypes about welfare recipients. If a subject is faster at pairing the category "unemployed" with negative words (related to being lazy) and the category "employed" with positive words (related to being hard-working) relative to the reversed pairings, this reflects that the subject implicitly associates the unemployed with more negative attributes than the employed.

In the context of the IAT, the task of "pairing" reflects that a specific category and word type share a response button (i.e., when words that signifies either the category or the valence appears on screen, the subject is instructed to hit that specific button), whereas the other category and word type share another response button. In different phases of the IAT, the pairings are then reversed. Through comparisons of response times in the different phases, it is possible to examine which pairings are faster to perform. This provides a measure of which pairing feels more intuitive and, hence, reflects the strongest implicit associations in the subjects' mind (see Greenwald et al. 2003). See Mead (2009) for exact scoring procedures in the *Free*IAT.

Table A10. Effect of Imagination on the Impact of Implicit Laziness Stereotypes on Support for Social Welfare

	Social welfare support
Intercept	1.02 (0.23)***
IAT-score	–0.55 (0.33)
Imagination	–0.78 (0.33)*
IAT-score × Imagination	0.93 (0.48)†
Adjusted R^2	0.06
N	61

Notes: Entries are unstandardized OLS regression coefficients. Standard errors are reported in parentheses. All variables range from 0 to 1 except IAT-score. A higher IAT score reflects a stronger pairing of unemployment with being lazy and employment with being hard-working. † $p = 0.059$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All p-values are two-tailed.

A12. Additional Analysis of Study 6

Full Regression Models

This study analyses the three-way interaction between imagination, prior stereotypes, and the vividness of the available external information. In the main text, we provide F-tests of the relevant interaction terms as well as graphical displays of the interaction effects. Models 1 and 2 in Table A11 have provided the fully specified regression models from which the graphs are made (see below).

Testing for Influential Observations

Study 6 is based on responses from 146 participants and involves estimating models with three-way interactions. When using a relatively small data set, it is important to ensure that the significance of such higher order interactions is not driven by a few highly influential outliers. To test for this potential violation of the standard regression assumptions, we follow the standard procedure of evaluating whether specific observations exist that exert an unusually large "pull" on the estimated regression line. This procedure combines information about the so-called leverage of each observation in the regression estimation (i.e., how much its removal influences the regression equation) with information about how well the regression line predicts the value of that particular observation (i.e., whether it is an outlier that falls far from the rest of the data) (Chatterjee and Hadi 1986). A potentially problematic observation is an observation that simultaneously has high leverage and is poorly predicted because it falls far from the general pattern in the data.

Figure A2 (see below) shows the plots of the leverage values against the relevant residuals (for discussion, see Chatterjee and Hadi 1986; Fox 1991). In general, in OLS regression, an influential outlier can be defined as an observation that simultaneously has leverage values that are two times higher than the average (Fox 1991) and has a studentized deleted residual above three (numerically), corresponding to falling three standard deviations from the general pattern (cf.

Grubbs 1969). In Figure A2, the vertical line illustrates the cut-off points for the leverage values. As can be seen, no outliers exist in either model, as no observations are simultaneously above the cut-off for the leverage values and have residuals above +/- 3. This indicates that the results presented in Table A11 are not driven by outliers.

Controlling for Adventurousness

In Study 6, we also collected data on individual differences in adventurousness—the other main component of the general "openness to experience" trait. To investigate the specificity of the effects of imagination on the impact of prior stereotypes on opinion, we ran parallel three-way interaction models substituting imagination for adventurousness (see Table A11, M3–4). In comparing the Low Vividness and High Vividness II conditions, we find no significant three-way interaction ($F = 0.21$, $p = 0.65$), but we do find significant three-way interaction when comparing Low Vividness and High Vividness I ($F = 5.63$, $p = 0.02$). Interestingly, however, this interaction effect with adventurousness goes in the *opposite* direction of the interaction with imagination (adventurousness increases reliance on stereotypes in the face of vivid cues). Given the failure to replicate this effect in the High Vividness II condition, this finding should be interpreted with the greatest care, but it could suggest that adventurous individuals—experienced as they are in facing novelty—are better able to remain true to their prior beliefs. In general, for the present purpose, the important conclusion to draw is that the analysis here supports the predicted effects being specific for the sub-trait imagination.

We also ran models including the three-way interactions with imagination and adventurousness simultaneously (see Table A11, M5–6). These analyses show that the three-way interaction term between imagination, stereotypes, and vividness condition remains robust (comparison with High I: $F = 8.66$, $p = 0.004$; comparison with High II: $F = 5.66$, $p = 0.019$) when

including the interactions with adventurousness in the models. These results further support that the effects we predict and observe are specific for the sub-trait imagination.

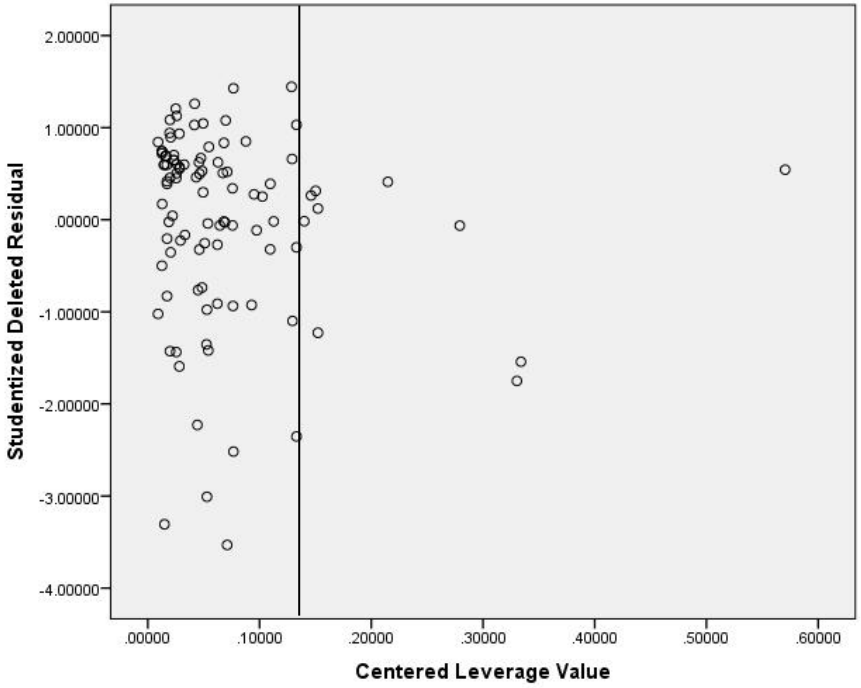
Table A11. Effects of Personality, Stereotypes, and Cue Vividness on Support for Tougher Means Testing of the Welfare Recipient

Experimental Vividness Comparison	Low (0) – High I (1)	Low (0) – High II (1)	Low (0) – High I (1)	Low (0) – High II (1)	Low (0) – High I (1)	Low (0) – High II (1)
Model #	M1	M2	M3	M4	M5	M6
Constant	1.87 (0.51)***	1.87 (0.49)***	0.35 (0.31)	0.35 (0.30)	1.44 (0.52)**	1.44 (0.51)**
Laziness Stereotype	–2.48 (1.14)*	–2.48 (1.11)*	2.00 (0.91)*	2.00 (0.88)*	–0.87 (1.29)	–0.87 (1.26)
Experimental Condition	–1.42 (0.58)*	–1.08 (0.60)	0.76 (0.40)	–0.12 (0.39)	–0.56 (0.61)	–0.98 (0.63)
Imagination	–1.64 (0.61)**	–1.64 (0.59)**	–	–	–1.68 (0.63)**	–1.68 (0.61)**
Condition × Imagination	1.93 (0.70)**	1.51 (0.72)*	–	–	2.08 (0.72)**	1.35 (0.74)
Condition × Stereotype	3.00 (1.30)*	2.62 (1.28)*	–2.93 (1.07)**	–1.05 (1.02)	0.12 (1.52)	1.47 (1.44)
Imagination × Stereotype	3.94 (1.36)**	3.94 (1.32)**	–	–	4.35 (1.39)**	4.35 (1.36)**
Condition × Imagination × Stereotype	–4.22 (1.59)**	–3.76 (1.58)*	–	–	–4.69 (1.60)**	–3.87 (1.63)*
Adventurousness	–	–	0.16 (0.43)	0.16 (0.42)	0.61 (0.44)	0.61 (0.43)
Condition × Adventurousness	–	–	–0.78 (0.54)	0.53 (0.55)	–1.33 (0.54)*	0.16 (0.56)
Adventurousness × Stereotype	–	–	–1.60 (1.20)	–1.60 (1.16)	–2.56 (1.19)*	–2.56 (1.16)*
Condition × Adventurousness × Stereotype	–	–	3.42 (1.44)*	0.63 (1.39)	4.50 (1.42)**	1.51 (1.42)
R^2 (adj.)	0.18	0.19	0.18	0.19	0.24	0.24

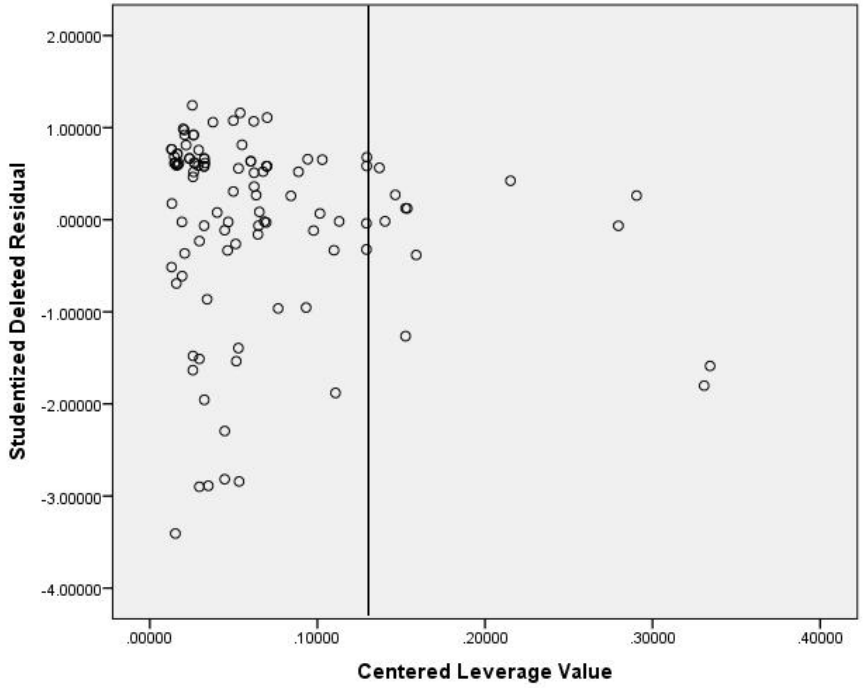
Notes: Entries are unstandardized OLS regression coefficients. Standard errors are reported in parentheses except in the table head, where the values in parentheses refer to the value of the respective experimental conditions on the experimental condition variable. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All p-values are two-tailed.

Figure A2. Plots Testing For Influential Observations (Outliers)

A. Low Vividness and High Vividness I Conditions



B. Low Vividness and High Vividness II Conditions



Notes: The cut-off points for outliers in terms of leverage values are two times the average leverage of the observations. The vertical lines represent these cut-offs, corresponding to 0.14 for both graphs. The cut-off points for outliers in terms of residuals are +/- 3.

A13. Additional Analyses of Study 7

Full Regression Models

In study 7, we analyze the two-way interaction between imagination and principled social welfare attitudes on behavioral decisions. In the main text, we provide F-tests of the relevant interaction terms as well as graphical displays of the interaction effects. Models 1 and 5 in Table A12 have provided the fully specified regression models from which the graphs are made.

Controlling for Other Individual Differences

Individual differences in imagination are, of course, merely one part of a larger set of the psychological differences existing between individuals. This leaves open the question as to whether the effects we are reporting are specifically driven by differences in imagination or whether they are confounded by some of the other psychological variables to which imagination is related (cf. Studies A–D). First, because imagination forms part of the larger Big Five trait, openness to experience, other subparts of openness or indeed the general openness trait itself could be responsible for the effect. Second, because high imagination allows for a deeper cognitive processing of information, the effects of imagination could be confounded by other measures of cognitive ability. Study A showed that imagination has a unique effect on abilities to vividly experience and recollect fiction. Here, we follow the same strategy and control the effects of imagination for potential confounds.

Models 2 and 4 in Table A12 seek to replicate the reported interaction effect on donation behavior using a general measure of openness to experience (cf. Mondak et al. 2010). To this end, we regressed donation behavior on the two-way interaction between general openness and social welfare attitudes. As the models reveal, we cannot replicate our effects in either donation task using the measure of openness to experience instead of imagination. Thus, as the more refined

measurement at the subtrait level of imagination is required to obtain the effect, this suggests that the demonstrated effects are specifically tied to imagination.

Models 3 and 7 in Table A12 include key personality measures that previous research in psychology and political science have found to be related to "openness to experience" and therefore, potentially, to imagination: adventurousness (McCrae 1994), political ideology (Gerber et al. 2010), and need for closure (Webster and Kruglanski 1994). For each of these variables, we constructed two-way interaction terms with social welfare attitudes and regressed donation behavior on them. Importantly, as revealed, the interactive effect of imagination is robust to the inclusion of these other personality measures in both donation tasks—although, in the Dictator Game, the effect in this highly satiated model moves just above the 0.05 level using a two-tailed test ($p = 0.08$, two-tailed test). Furthermore, none of the interaction terms featuring the control variables have replicable effects on donation behavior across the two tasks.

Models 4 and 8 in Table A12 control for measures of cognitive ability. In political science, three measures of cognitive ability are widely used: need for cognition (Cacioppo and Petty 1982), need to evaluate (Jarvis and Petty 1996), and political awareness (Zaller 1992). As the models illustrate, the effect of imagination also stays robust to the inclusion of interaction terms with these cognitive variables—although, in the Dictator Game, the effect again moves just above the 0.05 level using a two-tailed test ($p = 0.07$, two-tailed test). Furthermore, none of the interaction terms featuring the control variables have replicable effects on donation behavior across the two tasks. In sum, these controlled models clearly suggest that the effects we report are specifically tied to individual differences in imagination and, consistent with the theoretical argument, that decoupled cognition plays a unique role in facilitating attitude-behavior consistency in the face of short-term economic incentives to forgo one's political principles.

Table A12. Effects of Personality, Cognitive Ability and Social Welfare Attitudes on Interpersonal and Political Donation Behavior

	Donation in Dictator Game				Donation to Charity Organization			
	M1	M2	M3	M4	M5	M6	M7	M8
Intercept	1.74*	–0.37	3.16**	4.22***	21.97*	–2.33 (5.18)	24.58	8.07
	(0.67)	(0.49)	(1.11)	(0.92)	(9.77)		(20.33)	(16.73)
Social Welfare Attitude	–2.22*	1.17†	–3.25†	–5.85***	–34.43*	4.17 (7.36)	–29.18	–16.22
	(1.00)	(0.69)	(1.67)	(1.31)	(14.82)		(30.18)	(24.33)
Imagination	–1.98*	–	–1.06	–1.81†	–32.09*	–	–39.56*	–32.99*
	(0.82)		(0.76)	(0.92)	(12.77)		(17.21)	(15.38)
Imagination × Attitude	**3.21****	–	**2.10† (p = 0.08)**	**2.65† (p = 0.07)**	**48.53***	–	**57.40***	**49.71***
	(1.21)		**(1.16)**	**(1.41)**	**(19.05)**		**(26.13)**	**(23.29)**
Openness to Experience	–	0.86 (0.85)	–	–	–	–0.62 (9.37)	–	–
Openness × Attitude	–	–1.32 (1.21)	–	–	–	–2.39 (13.27)	–	–
Adventurousness	–	–	–2.55 (1.52)	–	–	–	3.17 (27.67)	–
Advent. × Attitude	–	–	2.12 (2.28)	–	–	–	–9.56 (41.91)	–
Political Ideology	–	–	–1.13* (0.42)	–	–	–	–5.64 (8.67)	–
Ideology × Attitude	–	–	1.78** (0.70)	–	–	–	7.37 (14.14)	–
Need for Closure	–	–	–0.06 (0.81)	–	–	–	6.60 (12.64)	–
NfClosure × Attitude	–	–	–0.36 (1.23)	–	–	–	–18.16 (19.55)	–
Need for Cognition	–	–	–	–1.49 (1.01)	–	–	–	16.11 (17.04)
NfCognition × Attitude	–	–	–	2.68 (1.62)	–	–	–	–18.60 (26.62)
Need to Evaluate	–	–	–	–1.28† (0.66)	–	–	–	0.64 (11.32)
NtEvaluate × Attitude	–	–	–	1.77 (1.10)	–	–	–	–2.59 (6.38)
Political awareness	–	–	–	–0.77† (0.39)	–	–	–	2.43 (6.38)
Awareness × Attitude	–	–	–	1.01† (0.60)	–	–	–	–4.62 (9.30)
R^2 (adj.) / Psuedo R^2	0.15	0.07	0.48	0.29	0.17	0.06	0.26	0.21

Notes: Entries are unstandardized OLS regression coefficients (Models 1–4) and coefficients from binary logistic regression (Models 5–8). Standard errors are reported in parentheses. All variables range from 0 to 1. † $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. All p-values are two-tailed.

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