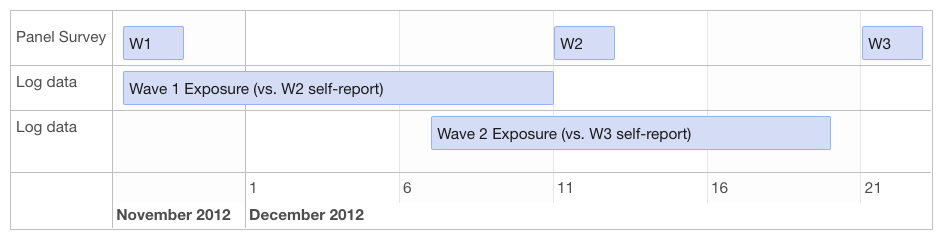
Online Appendix for:

**Assessing (In)accuracy and Cognitive Biases in Self-reported Measure of Exposure to Disagreement: Evidence from Digital Trace Data**

**1. Timeline of data collection**

The first wave of the panel survey was administered between Nov 27th to Nov 29th, 2012, which was shortly after the beginning of the digital log data collection. The second wave of the panel survey was administered between Dec 11th to Dec 13th, 2012. Based on the starting date of the second survey, we take the log data between Nov 27th to Dec 10th as the Wave 1 exposure (i.e., behavioral measure), and compare this against the self-reported exposure measured at the second wave of the study. We again follow this approach for the third wave, yet the digital log data were recorded only until the Dec 19th, therefore the Wave 2 exposure is based on log data between Dec 7th (two weeks prior to the 3rd survey) to Dec 19th.

 *Figure A1. Timeline of data collection.*

**2. Measurement details**

**Candidate support**

*1 = favors the liberal candidate, Moon vs. 0 = favors the conservative candidate, Park*

(Wave 1 = 58.06%, Wave 2 = 68.03%, Wave 3 = 62.75%, based on liberal candidate support)

**Self-reported measures of exposure to disagreement**

*What percentage of posts (out of 100%) you have read during the last two weeks in this forum can be classified as conservative vs. moderate vs. liberal in your opinion?*

(Wave 2: M = .58, SD = .21, range = 0 to 1; Wave 3: M = .59, SD = .21, range = 0 to 1)

**Social desirability: Normative indorsement for disagreement (5 items, 7-point scale)**

*Those who oppose my opinion also have the right to participate in discussions.*

*It is worth reading the opposite opinion.*

*There is also something to be considered, even if someone’s opinion is different from mine.*

*We must respect the other participants who hold different opinions.*

*I respect the opinion of others and treat them appropriately.*

(Wave 2: α = .89, *M* = 5.59, *SD* = .90; Wave 3: α = .89, *M* = 5.60, *SD* = .93)

**Social desirability: Need for social approval (3 items, 7-point scale)**

*I am disappointed if others do not accept my arguments.*

*I feel ashamed when others do not accept my opinion.*

*I am sensitive to the evaluation of others on my writings in this forum.*

(W2: α = .87, *M* = 3.86, *SD* = 1.30; W3: α = .87, *M* = 3.82, *SD* = 1.28)

**Political interest (2 items, 7-point scale)**

*I am always interested in politics.*

*I often look for the latest articles and information about politics.*

(W2: Spearman-Brown = .94, *M* = 5.05, *SD* = 1.05; W3: SB = .95, *M* = 5.03, *SD* = 1.05)

**Political knowledge (10 items, 1 = “correct” vs. 0 = “incorrect/DK”)**

*Which election is going to be held in December 19th, 2012?*

*Which of the following pairs of presidential candidates – their endorser is wrong?*

*Which of the following is not the campaign pledges made by the candidate Park?*

*Which of the following is not the organizations/institutions the candidate Moon had taken part before?*

*What is the title of the presidential election campaign announced by the candidate Ahn?*

*Which of the following is true for the opening time of voting ballot places under the current law?*

*What is the sum of the term of a president and the term of a member of Parliament?*

*Who is the current Majority leader in the Parliament?*

*Who is the current Minority leader in the Parliament?*

*How many MPs are there in South Korea?*

(only measured at once at the beginning of the survey, *M* = 5.74, *SD* = 2.15)

**Opinion Climate Perception (single-item, 7-point scale)**

*Within the forum, my opinion is largely in agreement with the majority opinion.*

(W2: *M* = 4.41, *SD* = 1.15; W3: *M* = 4.48, *SD* = 1.27)

**Demographics**

*Gender* (0 = male, 1 = female; 48% female)

*Age* (in years, *M* = 35.72, *SD* = 9.86)

*Education* (1 = “less than elementary, to 9 = “post-graduate or more”, *M* = 7.68, *SD* = 1.04)

*Household Income* (per month, 1 = “less than 1000” to 8 = “more than 7000”, *M* = 4.99, *SD* = 1.88)

**Media Exposure**

(measured in hours, combining internet news, newspaper, and TV news exposure: α = .73)

**Ideology strengths (single-item, from 0 = “no partisan” to 3 = “strong partisan”)**

(The ideological self-placement was initially measured by a 7-point scale from 1 = “Extremely liberal” to 7 = “Extremely conservative,” with 4 = “Middle of the road” being the midpoint of the scale. The strength of ideology is therefore measured by folding the ideological self-placement variable around the midpoint. W1: *M* = 1.05, *SD* = 0.84; W2: *M* = 1.07, *SD* = .86; W3: *M* = 1.07, *SD* = 0.85).

**3. Detailed results reported in the main manuscript**

In this section of appendix, we report full results reported in the main manuscript, along with several robustness check results utilizing alternative construction of key measurement items.

* Table A1 reports the full results for Table 1 in the appendix, while Table A2 reports the replication using Bayesian regression models (using Hamiltonian Monte Carlo with the no-U-turn sampler, as described in Hoffman & Gelman, 2014) along with 32000 posterior draws (4000 iterations per each of 8 chains). In Table A2, we report 90% posterior Highest Density Interval (HDI), following the recommendation by the Stan Development Team (2017: also see Gelman and Carlin, 2014), which is more computationally stable.
* In Table A3, we directly predict the perceived exposure to disagreement controlling the actual exposure. Results show that a favorable opinion climate perception (i.e., perceiving one’s opinion to be more in line with the overall opinion) makes an individual to less likely to report the perceived disagreement independent of actual exposure, therefore being more “accurate” in terms of discrepancy between actual exposure and perceived exposure to disagreement.
* Table A4 replicates the results reported in Table 1 but using alternative construction of behavioral benchmark measures in calculating reporting inaccuracy (two weeks vs. three most recent days: main results are reported in Table 2 in the main manuscript), and therefore reports the full results reported in Table 2 of the main manuscript. Results shows that the time period in which one’s behavioral benchmark is calculated has virtually no effect in reporting inaccuracy, suggesting that one’s motivation and ability is not likely to be a decisive factor.
* Finally, Table A5 reports the full results of Table 3 in the main manuscript.

***Table A1.*** *The full results of Table 2 in the main manuscript, predicting reporting inaccuracy (N = 341).*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **OLS W2** | **GLM W2** | **OLS W3** | **GLM W3** |
| **Social desirability** |  |  |  |  |
| Discussion norm W2/W3 | .016 [-.011, .044] | .379 [-.009, .846] | .017 [-.012, .047] | .234 [-.056, .577] |
| Need for approval W2/W3 | -.003 [-.019, .014] | -.084 [-.368, .179] | -.017 [-.036, .005] | -.076 [-.318, .162] |
| **Cognitive burden** |  |  |  |  |
| Interest W2/W3 | .019 [-.002, .040] | .066 [-.260, .424] | .007 [-.018, .035] | .017 [-.279, .329] |
| Knowledge | -.003 [-.013, .008] | .041 [-.104, .202] | .002 [-.009, .013] | .123 [-.004, .272] |
| **Opinion Climate** |  |  |  |  |
| Prcvd Op Climate W2/W3 | **-.021** [-.041, -.002]\* | **-.304** [-.642, -.037]\* | **-.031** [-.053, -.009]\* | **-.284** [-.591, -.023]\* |
| **Controls** |  |  |  |  |
| Candidate pref W2/W3 | **.283** [.237, .332]\* | **2.108** [1.557, 2.981]\* | **.113** [.060, .166]\* | **.642** [.021, 1.329]\* |
| Ideo Strength W2/W3 | **-.059** [-.085, -.033]\* | **-.347** [-.742, -.004]\* | **-.045** [-.075, -.016]\* | -.214 [-.549, .108] |
| Total Exp W1/W2 (log) | -.012 [-.029, .004] | -.005 [-.239, .235] | -.015 [-.035, .006] | .024 [-.177, .243] |
| Media Exposure | .002 [-.010, .013] | -.040 [-.198, .113] | -.000 [-.016, .015] | **-.158** [-.332, -.008]\* |
| **Demographics** |  |  |  |  |
| Age (in years) | .001 [-.001, .003] | .016 [-.013, .050] | .002 [-.001, .004] | .021 [-.007, .054] |
| Female | -.002 [-.046, .041] | .106 [-.538, .804] | -.013 [-.060, .035] | .105 [-.458, .687] |
| Education | -.009 [-.030, .014] | **.302** [.036, .602]\* | -.002 [-.023, .018] | -.052 [-.411, .238] |
| HH income | .006 [-.006, .018] | -.061 [-.231, .097] | -.006 [-.018, .006] | -.108 [-.268, .043] |
| R2 /Adj. R2 (or AIC / BIC) | 0.340 (0.313) | 339.957 / 393.604 | 0.127 (0.093) | 387.246 / 440.892 |
| Log Likelihood / Deviance |  | -155.979 / 311.957 |  | -179.623 / 359.246 |
| ***Note***: \* = 0 outside the 95% percentile confidence interval based on 10000 bootstrapped replications. | | | | |

***Table A2.*** *Bayesian regression models, replication of Table 2 in the main manuscript (N = 341).*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **OLS W2** | **GLM W2** | **OLS W3** | **GLM W3** |
| **Social desirability** |  |  |  |  |
| Discussion norm W2/W3 | .016 [-.004; .038] | **.407** [.104; .707]\* | .017 [-.004; .039] | .248 [-.001; .485] |
| Need for approval W2/W3 | -.003 [-.016; .012] | -.089 [-.303; .119] | **-.017** [-.032; -.002]\* | -.082 [-.267; .104] |
| **Cognitive burden** |  |  |  |  |
| Interest W2/W3 | .019 [-.000; .037] | .069 [-.202; .332] | .007 [-.013; .027] | .020 [-.214; .259] |
| Knowledge | -.003 [-.012; .005] | .043 [-.078; .162] | .002 [-.007; .011] | .128 [.018; .235]\* |
| **Opinion Climate** |  |  |  |  |
| Prcvd Op Climate W2/W3 | **-.021** [-.038; -.004]\* | **-.322** [-.541; -.083]\* | **-.031** [-.048; -.014]\* | **-.300** [-.504; -.087]\* |
| **Controls** |  |  |  |  |
| Candidate pref W2/W3 | **.283** [.241; .325]\* | **2.223** [1.654; 2.788]\* | **.113** [.070; .157]\* | **.668** [.173; 1.185]\* |
| Ideo Strength W2/W3 | **-.059** [-.079; -.036]\* | **-.364** [-.658; -.070]\* | **-.045** [-.067; -.023]\* | -.222 [-.482; .028] |
| Total Exp W1/W2 (log) | -.012 [-.026; .000] | -.004 [-.186; .173] | **-.015** [-.028; -.001]\* | .026 [-.132; .191] |
| Media Exposure | .002 [-.009; .013] | -.041 [-.180; .096] | -.000 [-.012; .011] | **-.165** [-.291; -.046]\* |
| **Demographics** |  |  |  |  |
| Age (in years) | .001 [-.000; .003] | .016 [-.009; .042] | .002 [-.000; .004] | .022 [-.002; .046] |
| Female | -.002 [-.038; .034] | .113 [-.388; .601] | -.013 [-.052; .026] | .113 [-.335; .561] |
| Education | -.008 [-.026; .009] | **.315** [.061; .548]\* | -.002 [-.021; .017] | -.063 [-.288; .172] |
| HH income | .006 [-.004; .016] | -.064 [-.201; .062] | -.006 [-.016; .005] | -.114 [-.235; .007] |
| Bayesian R2 | 0.346 | 0.224 | 0.150 | 0.118 |
| Leave-One-Out IC | -128.394 | 342.728 | -87.443 | 389.780 |
| WAIC | -128.492 | 342.591 | -87.573 | 389.672 |
| ***Note***: \* = 0 outside the 90% Highest Density Intervals (HDI). Cell entries are median of posterior distribution. | | | | |

***Table A3.*** *Predictors of perceived exposure to disagreement (in self-reported measure) as a function of social desirability bias, cognitive burden, and public opinion perception, controlling for the actual exposure to disagreement (N = 341).*

|  |  |  |
| --- | --- | --- |
|  | **Perceived Exp to Dis**  **W2** | **Perceived Exp to Dis**  **W3** |
| **Actual Exposure** |  |  |
| Actual Exp to Dis (in %) W1/W2 | .059 [-.152, .284] | -.096 [-.257, .046] |
| **Social desirability** |  |  |
| Discussion norm W2/W3 | .014 [-.011, .039] | **.025** [.001, .049]\* |
| Need for approval W2/W3 | -.007 [-.022, .008] | -.013 [-.029, .004] |
| **Cognitive burden** |  |  |
| Interest W2/W3 | .015 [-.004, .035] | .005 [-.014, .023] |
| Knowledge | -.002 [-.012, .007] | .004 [-.005, .013] |
| **Opinion Climate** |  |  |
| Prcvd Op Climate W2/W3 | **-.023** [-.041, -.006]\* | **-.027** [-.045, -.009]\* |
| **Controls** |  |  |
| Candidate pref W2/W3 | **-.164** [-.275, -.049]\* | **-.251** [-.323, -.189]\* |
| Ideo Strength W2/W3 | **-.044** [-.069, -.020]\* | **-.033** [-.056, -.010]\* |
| Total Exp W1/W2 (log) | -.013 [-.028, .003] | -.003 [-.015, .010] |
| Media Exposure | -.001 [-.012, .009] | -.000 [-.012, .011] |
| **Demographics** |  |  |
| Age (in years) | .001 [-.001, .003] | .001 [-.001, .003] |
| Female | .003 [-.037, .042] | -.023 [-.062, .016] |
| Education | -.005 [-.025, .017] | -.008 [-.026, .009] |
| HH income | .004 [-.006, .015] | -.004 [-.014, .006] |
| R2 | 0.302 | 0.405 |
| Adj. R2 | 0.272 | 0.379 |
| Num. obs. | 341 | 341 |
| RMSE | 0.177 | 0.167 |
| ***Note***: \* = 0 outside the 95% percentile confidence interval based on 10000 bootstrapped replications. | | |

***Table A4.*** *Predictors of inaccuracy in self-reported exposure to disagreement, when the three most recent days are used as a benchmark against the self-reported measures (N = 341).*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **OLS W2** | **OLS W2 RECENT** | **OLS W3** | **OLS W3 RECENT** |
| **Social desirability** |  |  |  |  |
| Discussion norm W2/W3 | .016 [-.011, .044] | .025 [-.006, .057] | .017 [-.012, .047] | .020 [-.011, .052] |
| Need for approval W2/W3 | -.003 [-.019, .014] | .005 [-.012, .023] | -.017 [-.036, .005] | -.011 [-.031, .011] |
| **Cognitive burden** |  |  |  |  |
| Interest W2/W3 | .019 [-.002, .040] | .018 [-.003, .041] | .007 [-.018, .035] | -.004 [-.029, .024] |
| Knowledge | -.003 [-.013, .008] | -.003 [-.015, .008] | .002 [-.009, .013] | .002 [-.010, .014] |
| **Opinion Climate** |  |  |  |  |
| Prcvd Op Climate W2/W3 | **-.021** [-.041, -.002]\* | **-.023** [-.046, -.001]\* | **-.031** [-.053, -.009]\* | **-.033** [-.055, -.011]\* |
| **Controls** |  |  |  |  |
| Candidate pref W2/W3 | **.283** [.237, .332]\* | **.251** [.198, .306]\* | **.113** [.060, .166]\* | **.161** [.107, .215]\* |
| Ideo Strength W2/W3 | **-.059** [-.085, -.033]\* | **-.064** [-.092, -.036]\* | **-.045** [-.075, -.016]\* | **-.044** [-.074, -.014]\* |
| Total Exp W1/W2 (log) | -.012 [-.029, .004] | -.016 [-.039, .006] | -.015 [-.035, .006] | .005 [-.016, .025] |
| Media Exposure | .002 [-.010, .013] | -.001 [-.016, .012] | -.000 [-.016, .015] | -.002 [-.016, .010] |
| **Demographics** |  |  |  |  |
| Age (in years) | .001 [-.001, .003] | .002 [-.001, .004] | .002 [-.001, .004] | .001 [-.002, .003] |
| Female | -.002 [-.046, .041] | -.003 [-.051, .044] | -.013 [-.060, .035] | -.011 [-.061, .039] |
| Education | -.009 [-.030, .014] | -.002 [-.026, .023] | -.002 [-.023, .018] | -.006 [-.028, .016] |
| HH income | .006 [-.006, .018] | .002 [-.011, .015] | -.006 [-.018, .006] | -.007 [-.020, .006] |
| R2 | 0.340 (0.313) | 0.263 (0.234) | 0.127 (0.093) | 0.154 (0.120) |
| RMSE | 0.196 | 0.218 | 0.207 | 0.216 |
| ***Note***: \* = 0 outside the 95% percentile confidence interval based on 10000 bootstrapped replications outside the confidence interval. | | | | |

\*\* For RECENT columns, DV is the actual exposure during three most recent days *minus* reported exposure to disagreement.

***Table A5.*** *Lagged DV regression models predicting attitude certainty as a function of exposure to disagreement, N = 320 (Table 4 in the main manuscript).*

|  |  |  |
| --- | --- | --- |
|  | **Preference Certainty W3** | |
| **Lagged DV** |  |  |
| Preference Certainty W2 | .517 (.046)\*\*\* | .523 (.046)\*\*\* |
| **Focal predictor** |  |  |
| Exposure to Disagreement (Self-report) | -.520 (.266) |  |
| Exposure to Disagreement (Behavioral) |  | -.769 (.340)\* |
| **Correlates** |  |  |
| Total Exposure W2 (log) | .009 (.035) | .015 (.035) |
| Candidate preference W2 | -.198 (.118) | -.301 (.140)\* |
| Interest W2 | -.007 (.052) | .006 (.052) |
| Knowledge | .059 (.025)\* | .056 (.025)\* |
| Ideological Strength | .074 (.060) | .077 (.060) |
| Efficacy | .091 (.044)\* | .083 (.044) |
| Media Exposure | -.011 (.029) | -.009 (.029) |
| **Demographics** |  |  |
| Age (in years) | -.007 (.005) | -.008 (.005) |
| Female | .175 (.099) | .185 (.098) |
| Education | .066 (.053) | .063 (.053) |
| HH income | -.015 (.028) | -.013 (.028) |
| **Intercept** | 2.193 (.575)\*\*\* | 2.273 (.575)\*\*\* |
| R2 | 0.412 | 0.414 |
| Adj. R2 | 0.387 | 0.389 |
| Num. obs. | 320 | 320 |
| RMSE | 0.858 | 0.856 |
| \*\*\*p < 0.001, \*\*p < 0.01, \*p < 0.05 | | |

**4. Detailed setups for Monte Carlo Simulations**

**Data Generation Stage**

In this stage of simulation, we first simulate the data frame of size *N* = (341, 1000, and 5000) conditional on observed means, standard deviations, and a correlation matrix of all independent variables in the Table 4 in the main manuscript (including both of the exposure to disagreement variables). During this stage, we systematically vary the zero-order correlation only between two measures of disagreement (*r* = from 0.00 to 0.95 by 0.05 interval, so 20 zero-order correlations to be evaluated), yet residual zero-order correlations of two exposure variables with other covariates were kept constant as to our observed data. This effectively enable us to simulate the hypothetical, counterfactual scenarios within which the correlation of two “exposure to disagreement” variables systematically vary across range of plausible values. Based on a given sample size and a covariance matrix (that is converted from the modified correlation matrix), the “new” data frame is then created, which contains all of the independent variables that were randomly sampled from the multivariate normal distribution. We have used *nvrnorm* function in R (from the MASS library) for this simulation of independent variables based on modified covariance matrix.

Based on the simulated “new” data frame, we then further simulate (i.e., newly “predict”) our focal dependent variable, *candidate preference certainty* at Wave 3, based on the regression coefficients of the model involving behavioral exposure measurement as in Table 4 of the main ms, but supplying the newly simulated observations for values of independent variables. Therefore, for the data generating process, we assumed that the regression model reported in Table 4 in the main manuscript – especially the one involving behavioral measure of exposure to disagreement – would reflects the true model specification generating candidate preference certainty.

Once we “predict” the dependent variable conditional on the model and the new data, we then added a Gaussian random noise to each of the dependent variable observation, which ensured that each simulation run is not completely deterministic, but would randomly vary across simulation runs.

**Prediction Stage**

Given above simulated independent variables and dependent variable observations, we re-fit the two regression models (as reported in Table 4 in the main ms) on this simulated data. We expect that the regression coefficients of the behavioral exposure measure in these re-fitted regressions would converge to the original correlation coefficient reported in Table 4, since, effectively, the simulated dependent variable is regressed to the very same model that has generated the dependent variable itself. However, the regression coefficient for the self-reported exposure measure would be systematically affected by the revised correlational structure behind the simulated data, therefore we can observe how the regression coefficient of self-reported exposure measure would behave under different correlational structure assumed in the data generation stage.

Having re-fitted the regression models on the simulated data, we compare two (newly created) unstandardized coefficients of “exposure to disagreement” variables (one based on the self-reported vs. the other based on the behavioral benchmark), and observe (1) their relative size (i.e., the ratio of two coefficients), (2) their absolute bias (i.e., the absolute difference of two coefficients), and (3) whether the statistical significance of two coefficients agree with each other. In determining statistical significance, we assumed alpha = .05 level for scenarios with *N* = 341, alpha = .01 level for scenarios with *N* = 1000, and alpha = .001 level for scenarios *N* = 5000 (which is determined by a priori MC power simulation).

**5. Using alternative behavioral benchmark and public opinion perception measurement**

Here, we perform several robustness checks regarding our measurements of behavioral benchmark and public opinion perception measurement. First, we replicate our main results reported in Table 2 (using OLS models) based on the alternative behavioral benchmark (i.e., mean of daily average proportion). Second, we employ alternative measure of public opinion perception.

First, in our main manuscript, we have referred another construction of behavioral benchmark measure based on *averages of “daily proportions”* (i.e., a daily proportions of disagreement exposure per day, and daily proportions for 14 days were then averaged, W1: *M* = .22, *SD* = .17; W2: *M* = .24, *SD* = .15). Using this alternative benchmark as a comparison, Figure A2 below and the first two columns of below Table A6 replicates the main findings in preliminary analysis and in Table 1 of the main manuscript.

Second, we employ another measure of one’s public opinion perception based on a more direct measure of perceived opinion distribution. During our survey, we have also asked “*overall what percentage of other participants of the online forum would be in-party vs. out-party supporters*” in terms of their political orientations. The alternative measure of perceived opinion climate was thus operationalized as *the perceived prevalence of in-party supporters vis-a-vis out-party supporters*, again using their reported candidate support at the time of exposure. The measure therefore runs from -100 to +100, but for the ease of interpretation, we rescaled this measure to 0 to 100 range (Wave 2: *M* = 56.97, *SD* = 16.43; Wave 3: *M* = 55.40, *SD* = 19.80), effectively expressing the perceived prevalence of in-party supporters away from even-split (50%) of the opinion climate. The third and the fourth column of below Table A6 uses this alternative measure of public opinion perception (yet using the original DV construction, *not* based on average of daily proportions). Due to the more fine-grained scale used for this construct, the unstandardized coefficient is much smaller than our original results. Yet the general conclusions remain same.

Lastly, the last two columns in Table A6 both use alternative behavioral benchmark and public opinion perception measurement instead of their original measurements. All of the results reveal that no matter how we operationalize the key variables, the influence of public opinion perception is extremely stable and consistent.



**Figure A2**. *Quantile-Quantile plots of actual vs. perceived exposure to disagreement, using the alternative behavioral benchmark measure based on the averages of daily proportions.*

*Note*: When using the alternative behavioral benchmark, the survey response at Wave 2 was still modestly and significantly correlated with this behavioral benchmark at Wave 1, yet the correlation was further reduced (the left panel of Figure A2, *r* = .300), and the patterns was largely similar between Wave 2 tracking data and Wave 3 survey response (the right panel of Figure A2, *r* = 293). When we look at the simple differences between the self-reported measure and the behavioral measure (which quantifies the precise *degree* of overestimation), respondents are indeed likely to substantially overestimate their actual exposure to disagreement by as little as about 34.24% point on average (W2-W3 comparison, based on N = 20,000 nonparametric permutation test of difference, 95% CIs = [.2994, .3862]) up to 35.78% point on average (W1-W2 comparison, 95% CIs = [.3137, .4032]).

***Table A6.*** *Results of alternative measurements in DV and in Opinion Climate perception.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Alt DV W2** | **Alt DV W3** | **Alt OP W2** | **Alt OP W3** | **Alt ALL W2** | **Alt ALL W3** | |
| **Social desirability** |  |  |  |  |  |  | |
| Discussion norm W2/W3 | .009 [-.019, .036] | .012 [-.015, .040] | .008 [-.018, .036] | .007 [-.021, .035] | .001 [-.025, .028] | .002 [-.024, .028] | |
| Need for approval W2/W3 | -.004 [-.021, .013] | -.015 [-.033, .004] | -.004 [-.019, .012] | -.019 [-.038, .002] | -.005 [-.021, .011] | -.015 [-.032, .003] | |
| **Cognitive burden** |  |  |  |  |  |  | |
| Interest W2/W3 | .011 [-.012, .032] | .001 [-.022, .026] | .017 [-.004, .038] | .004 [-.021, .030] | .009 [-.013, .030] | .000 [-.022, .024] | |
| Knowledge | .004 [-.007, .016] | .010 [-.001, .021] | -.006 [-.015, .004] | -.001 [-.011, .010] | .001 [-.009, .012] | .008 [-.002, .018] | |
| **Opinion Climate** |  |  |  |  |  |  | |
| Prcvd Op Climate W2/W3 | -.020 [-.040, .000] | **-.022** [-.043, -.003]\* | **-.004** [-.005, -.003]\* | **-.002** [-.003, -.001]\* | **-.004** [-.005, -.002]\* | **-.002** [-.003, -.001]\* | |
| **Controls** |  |  |  |  |  |  | |
| Candidate pref W2/W3 | **.063** [.010, .116]\* | **-.062** [-.110, -.013]\* | **.333** [.284, .383]\* | **.189** [.126, .254]\* | **.110** [.054, .166]\* | .033 [-.021, .087] | |
| Ideo Strength W2/W3 | **-.044** [-.072, -.017]\* | **-.031** [-.059, -.004]\* | **-.052** [-.078, -.027]\* | **-.041** [-.070, -.012]\* | **-.038** [-.065, -.012]\* | -.025 [-.051, .000] | |
| Total Exp W1/W2 (log) | **-.072** [-.089, -.056]\* | **-.067** [-.080, -.053]\* | -.013 [-.029, .002] | -.015 [-.035, .006] | **-.073** [-.090, -.057]\* | **-.068** [-.081, -.055]\* | |
| Media Exposure | -.006 [-.019, .006] | -.008 [-.020, .003] | .004 [-.008, .016] | .000 [-.014, .015] | -.004 [-.017, .008] | -.007 [-.019, .005] | |
| **Demographics** |  |  |  |  |  |  | |
| Age (in years) | -.000 [-.003, .002] | -.001 [-.003, .002] | .001 [-.001, .003] | .002 [-.000, .004] | -.001 [-.003, .001] | -.000 [-.003, .002] | |
| Female | .021 [-.024, .065] | -.006 [-.050, .039] | .008 [-.034, .048] | -.011 [-.055, .034] | .030 [-.014, .071] | -.003 [-.045, .038] | |
| Education | -.009 [-.033, .017] | -.009 [-.033, .014] | -.010 [-.032, .011] | -.005 [-.025, .015] | -.011 [-.034, .013] | -.013 [-.036, .009] | |
| HH income | .008 [-.004, .020] | -.000 [-.011, .011] | .005 [-.006, .016] | -.006 [-.018, .005] | .007 [-.004, .019] | -.001 [-.011, .009] | |
| R2 | 0.251 | 0.348 | 0.398 | 0.184 | 0.307 | 0.348 | |
| Adj. R2 | 0.222 | 0.322 | 0.374 | 0.152 | 0.279 | 0.322 | |
| Num. obs. | 341 | 341 | 341 | 341 | 341 | 341 | |
| RMSE | 0.202 | 0.184 | 0.187 | 0.200 | 0.194 | 0.184 | |
| **Note**: \* = 0 outside the confidence interval based on 10,000 replications.  *Alt DV* = Alternative dependent variable only (using alternative behavioral benchmark). *Alt OP* = Alternative opinion climate variable only. *Alt ALL* = Alternative dependent variable *and* alternative opinion climate variable. | | | | | | |

**6. Using varying time windows in assessing correlations between behavioral benchmark and perceptual measurement of exposure to disagreement**

Here, we compare the zero-order correlations between behavioral benchmark measure and the perceptual measure of exposure to disagreement, with varying time windows within which the behavioral benchmark measure is calculated and aggregated, replicating our results reported in page 17 of the main manuscript (i.e., the comparison of zero-order correlations using entire 14-day time window vs. 3-day time window). Below Figures presents the remaining time windows (from the 14-days window to 1-day window), using cumulative proportions (Figure A3) and the mean of daily averages within the respective time window (Figure A4). Both of the figure essentially suggests that the retrospective recall accuracy is not affected by the shift of the time window within which concerned behaviors are referenced, providing the evidence against the H3.



**Figure A3.** Correlations between behavioral vs. perceptual meausrement of exposure to disagreement, with different time windows within which behavioral tracking data are aggregated (using cumulative proportions approach), from 14-day time window (i.e., between 14-day prior to the survey until the day before the survey) to 1-day time window.



**Figure A4.** Correlations between behavioral vs. perceptual meausrement of exposure to disagreement, with different time windows within which behavioral tracking data are aggregated (using mean of daily averages approach), from 14-day time window (i.e., between 14-day prior to the survey until the day before the survey) to 1-day time window.