Errata

On Coppock (2014), *Journal of Experimental Political Science* 1(2), and its 2016 corrigendum

This note lists twenty corrections and eight notes to "Information Spillovers: Another Look at Experimental Estimates of Legislator Responsiveness," published in *Journal of Experimental Political Science* 1(2):159–169, doi 10.1017/xps.2014.9, and its appendix.

The article's substantive correction is the 2016 corrigendum, *Journal of Experimental Political Science* 3(2):206–208, doi 10.1017/XPS.2016.8. A coding error in the ideological similarity matrix moved every estimate the article reports from Figures 2 and 3, and the corrigendum concludes that "there is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." This note carries that correction into the article's own text. Each number the corrected analysis changes is corrected; the corrigendum states the corrected Figure 2 estimates, and the Figure 3 estimates, the total causal effect, the appendix's Absolute Distance columns, and its Figure 5 come from the maintained code, which applies the same repair. Each sentence whose conclusion the corrigendum withdraws is reproduced as published and listed as a note, because correcting it would mean rewriting the argument rather than correcting the record.

The remaining corrections have other sources. Eight entries correct upper confidence bounds that sit one grid step too high (in one case, two), because the deposited code reports the first hypothesis outside each 95% region rather than the last one inside it; no conclusion the article draws from those bounds changes. Entry 1 is a count stated correctly once and misstated two sentences later. Entry 18 is a lower bound one grid step from the one the deposited code's own surface returns, for reasons not established. Entry 19 is an appendix column whose deposited script sets no random seed, so its published values are one draw that no one can reproduce.

The code supporting the maintained analysis, which reproduces both the article and the corrigendum, is at github.com/active-maintenance-aec/coppock_2014.

1. The number of possible random assignments is restated three orders of magnitude too large

Published, p. 162:

would map each of the **30 trillion** random assignments onto just two potential outcomes

Corrected:

would map each of the **34 billion** random assignments onto just two potential outcomes

Two sentences earlier, on p. 161, the article gives the same quantity as $2^{35} = 3.4 \times 10^{10}$, which the deposit confirms: 35 matched pairs, so 34,359,738,368 possible assignments. Thirty trillion is 3×10^{13}.

2. Figure 1's upper confidence bound is one grid step too high

Published, p. 165:

The 95% confidence region extends from −0.34 to **0.02**.

Corrected:

The 95% confidence region extends from −0.34 to **0.01**.

The deposited code reports as each region's upper bound the first hypothesis outside it rather than the last one inside it, so every upper bound it reports sits one step of the grid too high; the step is 0.01 here and 0.025 in every other figure. The lower bounds are correct. Zero lies inside the region on either reading, as the p-value of slightly more than 0.05 at zero says. Entries 9 and 11 to 22 correct the same rule in the appendix.

3. Figure 2's point estimates are those of the faulty similarity matrix

Published, p. 165:

The highest p-value point is (**−0.300, −0.225**), constituting the point estimates of direct and indirect effects.

Corrected:

The highest p-value point is (**−0.250, −0.150**), constituting the point estimates of direct and indirect effects.

The corrigendum, doi 10.1017/XPS.2016.8, traces the published estimates to a coding error: the ideological similarity matrix set every off-diagonal entry to one, as if all legislators were equally close to one another in ideological space. It reports the corrected pair as −0.250 for the direct effect and −0.150 for the indirect effect. The maintained code rebuilds the matrix from Equation (1) and returns the same pair. Figure 2 is regenerated from the corrected analysis.

4. The direct effect in percentage points follows Figure 2's estimate

Published, p. 165:

> Legislators who received treatment letters were **30** percentage points less likely to vote for the bill.

Corrected:

> Legislators who received treatment letters were **25** percentage points less likely to vote for the bill.

The corrected direct effect of -0.250 (entry 3), on the percentage point scale.

5. The indirect effect in percentage points follows Figure 2's estimate

Published, p. 165:

> Legislators who were exposed to a 1 standard deviation increase in second-hand exposure were **22.5** percentage points less likely to vote yea.

Corrected:

> Legislators who were exposed to a 1 standard deviation increase in second-hand exposure were **15** percentage points less likely to vote yea.

The corrected indirect effect of -0.150 (entry 3), on the percentage point scale.

6. Figure 3's lower-support point estimates carry two defects

Published, p. 166:

> Panel A presents a p-value map in the low-support districts. The highest p-value point is (**−0.550, −0.125**).

Corrected:

> Panel A presents a p-value map in the low-support districts. The highest p-value point is (**−0.425, −0.100**).

Figure 3 used the similarity matrix the corrigendum corrects (entry 3), and the corrigendum replaces the figure without stating its estimates. Separately, the deposited script for Figure 3 takes the estimate from the first two entries of the index of cells attaining the highest p-value, where the article describes the median over that plateau; the lower-support plateau of the published surface spans 77 cells. The corrected pair applies both repairs. Figure 3 is regenerated from the corrected analysis.

7. Figure 3's higher-support point estimates carry the same two defects

Published, p. 166:

> In Panel B, the highest p-value point is (**−0.175, −0.300**).

Corrected:

> In Panel B, the highest p-value point is (**−0.125, −0.225**).

The corrected similarity matrix and the median over the plateau of highest p-values, as in entry 6.

8. The total causal effect follows the corrected similarity matrix

Published, p. 167:

> The similarity network model estimates that in the absence of treatment, **61** legislators would have voted for the bill, whereas 51 actually did. The estimated total causal effect is therefore **10** votes.

Corrected:

> The similarity network model estimates that in the absence of treatment, **60** legislators would have voted for the bill, whereas 51 actually did. The estimated total causal effect is therefore **9** votes.

On the corrected model the uniformity trial sums to 59.64 yea votes, so the total causal effect is 8.64 votes; the article rounds to whole votes, and the published 61 and 10 are 61.46 and 10.46 on the uncorrected model. Entry 25 concerns the comparison the conclusion draws from these numbers.

9. Appendix Table 1's No Spillover upper bound is one grid step too high

Published, app. p. 5, Table 1:

> No Spillover, Direct Effect: [-0.34,**0.02**]

Corrected:

> No Spillover, Direct Effect: [-0.34,**0.01**]

The upper-edge rule of entry 2. The cell reports Figure 1, whose grid steps by 0.01.

10. Appendix Table 1's Absolute Distance column reports the faulty similarity matrix

Published, app. p. 5, Table 1:

> Absolute Distance: **Direct Effect −0.3, 95% CI −0.5 to −0.075; Indirect Effect −0.225, 95% CI −0.3 to −0.1**

Corrected:

> Absolute Distance: **Direct Effect −0.25, 95% CI −0.625 to 0.2 or higher; Indirect Effect −0.15, 95% CI −0.35 to 0.15**

The column reports Figure 2, which the corrigendum corrects (entry 3), and its upper bounds carry the rule of entry 2. The corrected direct region reaches 0.2, the top of the grid searched, so its upper bound is not identified below 0.2. Entry 21 explains why the corrigendum's own intervals differ from these. The column is regenerated from the corrected analysis.

11. Appendix Table 1's Rank Distance direct upper bound is one grid step too high

Published, app. p. 5, Table 1:

> Rank Distance, Direct Effect: [-0.45,**0.1**]

Corrected:

> Rank Distance, Direct Effect: [-0.45,**0.075**]

The upper-edge rule of entry 2.

12. Appendix Table 1's Rank Distance indirect upper bound is two grid steps too high

Published, app. p. 5, Table 1:

> Rank Distance, Indirect Effect: [-0.325,**0.175**]

Corrected:

> Rank Distance, Indirect Effect: [-0.325,**0.125**]

One step is the upper-edge rule of entry 2. The other is unexplained: the maintained code reproduces the deposited p-value surface for Appendix Figure 2 cell for cell, and the deposited rule applied to that surface returns 0.15.

13. Appendix Table 1's Squared Distance direct upper bound is one grid step too high

Published, app. p. 5, Table 1:

> Squared Distance, Direct Effect: [-0.525,**0.325**]

Corrected:

> Squared Distance, Direct Effect: [-0.525,**0.3**]

The upper-edge rule of entry 2.

14. Appendix Table 1's Squared Distance indirect upper bound is one grid step too high

Published, app. p. 5, Table 1:

> Squared Distance, Indirect Effect: [-0.35,**0.525**]

Corrected:

> Squared Distance, Indirect Effect: [-0.35,**0.5**]

The upper-edge rule of entry 2.

15. Appendix Table 2's higher-support No Spillover upper bound is one grid step too high

Published, app. p. 5, Table 2:

> No Spillover, Direct Effect – High Support: [-0.225,**0.35**]

Corrected:

> No Spillover, Direct Effect – High Support: [-0.225,**0.325**]

The upper-edge rule of entry 2.

16. Appendix Table 2's lower-support No Spillover upper bound is one grid step too high

Published, app. p. 5, Table 2:

> No Spillover, Direct Effect – Low Support: [-0.675,**-0.05**]

Corrected:

> No Spillover, Direct Effect – Low Support: [-0.675,**-0.075**]

The upper-edge rule of entry 2. The region excludes zero on either reading.

17. Appendix Table 2's Absolute Distance column reports the faulty similarity matrix

Published, app. p. 5, Table 2:

> Absolute Distance: **Direct Effect – High Support −0.175, 95% CI −0.45 to 0.075; Indirect Effect – High Support −0.3, 95% CI −0.425 to −0.175; Direct Effect – Low Support −0.55, 95% CI −0.825 to −0.125; Indirect Effect – Low Support −0.125, 95% CI −0.325 to 0**

Corrected:

> Absolute Distance: **Direct Effect – High Support −0.125, 95% CI −0.65 to 0.2 or higher; Indirect Effect – High Support −0.225, 95% CI −0.45 to 0.2 or higher; Direct Effect – Low Support −0.425, 95% CI −0.775 to 0.025; Indirect Effect – Low Support −0.1, 95% CI −0.325 to 0.125**

The column reports Figure 3 and carries the corrections of entries 6 and 7 and the upper-edge rule of entry 2. Two higher-support regions reach 0.2, the top of the grid searched, so their upper bounds are not identified below 0.2. Two published lower bounds, −0.45 and −0.825, also differ from what the deposited code returns on the uncorrected surface (−0.4 and −0.8), for reasons not established. The column is regenerated from the corrected analysis.

18. Appendix Table 1's Squared Distance indirect lower bound is one grid step too low

Published, app. p. 5, Table 1:

> Squared Distance, Indirect Effect: 95% CI **—0.35** to 0.525

Corrected:

> Squared Distance, Indirect Effect: 95% CI **—0.325** to 0.525

The step is unexplained: the maintained code reproduces the deposited p-value surface for Appendix Figure 3 cell for cell, and that surface puts the lowest point inside the region at −0.325. Entry 14 corrects the upper bound of the same interval.

19. Appendix Table 1's Geographic Contiguity column reports one unseeded draw

Published, app. p. 5, Table 1:

> Geographic Contiguity: Direct Effect −0.15, 95% CI **−0.38** to 0.08; Indirect Effect **−0.025**, 95% CI −0.095 to 0.145

Corrected:

> Geographic Contiguity: Direct Effect −0.15, 95% CI **−0.37** to 0.08; Indirect Effect **0.025**, 95% CI −0.095 to 0.145

The column reports Appendix Figure 4, and the deposited script for that figure is the only one in the deposit that sets no random seed, so the published column is one draw that cannot be reproduced. The corrected values come from the maintained code with a fixed seed. The indirect estimate falls on either side of zero across draws, so its sign is not identified. Appendix Figure 4 is regenerated from the seeded analysis.

20. The abstract reports the spillovers the 2016 corrigendum withdraws

Published, p. 159, abstract:

> Working within the analytic framework proposed by Bowers et al. (2013), **I find evidence of spillovers**, and present estimates of direct and indirect treatment effects. **The total causal effect of the experimental intervention appears to be twice as large as reported originally.**

The corrigendum withdraws both claims: "There is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." On the corrected analysis the total causal effect is 9 votes (entry 8) against the 5.6 the difference in means implies, about one and a half times as large, and the part of it beyond the direct effect rests on indirect effects whose confidence regions include zero. The abstract is reproduced as published.

21. Figure 2's confidence regions cross zero once the similarity matrix is corrected

Published, p. 165:

> **The 95% confidence region does not cross zero for either the direct or indirect effect, indicating that these results are statistically significant. These results provide evidence that legislators whose close colleagues received treatment were less likely to vote for the bill.**

On the corrected surface the direct effect's region runs from -0.625 to the top of the grid searched, 0.2, and the indirect effect's from -0.350 to 0.150, so both cross zero. The corrigendum withdraws the inference the second sentence draws: "There is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." It prints the corrected regions as $[-0.625, 0.175]$ and $[-0.325, 0.200]$. The upper bounds differ by the rule entry 2 describes, which the note on the corrigendum corrects in its own entry 1, and the indirect lower bound by one grid step because the maintained code draws assignments with R's current sampler; under the sampler of 2016 it returns the corrigendum's bound. The passage is reproduced as published.

22. Figure 3's lower-support effects are not distinguishable from zero once corrected

Published, p. 166:

> The direct effect estimate in low-support districts is, as above, **highly statistically significant: no hypotheses in which the proposed value for the direct effect is above zero receive positive probability. The indirect effect appears to be statistically significant as well**—the 95% confidence region extends up to, but not across, the zero line.

On the corrected surface the direct effect's region runs from -0.775 to 0.025, and the highest p-value at a positive direct effect is 0.068; the indirect effect's region runs from -0.325 to 0.125. Neither effect is distinguishable from zero at the 0.05 level the regions use. The corrigendum withdraws the claim about the indirect effect: "There is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." The passage is reproduced as published.

23. Figure 3's higher-support indirect effect is not bounded away from zero once corrected

Published, p. 166:

> The indirect effect, however, is **strongly negative and the 95% confidence region is bounded away from zero**.

On the corrected surface the indirect effect's region runs from −0.450 to the top of the grid searched, 0.2, so it includes zero. The corrigendum withdraws the claim: "There is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." The sentence is reproduced as published.

24. The conclusion reports the spillovers the corrigendum withdraws

Published, pp. 166–167:

> **Strongly suggestive evidence of spillover was uncovered** using a measure of ideological similarity of legislators.

The corrigendum withdraws the finding the sentence reports: "There is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." The sentence is reproduced as published, as are the passages it summarizes (entries 21, 22, and 23).

25. The total causal effect has not nearly doubled

Published, p. 168:

> The bottom line for the substantive results of the Butler and Nickerson (2011) experiment has not changed—if anything, **the magnitude of the total causal effect has nearly doubled**.

The corrected total causal effect is 9 votes (entry 8) against the 5.6 the difference in means implies, about one and a half times as large, and the comparison rests on the indirect effects the corrigendum withdraws: "There is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." The sentence is reproduced as published.

26. The appendix reads the Rank Distance model as agreeing with the spillovers the corrigendum withdraws

Published, app. p. 2:

> The substantive findings when using this measure are similar to those reported in the main analysis: **both direct and indirect exposure to information appear to decrease the probability of voting for SB24**.

The Rank Distance model does not use the faulty matrix, and its indirect region includes zero as published and as corrected (entry 12). The main analysis the sentence compares it with is the one the corrigendum withdraws: "There is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." The sentence is reproduced as published.

27. The appendix reports that Figure 5 agrees with the Figure 3 the corrigendum withdraws

Published, app. p. 4:

> Nevertheless, as can been seen by a comparison of Figure 5 below and Figure 3 in the main paper, **the substantive results are the same**.

Both figures are regenerated from the corrected analysis (entries 6, 7, and 28). The corrigendum withdraws the finding the two figures were read as sharing: "There is insufficient statistical evidence to conclude that indirect exposure to information altered legislator behavior." The sentence is reproduced as published.

28. Appendix Figure 5 maps the faulty similarity matrix

Published, app. p. 4, Figure 5:

> **both panels of Figure 5**

Corrected:

> **the same maps on the corrected similarity matrix**

Figure 5 generalizes Figure 3 to four parameters and uses the similarity matrix the corrigendum corrects (entry 3). On the corrected surfaces the 95% region for the indirect effect includes zero among lower-support districts (-0.1, from -0.4 to 0.3) and among higher-support districts (-0.2, from -0.5 to 0.3). Figure 5 is regenerated from the corrected analysis.