Appendix 1 to
"Would I Lie To You?
On Social Preferences and Lying Aversion"

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This Appendix give details of the calculations performed in Section 3 of the paper.

Conditional probabilities. Formally, let p_i denote the probability that a subject in treatment i who actually prefers B_i over A_i will choose to lie. Assume that persons who have no incentive to lie will not do so. Finally, assume that the probability q_i of having an incentive to lie in treatment i is exactly equal to the estimate given by the data of the dictator games. Hence, $q_1 = 0.66$, $q_2 = 0.42$, $q_3 = 0.9$. Let $\bar{X}_i$ denote the frequency of subjects lying in the deception game in treatment i. Below, we use Φ to denote the cdf of a standard Normal (mean 0, variance 1) distribution.

For the comparison of treatment 2 versus 3, note that under the null hypothesis of equal conditional proportions, we have $p_2 = p_3 = \hat{p}_{23} = (13 + 39)/(75q_2 + 75q_3) = 52/99 \approx 0.525$. Under the null hypothesis, $\bar{X}_3 - \bar{X}_2$ would be approximately Normal with mean $\hat{p}_{23}(q_3 - q_2) = 0.252$ and variance $[\hat{p}_{23}q_3(1 - \hat{p}_{23}q_3) + \hat{p}_{23}q_2(1 - \hat{p}_{23}q_2)]/75 = 0.0056159$. Hence, $P(\bar{X}_3 - \bar{X}_2 > 26/75) \approx 1 - \Phi((0.347 - 0.252)/\sqrt{0.0056159}) = 1 - \Phi(1.263) = 0.104$. The p-value equals 0.104 and one cannot reject the null hypothesis at the ten percent level.

Treatment 1 versus 2: $\hat{p}_{12} = (27+13)/(75q_1+75q_2) = 40/81 \approx 0.494$. Under the null hypothesis, $\bar{X}_1 - \bar{X}_2$ would be approximately Normal with mean $\hat{p}_{12}(q_1 - q_2) = 16/135 = 0.118$ and variance $[\hat{p}_{12}q_1(1-\hat{p}_{12}q_1)+\hat{p}_{12}q_2(1-\hat{p}_{12}q_2)]/75 = 0.00512117$. Hence, $P(\bar{X}_1-\bar{X}_2 > 14/75) \approx 1-\Phi((0.186-0.118)/\sqrt{0.00512117}) = 1 - \Phi(0.950) = 0.170$. The p-value equals 0.170 and one cannot reject the null hypothesis at the ten percent level.

Treatment 1 versus 3: $\hat{p}_{13} = (27 + 39)/(75q_1 + 75q_3) = 22/39 \approx 0.564$. Under the null hypothesis, $\bar{X}_3 - \bar{X}_1$ would be approximately Normal with mean $\hat{p}_{13}(q_3 - q_1) = 0.135$ and variance $[\hat{p}_{13}q_1(1 - \hat{p}_{13}q_1) + \hat{p}_{13}q_3(1 - \hat{p}_{13}q_3)]/75 = 0.00644847$. Hence, $P(\bar{X}_3 - \bar{X}_1 > 12/75) \approx 1 - \Phi((0.16 - 0.135)/\sqrt{0.00644847}) = 1 - \Phi(0.311) = 0.380$. The p-value equals 0.380 and one cannot reject the null hypothesis at the ten percent level.

Difference in difference regression.
For the comparison of Treatments 1 and 2, we run a linear regression of the form

$$Y = a + b\ \mathrm{DEC} + c\ \mathrm{TR2} + d\ \mathrm{DEC{*}TR2},$$

where Y denotes the fraction of lies (in the deception game) or selfish B choices (in the dictator game), a is a constant, DEC is a dummy variable taking value 1 in case of the deception game, and $TR2$ is a dummy variable taking value 1 in case of Treatment 2.

The following table reports the result of this regression; the important point being that the coefficient on $DEC * TR2$ is not significant (even at a 60 percent level):

Variable	Coefficient	Standard error	t	$P > \|t\|$
Constant	+0.660	0.065	+10.21	0.000
DEC	−0.300	0.083	−3.59	0.000
TR2	−0.240	0.091	−2.62	0.009
DEC*TR2	+0.053	0.118	+0.45	0.652

For the comparison of Treatments 2 and 3, we run a linear regression of the form

$$Y = a + b\ \mathrm{DEC} + c\ \mathrm{TR3} + d\ \mathrm{DEC^{*}TR3},$$

where Y denotes the fraction of lies (in the deception game) or selfish B choices (in the dictator game), a is a constant, DEC is a dummy variable taking value 1 in case of the deception game, and $TR3$ is a dummy variable taking value 1 in case of Treatment 3.

The following table reports the result of this regression; the important point being that the coefficient on $DEC * TR3$ is not significant (even at a 20 percent level):

Variable	Coefficient	Standard error	t	$P > \|t\|$
Constant	+0.420	0.060	+6.86	0.000
DEC	−0.247	0.079	−3.12	0.002
TR3	+0.480	0.087	+5.54	0.000
DEC*TR3	−0.133	0.112	−1.19	0.234