Appendix

Reciprocity through ratings:
An experimental study of bias in evaluations

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A Theory Appendix

To characterize rater behavior we need only compare utilities when $r = G$ versus $r = \emptyset$ and when $r = B$ versus $r = \emptyset$. To see this, observe first that the requirement for a rater to give a positive rating rather than a negative rating is

$$\alpha(a) \cdot \pi + \beta \cdot q - c > \alpha(a) \cdot 0 + \beta \cdot E(k) - c$$

Or equivalently

$$\alpha(a) \cdot \pi + \beta \cdot (q - E(k)) > 0 \quad (1)$$

Compare this to the condition for giving a positive rating rather than no rating:

$$\alpha(a) \cdot \pi + \beta(q - E(k)) > 2c \quad (2)$$

The sum of the rater’s concern for seller and concern for the buyer must simply be positive in the first case, but must larger than $2c$ in the second case. In other words, equation 2 implies equation 1. This means that, as the rater’s utility (the sum of the $\alpha$ and $\beta$ terms) falls, the condition to switch to $r = \emptyset$ will always bind before the condition to switch to $r = B$. Thus to understand when the rater will give $r = G$ we need only consider $r = G$ versus $r = \emptyset$.

A nearly identical argument shows that, as the sum of the $\alpha$ and $\beta$ terms rises, the condition for the rater to switch from $r = B$ to $r = \emptyset$ will always bind before the condition for switching from $r = B$ to $r = G$.

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B  Additional Regressions

TABLE A1: Amount transferred by seller, restricted by treatment.

|        | (1) Tobit Free | (2) OLS Free | (3) Tobit Costly | (4) OLS Costly |
|--------|----------------|--------------|------------------|----------------|
| Quality| 0.130          | 0.117        | 0.220**          | 0.206**        |
|        | (0.118)        | (0.106)      | (0.100)          | (0.0886)       |
| Female | -3.308***      | -3.023***    | 0.438            | 0.233          |
|        | (1.065)        | (0.948)      | (0.836)          | (0.729)        |
| Age    | -0.198         | -0.187       | -0.0841          | -0.0616        |
|        | (0.314)        | (0.284)      | (0.245)          | (0.209)        |
| Constant| 10.88*        |              | 4.632            |               |
|        | (5.447)        |              | (4.339)          |               |
| N      | 45             | 45           | 87               | 87             |
| Adjusted $R^2$ | 0.160 |          | 0.0303           |               |

Standard errors in parentheses
Censoring at 0: 5 (Free) and 13 (Costly), Censoring at 16: n = 1 (Costly).
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
|                                | (1) OLS | (2) Probit | (3) OLS | (4) Probit |
|--------------------------------|---------|------------|---------|------------|
| Cost                           | -0.0457 | -0.0442    | -0.0549 | -0.0528    |
|                                | (0.104) | (0.101)    | (0.0600) | (0.0615)   |
| Female                         | 0.142   | 0.141*     | 0.0258  | -0.00212   |
|                                | (0.0891)| (0.0848)   | (0.0610) | (0.0493)   |
| Age                            | 0.0177  | 0.0205     | 0.0316  | 0.0280*    |
|                                | (0.0136)| (0.0186)   | (0.0204) | (0.0161)   |
| Received Any Rating ($r \neq \emptyset$) | -0.0343 | -0.0347    |         |            |
|                                | (0.0987)| (0.0961)   |         |            |
| Positive Rating ($r = G|r \neq \emptyset$) |         |            | 0.861***| 0.444***   |
|                                |         |            | (0.0566)| (0.0692)   |
| Constant                       | 0.101   | -0.590     |         |            |
|                                | (0.305) | (0.427)    |         |            |
| Adjusted $R^2$                 | 0.702   |            |         |            |

$N$ 132 132 74 74

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
TABLE A3: Rating type estimated by ordered probit without interaction terms.

|         | (1)  | (2)  | (3)  | (4)  |
|---------|------|------|------|------|
|         | Coefficients | Do not Choose | No Rating | Choose |
| Cost    | 0.241 | -0.0708 | -0.000892 | 0.0717 |
|         | (0.248) | (0.0738) | (0.00713) | (0.0721) |
| Quality | 0.0419 | -0.0123* | -0.000155 | 0.0125* |
|         | (0.0261) | (0.00747) | (0.00130) | (0.00759) |
| Transfer| 0.139*** | -0.0410*** | -0.000516 | 0.0415*** |
|         | (0.0325) | (0.00837) | (0.00429) | (0.00857) |
| Female  | 0.00507 | -0.00149 | -0.0000188 | 0.00151 |
|         | (0.200) | (0.0588) | (0.000712) | (0.0595) |
| Age     | 0.00815 | -0.00240 | -0.0000302 | 0.00243 |
|         | (0.0651) | (0.0192) | (0.000348) | (0.0194) |
| Cutoff 1| 0.807 | | | |
|         | (1.441) | | | |
| Cutoff 2| 2.131 | | | |
|         | (1.450) | | | |
| N       | 132   | 132   | 132   | 132   |

Standard errors in parentheses

*p < 0.10, **p < 0.05, ***p < 0.01
|            | (1)       | (2)       | (3)       | (4)       |
|------------|-----------|-----------|-----------|-----------|
| Cost       | 1.047     | -0.302    | -0.00956  | 0.311     |
|            | (0.990)   | (0.272)   | (0.0317)  | (0.281)   |
| Quality    | 0.0451    | -0.0130   | -0.000412 | 0.0134    |
|            | (0.0559)  | (0.0158)  | (0.00138) | (0.0162)  |
| Transfer   | 0.229**   | -0.0660***| -0.00209  | 0.0681*** |
|            | (0.0935)  | (0.0232)  | (0.00683) | (0.0249)  |
| Female     | 0.0293    | -0.00845  | -0.000268 | 0.00872   |
|            | (0.200)   | (0.0577)  | (0.00175) | (0.0593)  |
| Age        | 0.0215    | -0.00620  | -0.000197 | 0.00640   |
|            | (0.0644)  | (0.0185)  | (0.000874)| (0.0191)  |
| Quality×Cost| 0.000296  | -0.0000852| -0.0000270| 0.0000879 |
|            | (0.0596)  | (0.0172)  | (0.000546)| (0.0177)  |
| Amount Received×Cost | -0.127 | 0.0365 | 0.00116 | -0.0376 |
|            | (0.0973)  | (0.0261)  | (0.00391) | (0.0275)  |
| Cutoff 1   | 1.733     |           |           |           |
|            | (1.884)   |           |           |           |
| Cutoff 2   | 3.062     |           |           |           |
|            | (1.925)   |           |           |           |
| N          | 132       | 132       | 132       | 132       |

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$