APPENDIX

Table A.: Median and Confidence Intervals of Parameter Estimates in the Joint RP-SP Logit Model (when λ is fixed at -1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| True | True | True | Median Use  Quality | Median Non-use  Quality | Median Scaling Factor |
| 0.2 | 0.05 | 2 | 0.2086  [0.1873,0.2318] | 0.0328  [-0.0138,0.0717] | 2.1099  [2.0056,2.2218] |
| 0.2 | 0.1 | 2 | 0.2101  [0.1895,0.2332] | 0.0791  [0.0335, 0.1200] | 2.0231  [1.9238, 2.1390] |
| 0.2 | 0.2 | 2 | 0.1845  [0.1621, 0.2105] | 0.0898  [0.0363, 0.2010] | 1.8579  [1.7242, 1.9908] |
| 0.2 | 0.3 | 2 | 0.1712  [0.1445, 0.2005] | 0.1957  [0.1064, 0.3073] | 1.8516  [1.6938, 2.0196] |
| 0.2 | 0.4 | 2 | 0.1685  [0.1326, 0.2020] | 0.3975  [0.1926, 0.5972] | 1.8934  [1.6979, 2.1245] |

\* All runs with sample set at N=2,000 using R=1,000 replications with 90% confidence intervals in brackets

\* True is -0.02 for all cases and well estimated throughout different parameter specification.

\* True λ is -1 for all cases.

\* A full set of site alternative specific constants (ASCs) for 38 sites were included in the joint RP-SP logit model.

Table A.: Bias of Structural Estimators (when λ is fixed at -1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| True | True | True | Bias ( | Bias () | Bias () |
| 0.2 | 0.05 | 2 | 0.01 | -0.02 | 0.11 |
| 0.2 | 0.1 | 2 | 0.01 | -0.02 | 0.02 |
| 0.2 | 0.2 | 2 | -0.02 | -0.11 | -0.14 |
| 0.2 | 0.3 | 2 | -0.03 | -0.10 | -0.15 |
| 0.2 | 0.4 | 2 | -0.03 | 0.00 | -0.11 |

Table A.:Median and Confidence Intervals of Parameter Estimates in the Joint RP-SP Logit Model (when λ is estimated and equal to -1)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| True | True | True | Median Use  Quality | Median Non-use  Quality | Median Scaling Factor | Distance Decay |
| 0.2 | 0.05 | 2 | 0.1866  [0.1623, 0.2275] | 0.0058  [-0.2182, 0.0508] | 2.0553  [1.9320, 2.1751] | -0.5281  [-0.4654, 0.1706] |
| 0.2 | 0.1 | 2 | 0.1909  [0.1694, 0.2253] | 0.0259  [0.0016, 0.1001] | 1.9647  [1.8480, 2.0866] | -0.6470  [-0.9882, -0.7268] |
| 0.2 | 0.2 | 2 | 0.1845  [0.1620, 0.2105] | 0.0899  [0.0361, 0.2010] | 1.8579  [1.7348, 1.9906] | -0.7968  [-0.9530, -0.4572] |
| 0.2 | 0.3 | 2 | 0.1713  [0.1444, 0.2005] | 0.1956  [0.1063, 0.3073] | 1.8524  [1.6936, 2.0196] | -0.8736  [-0.9775, -0.8903] |
| 0.2 | 0.4 | 2 | 0.1685  [0.1326, 0.2020] | 0.3975  [0.1928, 0.5975] | 1.8935  [1.6979, 2.1250] | -0.9585  [-1.0939, -0.8677] |

\* All runs with sample set at N=2,000 using R=1,000 replications with 90% confidence intervals in brackets

\* True is -0.02 for all cases and well estimated throughout different parameter specification.

\* True λ is -1 for all cases.

Table A.: Bias of Structural Estimators (when λ is estimated and equal to -1)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| True | True | True | Bias ( | Bias () | Bias () | Bias () |
| 0.2 | 0.05 | 2 | -0.01 | -0.04 | 0.06 | 0.47 |
| 0.2 | 0.1 | 2 | -0.01 | -0.07 | -0.04 | 0.36 |
| 0.2 | 0.2 | 2 | -0.02 | -0.11 | -0.14 | 0.20 |
| 0.2 | 0.3 | 2 | -0.03 | -0.10 | -0.15 | 0.13 |
| 0.2 | 0.4 | 2 | -0.03 | 0.00 | -0.11 | 0.04 |

Table A.: Median Use, Non-use, and Total WTP Estimates and   
Median Ratio of Non-use WTP to Total WTP ($’s) (when λ is fixed at -1)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| True | True | True | True | Median Use  WTP ($) | Median Non-use  WTP ($) | Median Total WTP ($) | Median Ratio (Non-use /Total) |
| 0.2 | 0.05 | 2 | -1 | 29.7  [0.0, 49.6]  (10.8, 40.5) | 5.9  [0.9, 14.2]  (3.6, 8.8) | 35.5  [1.1, 57.8]  (15.7, 48.3) | 0.17 |
| 0.2 | 0.1 | 2 | -1 | 29.7  [0.0, 49.6]  (10.8, 40.5) | 11.8  [1.8, 28.5]  (7.3, 17.6) | 41.4  [2.2, 72.0]  (20.2, 56.2) | 0.28 |
| 0.2 | 0.2 | 2 | -1 | 29.7  [0.0, 49.6]  (10.8, 40.5) | 23.7  [3.7, 57.0]  (14.6, 28.8) | 53.2  [4.1, 101.3]  (28.8, 72.9) | 0.44 |
| 0.2 | 0.3 | 2 | -1 | 29.7  [0.0, 49.6]  (10.8, 40.5) | 35.5  [5.5, 85.4]  (21.8, 52.7) | 65.0  [5.9, 130.6]  (36.7, 89.9) | 0.55 |
| 0.2 | 0.4 | 2 | -1 | 29.7  [0.0, 49.6]  (10.8, 40.5) | 47.3  [7.3, 113.9]  (29.1, 70.2) | 77.7  [7.4, 159.9]  (45.8, 107.5) | 0.61 |

\*N=2000, R=1000. Minimum and maximum values of WTP are reported in the square bracket to capture the variability among the simulated people since each person in the simulation had a random draw of the change in quality. 90% confidence interval in the round bracket. Also note that the WTP estimates were calculated based on true values of parameters in the joint RP-SP models.

Table A.: Median Use, Non-use, and Total WTP Estimates and   
Median Ratio of Non-use WTP to Total WTP ($’s) (when λ is estimated and equal to -1)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| True | True | True | True | Median Use  WTP ($) | Median Non-use  WTP ($) | Median Total WTP ($) | Median Ratio (Non-use /Total) |
| 0.2 | 0.05 | 2 | -1 | 31.5  [0.0, 53.3]  (11.8, 43.2) | 3.9  [0.6, 9.7]  (2.4, 5.7) | 35.4  [1.1, 57.8]  (15.7, 48.3) | 0.11 |
| 0.2 | 0.1 | 2 | -1 | 31.8  [0.0, 53.8]  (31.8, 43.7) | 9.4  [1.4, 23.5]  (5.7, 13.9) | 41.2  [1.8, 69.2]  (19.3, 56.1) | 0.23 |
| 0.2 | 0.2 | 2 | -1 | 27.0  [0.0, 46.6]  (10.0, 37.4) | 24.6  [3.6, 61.4]  (14.9, 36.3) | 51.9  [4.0, 97.8]  (29.0, 70.6) | 0.47 |
| 0.2 | 0.3 | 2 | -1 | 27.0  [0.0, 46.6]  (10.0, 37.4) | 36.1  [5.3, 90.2]  (21.8, 53.2) | 63.6  [5.7, 126.1]  (37.8, 87.3) | 0.57 |
| 0.2 | 0.4 | 2 | -1 | 25.88  [0.0, 44.8]  (9.6, 35.9) | 75.3  [11.0, 188.2]  (45.6, 111.1) | 101.3  [11.5, 219.3]  (64.0, 141.4) | 0.74 |

\*N=2000, R=1000. Minimum and maximum values of WTP are reported in the square bracket to capture the variability among the simulated people since each person in the simulation had a random draw of the change in quality. 90% confidence interval in the round bracket. Note that the WTP estimates were calculated based on median values of parameter estimates in the joint RP-SP models, which mutes the underlying variation that would be seen if I calculate WTP for each of the 2000 people for the 1000 runs (authors can provide this if desired).