Table. Relative bias and variance difference between GBIT and MLE for conditional LGM parameters

|  | | **0.05-0.95** | | | **0.1-0.9** | | | **0.2-0.8** | | | **0.3-0.7** | | | **0.4-0.6** | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **rBias** | | **sdD** | **rBias** | | **sdD** | **rBias** | | **sdD** | **rBias** | | **sdD** | **rBias** | | **sdD** |
| **type** | **N** | **ML** | **GBIT** | **.** | **ML** | **GBIT** | **.** | **ML** | **GBIT** | **.** | **ML** | **GBIT** | **.** | **ML** | **GBIT** | **.** |
| **I~x1.cov** | **200** | 0.071 | -0.003 | **0.004** | 0.107 | -0.002 | **0.008** | 0.026 | -0.017 | **0.022** | -0.203 | -0.051 | **0.053** | -0.543 | -0.129 | **0.118** |
| **500** | 0.071 | -0.001 | **0.001** | 0.105 | 0.000 | **0.003** | 0.020 | -0.009 | **0.010** | -0.209 | -0.024 | **0.027** | -0.541 | -0.059 | **0.063** |
| **1,000** | 0.074 | 0.001 | **0.001** | 0.103 | -0.001 | **0.001** | 0.018 | -0.004 | **0.006** | -0.210 | -0.013 | **0.018** | -0.540 | -0.030 | **0.041** |
| **2,000** | 0.071 | -0.001 | **0.000** | 0.103 | 0.000 | **0.001** | 0.018 | -0.001 | **0.005** | -0.211 | -0.006 | **0.013** | -0.539 | -0.015 | **0.027** |
| **S~x1.cov** | **200** | -0.236 | 0.002 | **0.015** | -0.440 | -0.001 | **0.028** | -0.724 | -0.018 | **0.055** | -0.888 | -0.049 | **0.082** | -0.974 | -0.140 | **0.123** |
| **500** | -0.238 | 0.000 | **0.008** | -0.441 | -0.001 | **0.017** | -0.724 | -0.009 | **0.033** | -0.887 | -0.020 | **0.047** | -0.976 | -0.062 | **0.073** |
| **1,000** | -0.237 | 0.000 | **0.006** | -0.441 | 0.000 | **0.012** | -0.723 | -0.005 | **0.022** | -0.887 | -0.009 | **0.032** | -0.977 | -0.035 | **0.047** |
| **2,000** | -0.237 | 0.000 | **0.004** | -0.441 | 0.000 | **0.008** | -0.723 | -0.002 | **0.016** | -0.887 | -0.006 | **0.023** | -0.977 | -0.016 | **0.033** |
| **z1~I.cov** | **200** | 0.055 | 0.001 | **-0.013** | 0.118 | 0.001 | **-0.038** | 0.202 | 0.001 | **-0.138** | 0.139 | 0.000 | **-0.215** | 0.053 | 0.002 | **-0.197** |
| **500** | 0.052 | 0.001 | **-0.008** | 0.110 | 0.000 | **-0.020** | 0.169 | -0.001 | **-0.057** | 0.080 | 0.000 | **-0.079** | 0.062 | 0.001 | **-0.183** |
| **1,000** | 0.050 | 0.000 | **-0.005** | 0.109 | 0.001 | **-0.014** | 0.160 | 0.000 | **-0.034** | 0.059 | -0.001 | **-0.037** | 0.037 | 0.000 | **-0.129** |
| **2,000** | 0.050 | 0.000 | **-0.004** | 0.106 | 0.000 | **-0.009** | 0.157 | 0.000 | **-0.023** | 0.054 | 0.000 | **-0.022** | 0.025 | 0.000 | **-0.091** |
| **z1~S.cov** | **200** | 0.553 | 0.005 | **-0.080** | 1.378 | 0.001 | **-0.267** | 3.874 | 0.000 | **-1.391** | 6.977 | -0.008 | **-3.975** | 15.308 | 0.034 | **-10.402** |
| **500** | 0.537 | 0.004 | **-0.050** | 1.320 | 0.000 | **-0.146** | 3.492 | 0.000 | **-0.626** | 5.643 | -0.002 | **-1.594** | 15.634 | 0.015 | **-8.017** |
| **1,000** | 0.525 | -0.001 | **-0.034** | 1.310 | 0.001 | **-0.100** | 3.360 | 0.000 | **-0.381** | 5.180 | -0.005 | **-0.815** | 14.264 | 0.006 | **-5.473** |
| **2,000** | 0.522 | 0.000 | **-0.024** | 1.292 | -0.001 | **-0.070** | 3.324 | -0.001 | **-0.259** | 5.065 | 0.001 | **-0.509** | 13.619 | 0.003 | **-3.859** |
| Note. N: sample size; GBIT: generalized tobit estimator; ML: ML estimator with censored data; Number of timepoints and ICC were averaged | | | | | | | | | | | | | | | | |

Table. Relative bias and variance difference between GBIT and MLE for unconditional LGM parameters

|  | | **0.05-0.95** | | | **0.1-0.9** | | | **0.2-0.8** | | | **0.3-0.7** | | | **0.4-0.6** | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **rBias** | | **sdD** | **rBias** | | **sdD** | **rBias** | | **sdD** | **rBias** | | **sdD** | **rBias** | | **sdD** |
| **type** | **N** | **ML** | **GBIT** | **.** | **ML** | **GBIT** | **.** | **ML** | **GBIT** | **.** | **ML** | **GBIT** | **.** | **ML** | **GBIT** | **.** |
| **I~1** | **200** | 0.000 | 0.000 | **0.000** | 0.003 | 0.000 | **-0.002** | 0.037 | -0.001 | **-0.006** | 0.108 | -0.003 | **-0.011** | 0.192 | -0.005 | **-0.021** |
| **500** | 0.000 | 0.000 | **0.000** | 0.003 | 0.000 | **-0.001** | 0.038 | 0.000 | **-0.004** | 0.111 | -0.001 | **-0.009** | 0.192 | -0.003 | **-0.015** |
| **1,000** | 0.001 | 0.000 | **-0.001** | 0.004 | 0.000 | **-0.001** | 0.038 | 0.000 | **-0.003** | 0.110 | -0.001 | **-0.007** | 0.192 | -0.001 | **-0.011** |
| **2,000** | 0.000 | 0.000 | **0.000** | 0.004 | 0.000 | **-0.001** | 0.038 | 0.000 | **-0.002** | 0.110 | 0.000 | **-0.005** | 0.192 | -0.001 | **-0.009** |
| **S~1** | **200** | -0.036 | -0.001 | **0.001** | -0.118 | -0.005 | **0.007** | -0.344 | -0.007 | **0.026** | -0.592 | -0.023 | **0.050** | -0.812 | -0.055 | **0.081** |
| **500** | -0.034 | 0.002 | **0.001** | -0.115 | -0.001 | **0.004** | -0.344 | -0.007 | **0.016** | -0.588 | -0.005 | **0.031** | -0.812 | -0.025 | **0.049** |
| **1,000** | -0.034 | 0.000 | **0.000** | -0.114 | 0.000 | **0.003** | -0.340 | 0.001 | **0.011** | -0.590 | -0.004 | **0.022** | -0.811 | -0.015 | **0.034** |
| **2,000** | -0.034 | 0.001 | **0.000** | -0.114 | 0.000 | **0.002** | -0.342 | -0.001 | **0.008** | -0.590 | -0.002 | **0.015** | -0.811 | -0.007 | **0.024** |
| **I~~I** | **200** | 0.050 | -0.027 | **0.009** | 0.059 | -0.033 | **0.027** | -0.126 | -0.057 | **0.092** | -0.486 | -0.084 | **0.208** | -0.847 | -0.142 | **0.389** |
| **500** | 0.063 | -0.012 | **0.006** | 0.069 | -0.015 | **0.017** | -0.115 | -0.024 | **0.060** | -0.484 | -0.042 | **0.134** | -0.847 | -0.071 | **0.252** |
| **1,000** | 0.068 | -0.005 | **0.005** | 0.070 | -0.011 | **0.012** | -0.111 | -0.010 | **0.044** | -0.480 | -0.019 | **0.096** | -0.847 | -0.036 | **0.177** |
| **2,000** | 0.068 | -0.005 | **0.004** | 0.074 | -0.005 | **0.009** | -0.109 | -0.006 | **0.029** | -0.480 | -0.010 | **0.066** | -0.846 | -0.021 | **0.126** |
| **S~~S** | **200** | -0.418 | -0.042 | **0.043** | -0.664 | -0.044 | **0.083** | -0.882 | -0.076 | **0.135** | -0.959 | -0.127 | **0.172** | -0.991 | -0.233 | **0.230** |
| **500** | -0.414 | -0.018 | **0.028** | -0.661 | -0.018 | **0.053** | -0.881 | -0.036 | **0.087** | -0.959 | -0.054 | **0.117** | -0.991 | -0.115 | **0.163** |
| **1,000** | -0.411 | -0.009 | **0.021** | -0.663 | -0.011 | **0.037** | -0.880 | -0.016 | **0.061** | -0.959 | -0.026 | **0.083** | -0.991 | -0.065 | **0.115** |
| **2,000** | -0.409 | -0.005 | **0.015** | -0.661 | -0.005 | **0.027** | -0.881 | -0.008 | **0.043** | -0.959 | -0.014 | **0.059** | -0.991 | -0.032 | **0.083** |
| **I~~S** | **200** | -0.372 | -0.066 | **0.022** | -0.643 | -0.076 | **0.046** | -0.936 | -0.118 | **0.095** | -1.023 | -0.212 | **0.145** | -1.014 | -0.390 | **0.202** |
| **500** | -0.356 | -0.026 | **0.014** | -0.634 | -0.031 | **0.030** | -0.936 | -0.055 | **0.061** | -1.021 | -0.095 | **0.091** | -1.013 | -0.190 | **0.133** |
| **1,000** | -0.350 | -0.012 | **0.010** | -0.633 | -0.017 | **0.022** | -0.936 | -0.030 | **0.044** | -1.022 | -0.051 | **0.064** | -1.013 | -0.107 | **0.091** |
| **2,000** | -0.349 | -0.009 | **0.007** | -0.631 | -0.007 | **0.015** | -0.935 | -0.014 | **0.030** | -1.022 | -0.026 | **0.045** | -1.013 | -0.054 | **0.063** |
| Note. N: sample size; GBIT: generalized tobit estimator; ML: ML estimator with censored data; Number of timepoints and ICC were averaged | | | | | | | | | | | | | | | | |