

## Appendix Table: estimates of other parameters when $c_{11} = c_{22}$

Scenario 1-4

$Y_i$

2021-03-29

### Load data

```
s.rdt <- "scenario/18rows/set-0.5b-all.RData"  
dt <- "res/DT-pkg-0.5b-all/"
```

Scenario 1

Scenario 2

Scenario 3

Scenario 4

Table 1: Estimates of the parameters when  $c_1^2 = c_2^2$

S	Par	True	Proposed ( $\tilde{c}_1^2, \tilde{c}_2^2$ )	Proposed ( $c_1^2 = c_2^2$ )	Reitsma <sub>O</sub>	Reitsma <sub>P</sub>
25	$\mu_1$	0.00	-0.04 [-0.24, 0.16]	0.02 [-0.15, 0.21]	0.14 [-0.00, 0.30]	0.01 [-0.11, 0.14]
	$\mu_2$	1.74	1.76 [1.58, 1.92]	1.74 [1.57, 1.89]	1.85 [1.71, 1.99]	1.73 [1.60, 1.85]
	$\tau_1^2$	0.50	0.50 [0.32, 0.72]	0.42 [0.27, 0.62]	0.39 [0.26, 0.55]	0.44 [0.31, 0.59]
	$\tau_2^2$	0.50	0.44 [0.28, 0.63]	0.43 [0.28, 0.62]	0.39 [0.26, 0.54]	0.43 [0.32, 0.58]
	$\tau_{12}$	-0.15	-0.15 [-0.29, -0.01]	-0.13 [-0.26, 0.01]	-0.17 [-0.28, -0.06]	-0.14 [-0.24, -0.04]
	$\beta$	0.50	1.65 [0.59, 2.00]	0.65 [0.17, 1.73]		
	$\alpha_{0.7}$	-0.44	-0.51 [-1.70, 0.40]	-0.53 [-1.25, 0.07]		
	$c_1^2$	0.50	0.59 [0.22, 0.86]			
50	$\mu_1$	0.00	-0.05 [-0.22, 0.11]	-0.01 [-0.13, 0.12]	0.12 [0.02, 0.22]	-0.00 [-0.09, 0.08]
	$\mu_2$	1.74	1.73 [1.59, 1.87]	1.73 [1.61, 1.85]	1.86 [1.77, 1.96]	1.73 [1.66, 1.81]
	$\tau_1^2$	0.50	0.53 [0.40, 0.70]	0.48 [0.36, 0.61]	0.44 [0.34, 0.54]	0.47 [0.39, 0.58]
	$\tau_2^2$	0.50	0.48 [0.37, 0.66]	0.47 [0.36, 0.62]	0.44 [0.34, 0.54]	0.47 [0.38, 0.58]
	$\tau_{12}$	-0.15	-0.14 [-0.26, -0.03]	-0.13 [-0.23, -0.03]	-0.18 [-0.27, -0.10]	-0.14 [-0.22, -0.07]
	$\beta$	0.50	0.88 [0.51, 1.66]	0.58 [0.29, 0.96]		
	$\alpha_{0.7}$	-0.44	-0.50 [-1.07, 0.11]	-0.49 [-0.85, -0.12]		
	$c_1^2$	0.50	0.54 [0.21, 0.78]			
200	$\mu_1$	0.00	-0.02 [-0.12, 0.07]	0.00 [-0.06, 0.06]	0.13 [0.08, 0.18]	-0.00 [-0.05, 0.04]
	$\mu_2$	1.74	1.74 [1.67, 1.81]	1.74 [1.68, 1.80]	1.86 [1.82, 1.91]	1.73 [1.69, 1.78]
	$\tau_1^2$	0.50	0.52 [0.45, 0.61]	0.49 [0.43, 0.56]	0.46 [0.41, 0.51]	0.49 [0.45, 0.54]
	$\tau_2^2$	0.50	0.50 [0.43, 0.56]	0.49 [0.43, 0.56]	0.46 [0.40, 0.51]	0.50 [0.45, 0.55]
	$\tau_{12}$	-0.15	-0.15 [-0.20, -0.10]	-0.15 [-0.20, -0.10]	-0.19 [-0.24, -0.15]	-0.15 [-0.19, -0.11]
	$\beta$	0.50	0.59 [0.44, 0.78]	0.51 [0.37, 0.68]		
	$\alpha_{0.7}$	-0.44	-0.43 [-0.68, -0.14]	-0.45 [-0.63, -0.27]		
	$c_1^2$	0.50	0.54 [0.33, 0.71]			

Table 2: Estimates of the parameters when  $c_1^2 = c_2^2$

S	Par	True	Proposed ( $\tilde{c}_1^2, \tilde{c}_2^2$ )	Proposed ( $c_1^2 = c_2^2$ )	Reitsma <sub>O</sub>	Reitsma <sub>P</sub>
25	$\mu_1$	0.00	-0.04 [-0.26, 0.17]	0.02 [-0.15, 0.17]	0.10 [-0.04, 0.24]	0.00 [-0.12, 0.13]
	$\mu_2$	1.74	1.74 [1.57, 1.92]	1.73 [1.58, 1.88]	1.81 [1.68, 1.96]	1.74 [1.61, 1.85]
	$\tau_1^2$	0.50	0.53 [0.33, 0.74]	0.44 [0.29, 0.61]	0.42 [0.28, 0.58]	0.46 [0.33, 0.60]
	$\tau_2^2$	0.50	0.47 [0.31, 0.68]	0.44 [0.30, 0.62]	0.42 [0.29, 0.58]	0.45 [0.33, 0.58]
	$\tau_{12}$	-0.30	-0.30 [-0.45, -0.16]	-0.27 [-0.40, -0.14]	-0.29 [-0.41, -0.17]	-0.28 [-0.39, -0.17]
	$\beta$	0.50	1.65 [0.64, 2.00]	0.61 [0.17, 1.35]		
	$\alpha_{0.7}$	-0.47	-0.60 [-1.76, 0.38]	-0.54 [-1.30, 0.05]		
	$c_1^2$	0.50	0.56 [0.19, 0.86]			
50	$\mu_1$	0.00	-0.05 [-0.22, 0.12]	0.02 [-0.11, 0.12]	0.10 [-0.00, 0.19]	0.01 [-0.08, 0.09]
	$\mu_2$	1.74	1.75 [1.61, 1.88]	1.74 [1.62, 1.85]	1.82 [1.72, 1.92]	1.73 [1.65, 1.81]
	$\tau_1^2$	0.50	0.53 [0.40, 0.69]	0.47 [0.36, 0.58]	0.45 [0.35, 0.55]	0.46 [0.38, 0.57]
	$\tau_2^2$	0.50	0.48 [0.37, 0.63]	0.46 [0.36, 0.59]	0.45 [0.35, 0.56]	0.48 [0.39, 0.58]
	$\tau_{12}$	-0.30	-0.31 [-0.43, -0.21]	-0.28 [-0.38, -0.19]	-0.30 [-0.40, -0.22]	-0.29 [-0.36, -0.22]
	$\beta$	0.50	0.90 [0.50, 1.76]	0.53 [0.23, 0.94]		
	$\alpha_{0.7}$	-0.47	-0.46 [-1.23, 0.14]	-0.47 [-0.97, -0.02]		
	$c_1^2$	0.50	0.58 [0.20, 0.82]			
200	$\mu_1$	0.00	-0.02 [-0.13, 0.07]	0.00 [-0.05, 0.06]	0.09 [0.04, 0.14]	0.00 [-0.04, 0.05]
	$\mu_2$	1.74	1.74 [1.67, 1.82]	1.74 [1.69, 1.79]	1.83 [1.78, 1.88]	1.74 [1.70, 1.78]
	$\tau_1^2$	0.50	0.52 [0.46, 0.61]	0.49 [0.44, 0.55]	0.48 [0.43, 0.53]	0.49 [0.45, 0.55]
	$\tau_2^2$	0.50	0.50 [0.44, 0.56]	0.49 [0.43, 0.55]	0.48 [0.43, 0.53]	0.49 [0.44, 0.54]
	$\tau_{12}$	-0.30	-0.31 [-0.37, -0.25]	-0.29 [-0.34, -0.25]	-0.31 [-0.36, -0.27]	-0.30 [-0.34, -0.25]
	$\beta$	0.50	0.60 [0.46, 0.77]	0.52 [0.38, 0.66]		
	$\alpha_{0.7}$	-0.47	-0.47 [-0.75, -0.17]	-0.48 [-0.67, -0.29]		
	$c_1^2$	0.50	0.53 [0.31, 0.73]			

Table 3: Estimates of the parameters when  $c_1^2 = c_2^2$

S	Par	True	Proposed ( $\tilde{c}_1^2, \tilde{c}_2^2$ )	Proposed ( $c_1^2 = c_2^2$ )	Reitsma <sub>O</sub>	Reitsma <sub>P</sub>
25	$\mu_1$	0.00	-0.07 [-0.35, 0.20]	0.02 [-0.19, 0.22]	0.12 [-0.05, 0.32]	0.00 [-0.15, 0.16]
	$\mu_2$	1.74	1.86 [1.39, 2.34]	1.80 [1.33, 2.25]	2.40 [2.09, 2.70]	1.74 [1.49, 2.01]
	$\tau_1^2$	1.00	1.05 [0.73, 1.47]	0.91 [0.65, 1.26]	0.87 [0.61, 1.19]	0.91 [0.70, 1.20]
	$\tau_2^2$	4.00	3.57 [2.56, 4.95]	3.65 [2.52, 5.05]	2.71 [2.05, 3.49]	3.67 [2.96, 4.49]
	$\tau_{12}$	-0.60	-0.63 [-1.11, -0.17]	-0.56 [-0.99, -0.11]	-0.70 [-1.09, -0.40]	-0.55 [-0.88, -0.25]
	$\beta$	0.50	2.00 [0.66, 2.00]	0.71 [0.27, 2.00]		
	$\alpha_{0.7}$	-0.18	0.18 [-0.49, 0.98]	-0.03 [-0.46, 0.33]		
	$c_1^2$	0.50	0.62 [0.25, 0.83]			
50	$\mu_1$	0.00	-0.05 [-0.28, 0.18]	0.01 [-0.13, 0.16]	0.12 [-0.00, 0.26]	0.00 [-0.11, 0.11]
	$\mu_2$	1.74	1.80 [1.38, 2.18]	1.79 [1.42, 2.15]	2.42 [2.20, 2.63]	1.75 [1.54, 1.94]
	$\tau_1^2$	1.00	1.07 [0.81, 1.40]	0.95 [0.75, 1.19]	0.92 [0.72, 1.13]	0.95 [0.78, 1.13]
	$\tau_2^2$	4.00	3.85 [2.95, 4.94]	3.76 [2.91, 4.90]	2.86 [2.37, 3.41]	3.91 [3.33, 4.47]
	$\tau_{12}$	-0.60	-0.58 [-0.99, -0.22]	-0.57 [-0.90, -0.26]	-0.75 [-0.99, -0.52]	-0.56 [-0.82, -0.35]
	$\beta$	0.50	0.95 [0.47, 2.00]	0.59 [0.28, 1.11]		
	$\alpha_{0.7}$	-0.18	0.07 [-0.25, 0.58]	-0.06 [-0.31, 0.20]		
	$c_1^2$	0.50	0.57 [0.27, 0.77]			
200	$\mu_1$	0.00	0.00 [-0.14, 0.13]	0.01 [-0.07, 0.09]	0.12 [0.06, 0.19]	-0.00 [-0.06, 0.05]
	$\mu_2$	1.74	1.73 [1.52, 1.97]	1.76 [1.57, 1.96]	2.40 [2.29, 2.51]	1.73 [1.63, 1.84]
	$\tau_1^2$	1.00	1.03 [0.90, 1.16]	0.99 [0.87, 1.10]	0.96 [0.86, 1.08]	0.99 [0.90, 1.08]
	$\tau_2^2$	4.00	3.96 [3.38, 4.67]	3.90 [3.37, 4.43]	2.97 [2.71, 3.25]	3.95 [3.67, 4.25]
	$\tau_{12}$	-0.60	-0.63 [-0.85, -0.44]	-0.61 [-0.78, -0.44]	-0.79 [-0.92, -0.66]	-0.59 [-0.72, -0.48]
	$\beta$	0.50	0.56 [0.41, 0.73]	0.51 [0.37, 0.66]		
	$\alpha_{0.7}$	-0.18	-0.09 [-0.20, 0.04]	-0.14 [-0.23, -0.05]		
	$c_1^2$	0.50	0.50 [0.31, 0.64]			

Table 4: Estimates of the parameters when  $c_1^2 = c_2^2$

S	Par	True	Proposed ( $\tilde{c}_1^2, \tilde{c}_2^2$ )	Proposed ( $c_1^2 = c_2^2$ )	Reitsma <sub>O</sub>	Reitsma <sub>P</sub>
25	$\mu_1$	0.00	-0.12 [-0.42, 0.18]	-0.00 [-0.21, 0.19]	0.02 [-0.17, 0.19]	-0.01 [-0.15, 0.15]
	$\mu_2$	1.74	1.90 [1.41, 2.43]	1.79 [1.33, 2.22]	2.35 [2.05, 2.65]	1.74 [1.45, 2.02]
	$\tau_1^2$	1.00	1.06 [0.73, 1.49]	0.92 [0.66, 1.23]	0.90 [0.62, 1.19]	0.92 [0.68, 1.15]
	$\tau_2^2$	4.00	3.69 [2.55, 5.09]	3.76 [2.52, 5.21]	2.85 [2.13, 3.72]	3.75 [2.98, 4.61]
	$\tau_{12}$	-1.20	-1.17 [-1.80, -0.70]	-1.11 [-1.61, -0.63]	-1.12 [-1.54, -0.74]	-1.13 [-1.51, -0.78]
	$\beta$	0.50	2.00 [0.67, 2.00]	0.69 [0.24, 2.00]		
	$\alpha_{0.7}$	-0.26	-0.01 [-0.65, 0.73]	-0.12 [-0.59, 0.22]		
	$c_1^2$	0.50	0.62 [0.28, 0.84]			
50	$\mu_1$	0.00	-0.07 [-0.34, 0.16]	-0.01 [-0.15, 0.14]	0.01 [-0.12, 0.14]	0.00 [-0.12, 0.10]
	$\mu_2$	1.74	1.75 [1.37, 2.17]	1.75 [1.39, 2.06]	2.33 [2.12, 2.54]	1.73 [1.53, 1.93]
	$\tau_1^2$	1.00	1.08 [0.86, 1.37]	0.97 [0.77, 1.16]	0.97 [0.77, 1.15]	0.96 [0.82, 1.12]
	$\tau_2^2$	4.00	3.90 [3.03, 5.11]	3.85 [2.99, 4.96]	3.01 [2.52, 3.61]	3.89 [3.33, 4.43]
	$\tau_{12}$	-1.20	-1.23 [-1.67, -0.85]	-1.15 [-1.50, -0.82]	-1.18 [-1.47, -0.91]	-1.16 [-1.42, -0.94]
	$\beta$	0.50	0.96 [0.51, 2.00]	0.60 [0.27, 1.16]		
	$\alpha_{0.7}$	-0.26	-0.02 [-0.35, 0.43]	-0.15 [-0.42, 0.10]		
	$c_1^2$	0.50	0.58 [0.30, 0.78]			
200	$\mu_1$	0.00	-0.04 [-0.17, 0.10]	-0.01 [-0.07, 0.07]	0.01 [-0.06, 0.07]	-0.01 [-0.05, 0.05]
	$\mu_2$	1.74	1.76 [1.52, 2.00]	1.76 [1.56, 1.95]	2.34 [2.23, 2.44]	1.74 [1.64, 1.84]
	$\tau_1^2$	1.00	1.03 [0.92, 1.15]	0.98 [0.88, 1.08]	0.99 [0.89, 1.09]	0.98 [0.89, 1.06]
	$\tau_2^2$	4.00	3.91 [3.33, 4.54]	3.87 [3.38, 4.44]	3.10 [2.80, 3.41]	3.91 [3.61, 4.24]
	$\tau_{12}$	-1.20	-1.18 [-1.39, -0.98]	-1.17 [-1.34, -1.01]	-1.20 [-1.34, -1.06]	-1.16 [-1.30, -1.06]
	$\beta$	0.50	0.58 [0.42, 0.78]	0.51 [0.37, 0.67]		
	$\alpha_{0.7}$	-0.26	-0.15 [-0.28, -0.02]	-0.22 [-0.33, -0.12]		
	$c_1^2$	0.50	0.52 [0.38, 0.68]			