

Supplemental tables for:

A comparative review of dimension reduction methods in approximate Bayesian computation

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		All six	Best subset selection					Projection techniques			Regularisation
			BIC	AIC	AICc	ε -suff	Ent	PLS	NNet	Loss	Ridge
$\tilde{\theta}$	no adj.	0	-5	-5	-5	-1	-9	-2	—	-4	—
$\tilde{\theta}$	homo adj.	-3	-5	-5	-5	-6	-10	-5	—	-6	2
$\tilde{\theta}$	hetero adj.	-3	-5	-5	-5	-6	-11	-6	-4	-7	1
ρ	no adj.	0	0	0	0	0	-4	9	—	-6	—
ρ	homo adj.	-5	-5	-5	7	-8	-6	—	—	-6	-4
ρ	hetero adj.	-4	-6	-6	-6	0	-12	-7	-8	-7	-3
$(\tilde{\theta}, \rho)$	no adj.	0	-1	-1	-1	—	-17	-14	—	-6	—
$(\tilde{\theta}, \rho)$	homo adj.	0	-8	-8	-8	—	-21	-15	—	-6	-1
$(\tilde{\theta}, \rho)$	hetero adj.	-7	-7	-7	-7	—	-24	-16	-7	-6	-6

Table 1: Relative $\overline{\text{RSSE}}$ for Example 1 (the coalescent analysis) for different parameter combinations, $\tilde{\theta}, \rho$ and $(\tilde{\theta}, \rho)$, using each method of dimension reduction, and under no, homoscedastic and heteroscedastic regression adjustment. Columns denote no dimension reduction (All six), BIC, AIC, AICc, the ε -sufficiency criterion (ε -suff), the two-stage entropy procedure (Ent), partial least squares (PLS), neural networks (NNet), minimum expected posterior loss (Loss) and ridge regression (Ridge). All $\overline{\text{RSSE}}$ are relative to the $\overline{\text{RSSE}}$ obtained when using no regression adjustment with the six summary statistics (s_1-s_6).

			Best subset selection					Projection techniques			Regularisation
		All 11	BIC	AIC	AICc	ε -suff	Ent	PLS	NNet	Loss	Ridge
α	no adj.	0	-7	-7	-7	0	-5	-1	—	-10	—
α	homo adj.	-3	-15	-15	-15	6	-15	-12	—	-15	-15
α	hetero adj.	-3	-15	-15	-15	0	-17	-13	-15	-17	-15
c	no adj.	0	-10	-10	-10	4	-6	3	—	-6	—
c	homo adj.	-5	-18	-18	-18	-8	-15	-5	—	-8	-7
c	hetero adj.	-5	-15	-15	-15	-8	-15	-8	-12	-9	-9
ρ	no adj.	0	-12	-12	-12	1	-5	5	—	-6	—
ρ	homo adj.	-8	-16	-16	-16	1	-12	1	—	-8	-10
ρ	hetero adj.	-8	-16	-16	-16	-8	-16	1	-12	-9	-10
μ	no adj.	0	-13	-13	-13	9	-5	-1	—	-8	—
μ	homo adj.	-5	-18	-18	-18	-1	-15	-6	—	-10	-11
μ	hetero adj.	-6	-18	-18	-18	-8	-13	-10	-13	-12	-12
(α, c, ρ, μ)	no adj.	0	-9	-9	-9	—	-1	-3	—	-8	—
(α, c, ρ, μ)	homo adj.	-4	-18	-18	-18	—	-10	-7	—	-11	-10
(α, c, ρ, μ)	hetero adj.	-4	-19	-19	-19	—	-13	-10	-9	-12	-11

Table 2: Relative $\overline{\text{RSSE}}$ for Example 2 (drug resistant tuberculosis) for different parameter combinations, α, c, ρ, μ and (α, c, ρ, μ) , using each method of dimension reduction, and under no, homoscedastic and heteroscedastic regression adjustment. Columns denote no dimension reduction (All 11), BIC, AIC, AICc, the ε -sufficiency criterion (ε -suff), the two-stage entropy procedure (Ent), partial least squares (PLS), neural networks (NNet), minimum expected posterior loss (Loss) and ridge regression (Ridge). All $\overline{\text{RSSE}}$ are relative to the $\overline{\text{RSSE}}$ obtained when using no regression adjustment with all eleven summary statistics (s_1-s_{11}).

		All 113	Best subset selection					Projection techniques			Regularisation
τ	no adj.	0	BIC	AIC	AICc	ε -suff	Ent	PLS	NNet ¹	Loss	Ridge ¹
τ	homo adj.	-50	-51	-51	-51	-18	-58	-20	—	-74	-50/-50
τ	hetero adj.	-49	-47	-47	-48	-19	-52	-22	-20/-42	-75	-48/-48
σ	no adj.	0	5	3	3	0	-3	-2	—	-43	—
σ	homo adj.	-44	-40	-40	-41	-12	-49	-10	—	-55	-44/-44
σ	hetero adj.	-45	-46	-47	-46	-15	-50	-15	-21/-37	-56	-43/-43
ξ	no adj.	0	-3	-3	-3	-1	-7	-2	—	7	—
ξ	homo adj.	-26	-29	-28	-28	-13	-32	-23	—	-41	-26/-44
ξ	hetero adj.	-27	-29	-29	-28	-13	-32	-28	-7/-41	-41	-26/-44
(τ, σ, ξ)	no adj.	0	0	1	1	—	-4	-4	—	-44	—
(τ, σ, ξ)	homo adj.	-40	-40	-40	-40	—	-45	-11	—	-60	-40/-32
(τ, σ, ξ)	hetero adj.	-39	-39	-40	-39	—	-42	-11	-4/-38	-60	-39/-32

¹ The first value is found by integrating out the regularisation parameter whereas the second one is found by choosing an optimal regularisation parameter with cross-validation.

Table 3: Relative $\overline{\text{RSS}}$ for Example 3 (production of clean steels) for different parameter combinations, τ, σ, ξ and (τ, σ, ξ) , using each method of dimension reduction, and under no, homoscedastic and heteroscedastic regression adjustment. Columns denote no dimension reduction (All 113), BIC, AIC, AICc, the ε -sufficiency criterion (ε -suff), the two-stage entropy procedure (Ent), partial least squares (PLS), neural networks (NNet), minimum expected posterior loss (Loss) and ridge regression (Ridge). All $\overline{\text{RSS}}$ are relative to the $\overline{\text{RSS}}$ obtained when using no regression adjustment with all 113 summary statistics ($s_1 - s_{113}$)