

Table S2 The mean squared error comparing the estimated trend functions to the simulated ones. F and N represent **VBfun** and **VBnonfun** (assuming the diagonal residual covariance structure in the model), respectively (assuming the diagonal residual covariance structure in the model), and h^2 is the averaged heritability over time.

	$k=10$ $u=0.5$ $h^2=0.2265$		$k=10$ $u=0.8$ $h^2=0.0922$		$k=100$ $u=0.5$ $h^2=0.2347$		$k=100$ $u=0.8$ $h^2=0.1259$	
	F	N	F	N	F	N	F	N
0	0.1765	0.2481	0.9436	0.5591	0.0199	0.4005	0.1113	0.6785
35	0.0896	0.1279	0.1863	0.1882	0.0188	0.0811	0.0341	0.1163
52	0.2814	0.4121	0.2839	0.2703	0.0245	0.1376	0.0918	0.2739
78	0.0840	0.0748	0.1214	0.0667	0.0256	0.0693	0.1312	0.2146
98	0.0997	0.0710	0.1480	0.1233	0.0073	0.0931	0.0584	0.2867
118	0.0067	0.0245	0.1209	0.1550	0.0071	0.0719	0.0273	0.1222
174	0.0327	0.0341	0.0877	0.2032	0.0087	0.0941	0.0732	0.1650
216	0.0658	0.0478	0.2431	0.1284	0.0157	0.0608	0.0574	0.1031
358	0.0221	0.0432	0.0556	0.0403	0.0036	0.0403	0.0230	0.0717
453	0.1556	0.0706	0.2629	0.0403	0.0225	0.0864	0.1547	0.2198