Figure S5 The evolution of multivariate maternal effects in a stochastically fluctuating environment, where the selective optimum $\theta_i(t-1)$ in the parental generation is correlated with $\theta_j(t)$ in the offspring generation. Panel A: the cross-correlation between optimum $\theta_2(t-1)$ and $\theta_1(t)$ is varied from -1 to 1, while the other cross-correlation $\mathrm{cor}(\theta_1(t-1), \theta_2(t))$ is constrained between values 0 and -0.1. As a consequence, the cross-trait maternal effect m_{12} from maternal trait $z_2^*(t-1)$ to offspring trait $z_1(t)$ evolves from negative to positive values, in line with the dominant cross-correlation. Panel B: now, the cross-correlation between optimum $\theta_1(t-1)$ and $\theta_2(t)$ is varied from -1 to 1, while the other cross-correlation is constrained to much smaller values. Again, we find that the corresponding cross-trait maternal effect m_{21} from maternal trait $z_1^*(t-1)$ to offspring trait $z_2(t)$ evolves from negative to positive, in line with the cross-correlation. In both panels, the within-trait autocorrelations $\mathrm{cor}(\theta_1(t-1), \theta_1(t)) = \mathrm{cor}(\theta_2(t-1), \theta_2(t)) = \rho$ are set at $\rho = 0.1$. Parameters: $\mu = 0.01,\ \phi = 0,\ c = 0.1,\ \sigma_\varepsilon = 0.32$.

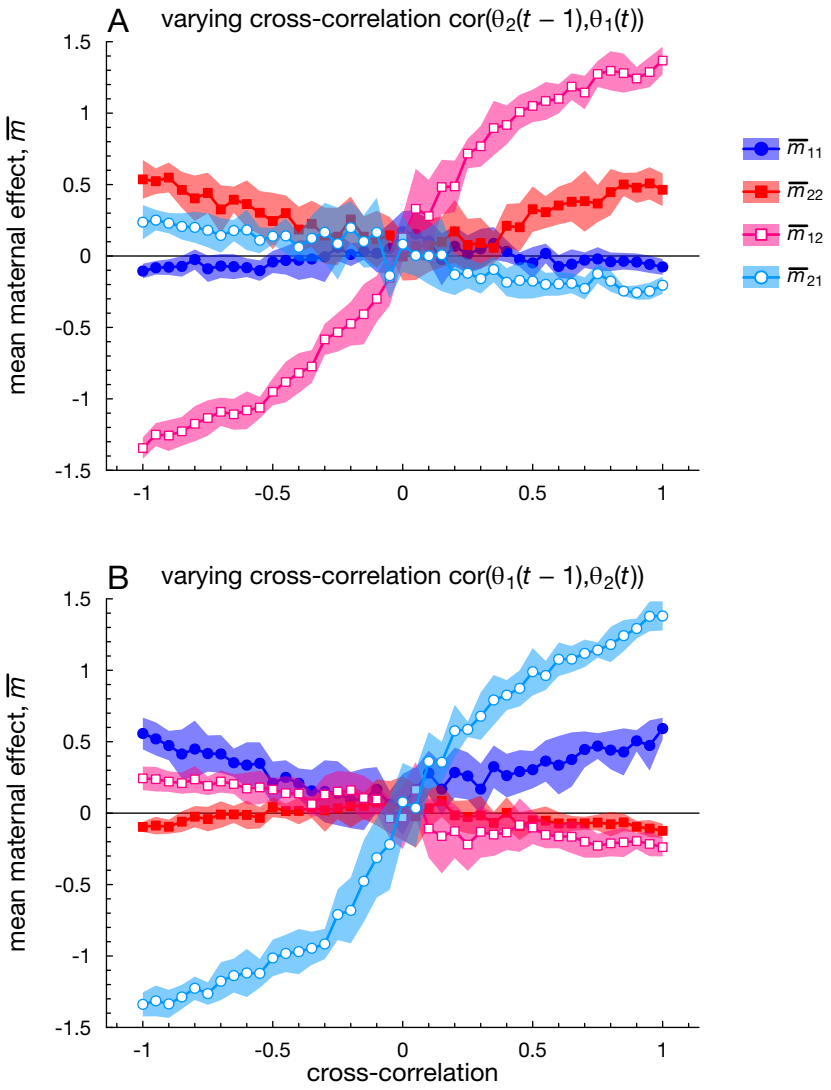
A
varying cross-correlation cor(θ2(t – 1),θ1(t))
mean maternal effect, m̄
1.5
1
0.5
0
-0.5
-1
-1.5
-1
-0.5
0
0.5
1
m̄11
m̄22
m̄12
m̄21
B
varying cross-correlation cor(θ1(t – 1),θ2(t))
mean maternal effect, m̄
cross-correlation

Figure S5: