Supplemental Material S1. Description of priors for Bayesian regression model.

The $\boldsymbol{\alpha}$, $\boldsymbol{\xi}$, and $\boldsymbol{\omega}$ parameters were given $N_2(\mathbf{0}, \boldsymbol{I_2})$ priors, representing bivariate normal densities with mean vector $\mathbf{0}$ and an identity matrix covariance. The $\boldsymbol{\beta}$ parameter was also given a bivariate normal prior centered at positive growth so that $\boldsymbol{\beta} \sim N_2\left(\mathbf{0.25}, \begin{bmatrix} 0.5 & 0 \\ 0 & 0.5 \end{bmatrix}\right)$. The subject-specific intercepts $\boldsymbol{\delta_S}$ were given $N_2(\mathbf{0}, \boldsymbol{\tau_\delta})$ priors, with a 3 degree of freedom inverse Wishart prior on $\boldsymbol{\tau_\delta}$**.** The group effects $\boldsymbol{\gamma_G}$, the level effects $\boldsymbol{\theta_L}$, and the group by level interaction effects $\boldsymbol{\nu_{G,L}}$ were given hierarchical Half-*t* priors (Alvarez et al., 2014; Huang & Wand, 2013) to induce shrinkage towards constant effects unless the data dictate otherwise.

References

Alvarez, I., Niemi, J., & Simpson, M. (2014). Bayesian inference for a covariance matrix. *Annual Conference on Applied Statistics in Agriculture, 26*, 71–82.

Huang, A., & Wand, M. P. (2013). Simple marginally noninformative prior distributions for covariance matrices. *Bayesian Analysis, 8*(2), 439–452.