- I have tried to use a half-Normal prior on the "standard deviation" of the spline coefficients, $\lambda^{-1/2}$, but it failed to converge even for Zimbabwe
- Explored the PC priors and trimmed down the number of parameters, as well as added spikes for TiPS at 5 and 10 that were previously missing
  - For ϕ, ψ, A and B, these are previously given GMRF with precision matrix $\boldsymbol{Q} = \lambda_1(\boldsymbol{D'D} + \lambda_2 \boldsymbol{I})$. The ratio between λ_1 and λ_2 controls how much the linear extrapolation is shrunk towards 0. Writing the penalty (precision matrix) as $\boldsymbol{Q} = \tau(\boldsymbol{D'D} + c\boldsymbol{I}) = \tau\boldsymbol{R}$, under the PC priors, we elicit information on the effective degrees of freedom (EDF) and translate this into a prior for λ. Following Ventrucci and Rue (2016), the EDF is approximated by the trace of the hat matrix under the classical linear regression model. Consider:

$$\boldsymbol{y} = \boldsymbol{B\beta} + \boldsymbol{\varepsilon}$$
$$\text{where} \varepsilon \sim N(0, \tau_\varepsilon^{-1}) \text{with penalty} \tau \boldsymbol{\beta' R \beta},$$

  then the hat matrix is $(\boldsymbol{B'B} + \frac{\tau}{\tau_\varepsilon}\boldsymbol{R})^{-1}\boldsymbol{B'B}$