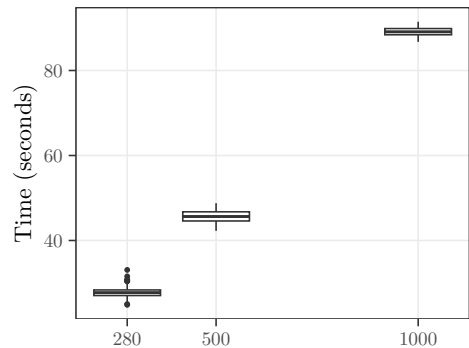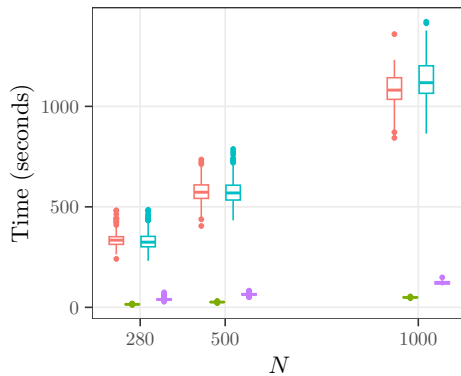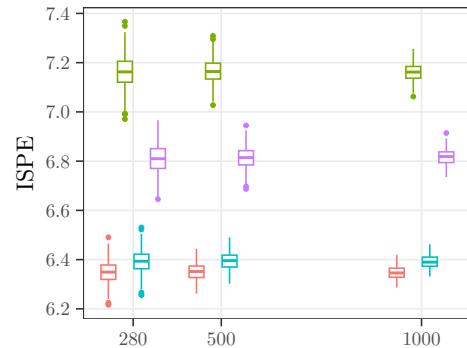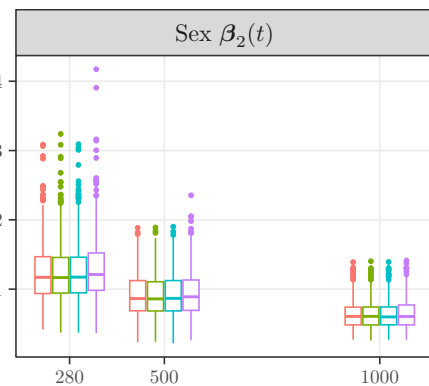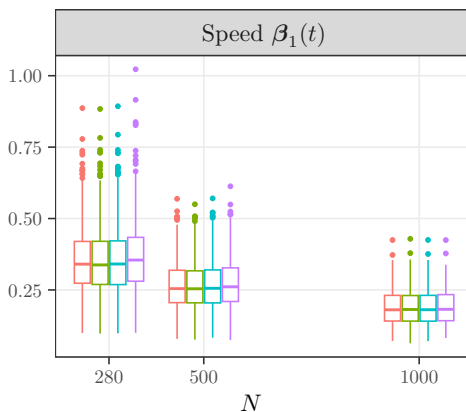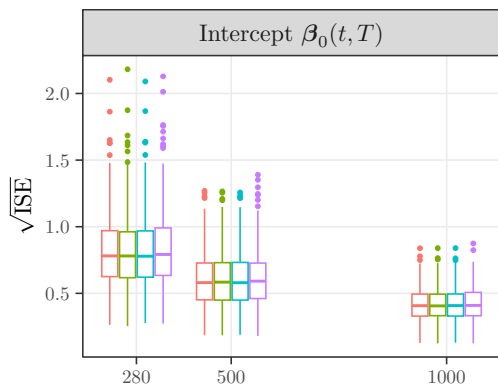**(a) Computation Time (mv-FPCA)**

(b) Computation Time (Model Fit)

(c) Individual Prediction Error

(d) Fixed Effects Estimation Error

Intercept $\boldsymbol{\beta}_0(t, T)$

Speed $\boldsymbol{\beta}_1(t)$

Sex $\boldsymbol{\beta}_2(t)$

Model: Polynomial   Naive   Spline   ml-FPCA