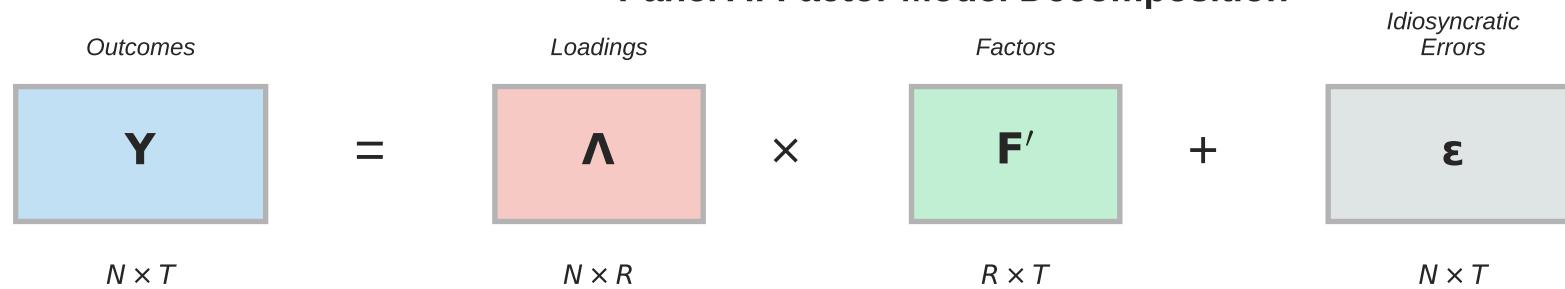
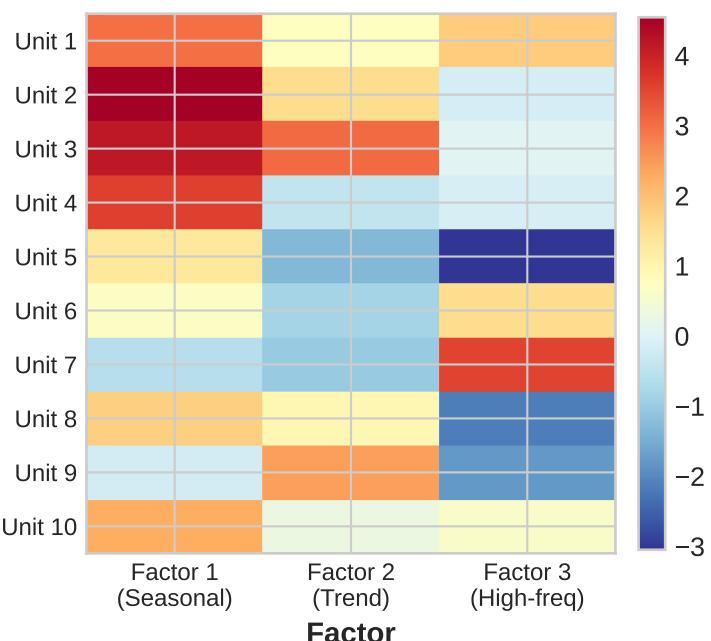


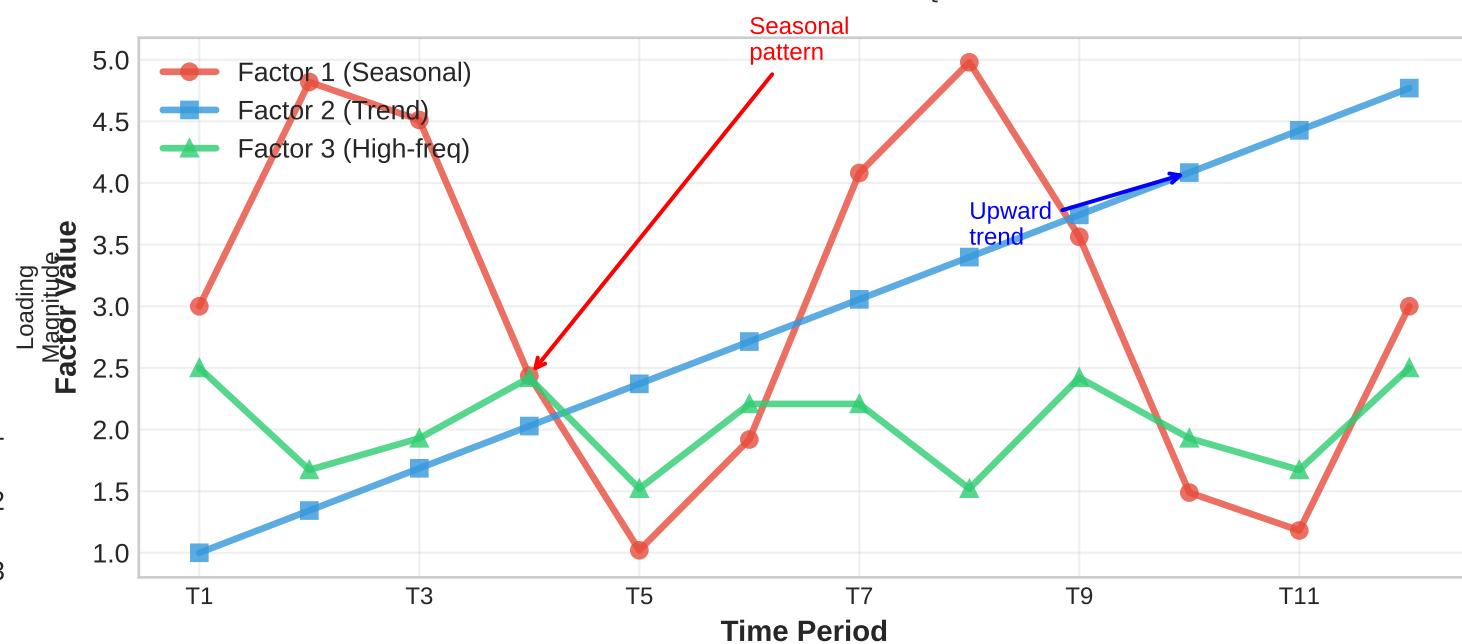
Panel A: Factor Model Decomposition



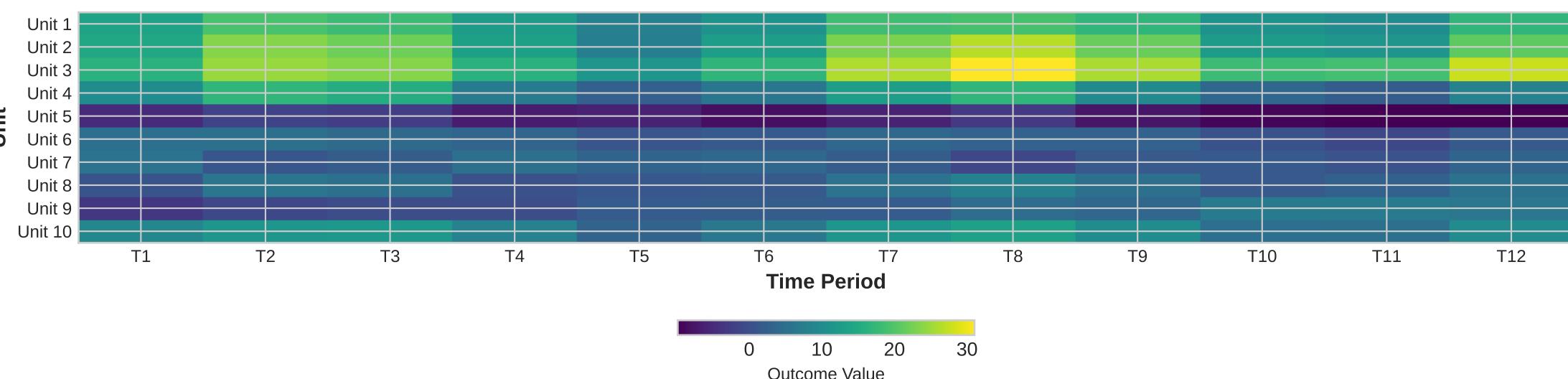
Panel B: Unit Loadings $\boldsymbol{\Lambda}$ (Unit Sensitivities)



Panel C: Common Factors F_t Over Time



Panel D: Outcome Matrix \mathbf{Y} (Observed Data)



The outcome matrix \mathbf{Y} is decomposed into unit-specific loadings $\boldsymbol{\Lambda}$, common time-varying factors \mathbf{F} , and idiosyncratic errors $\boldsymbol{\varepsilon}$. Each unit has different sensitivities (loadings) to the common factors. Factors capture shared patterns (seasonality, trends, shocks).