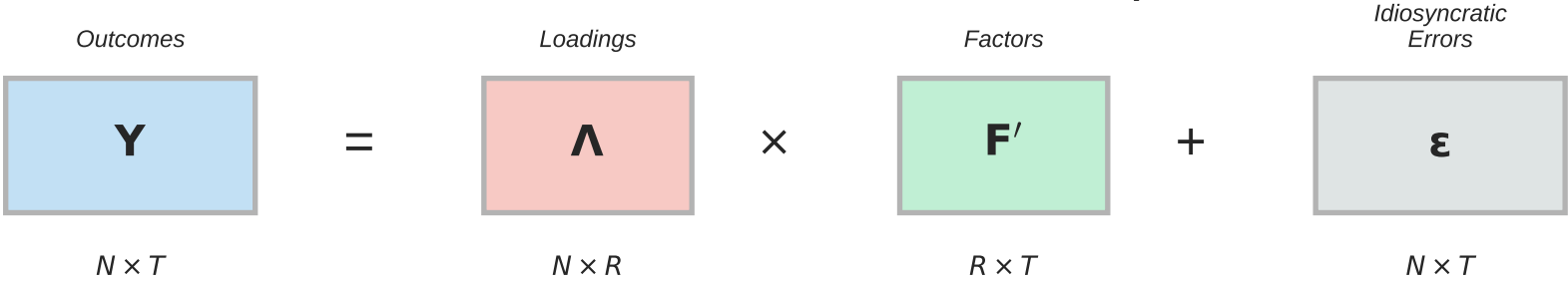
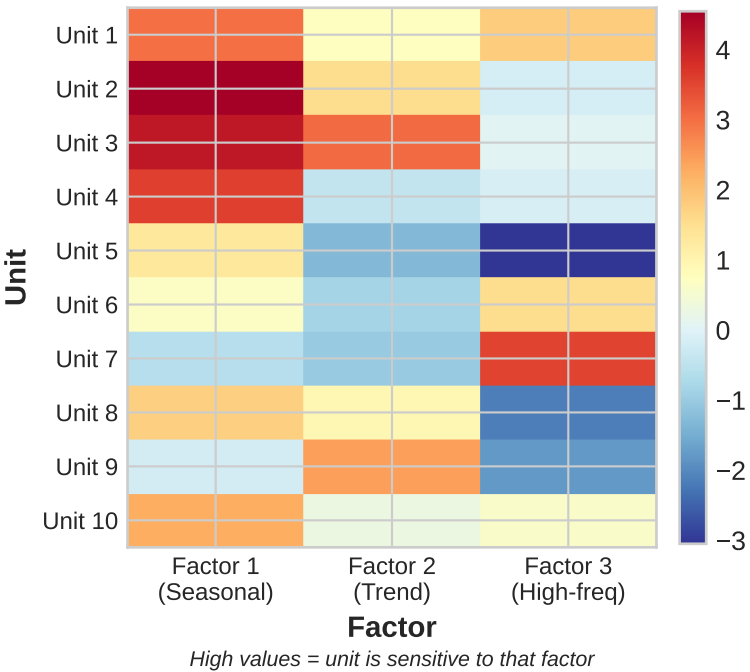


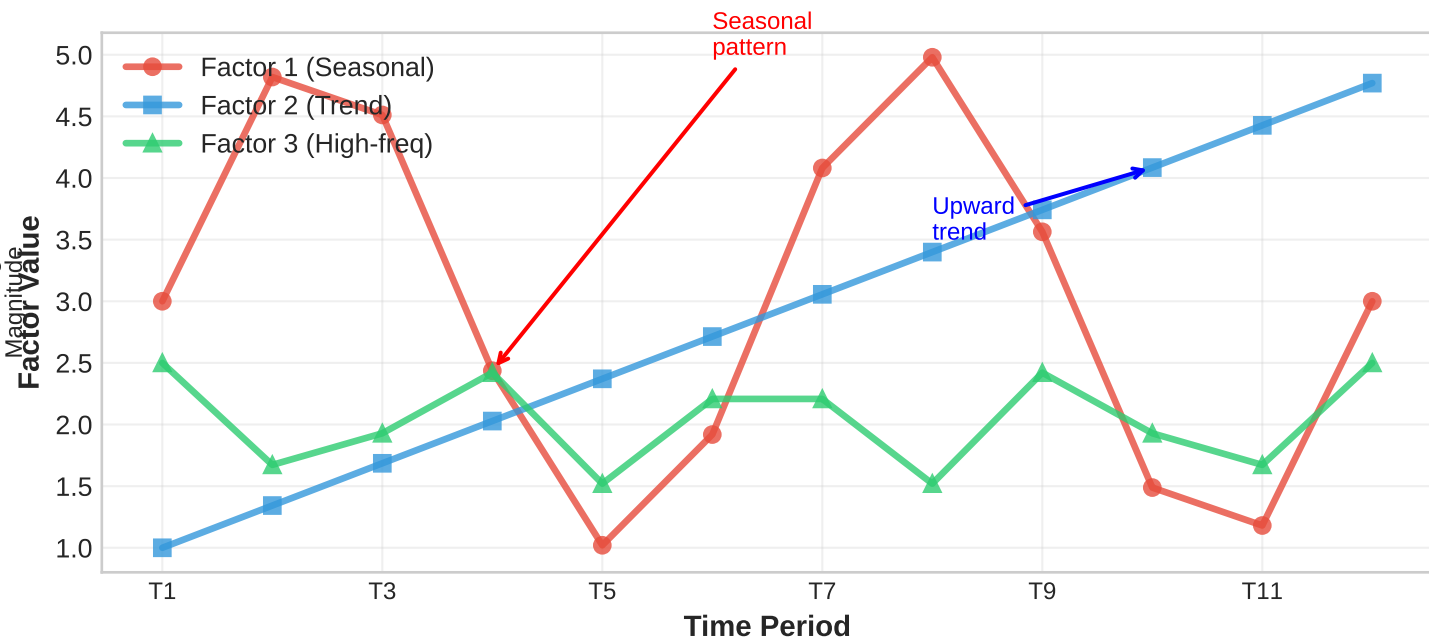
Panel A: Factor Model Decomposition



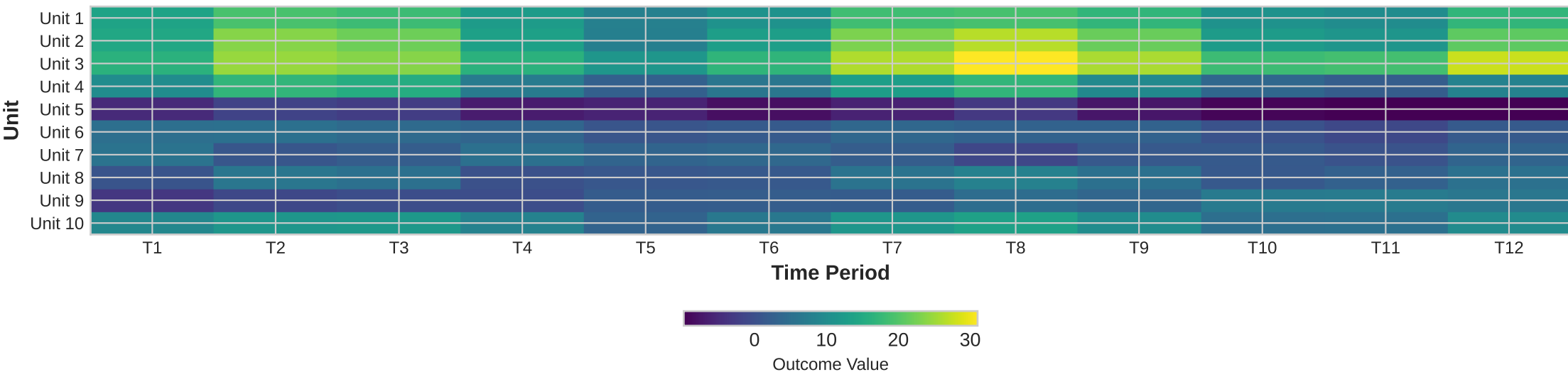
Panel B: Unit Loadings  $\Lambda$  (Unit Sensitivities)



Panel C: Common Factors  $F_t$  Over Time



Panel D: Outcome Matrix  $Y$  (Observed Data)



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