

Forecast reconciliation

3. Temporal and cross-temporal forecast reconciliation

Rob J Hyndman



MONASH University

Photo by Edvard Alexander Rølvaag on

robjhyndman.com/fr2023

Outline

Notation reminder

- Data: $\mathbf{y}_t = \mathbf{S}\mathbf{b}_t$ where \mathbf{S} is a summing matrix and \mathbf{b}_t is a vector of disaggregated time series
- Base forecasts: $\hat{\mathbf{y}}_{T+h|T}$
- Reconciled forecasts: $\tilde{\mathbf{y}}_{T+h|T} = \mathbf{S}\mathbf{G}\hat{\mathbf{y}}_{T+h|T}$
- MinT: $\mathbf{G} = (\mathbf{S}'\mathbf{W}_h^{-1}\mathbf{S})^{-1}\mathbf{S}'\mathbf{W}_h^{-1}$ where \mathbf{W}_h is covariance matrix of base forecast errors.

Thief

- thief paper

Daniele and Tommy's papers

References



Athanasopoulos, G, RJ Hyndman, N Kourentzes, and F Petropoulos (2017). Forecasting with temporal hierarchies. *European J Operational Research* **262**(1), 60–74.