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Optimal forecast reconciliation with time series selection

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Abstract

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1 Introduction

Hierarchical time series and forecast reconciliation.

Single-level approaches, least squares-based reconciliation approaches, geometric intuition, other extensions with constraints.

However... Two issues.

In this paper, our focus will be on...

The remainder of the paper is structured as follows.

2 Preliminaries

2.1 Notation

Hierarchical time series (balanced and unbalanced)

Grouped time series

Forecast reconciliation basics

2.2 Point forecast reconciliation

2.2.1 Minimum trace reconciliation

2.2.2 Reconciliation with regularization

3 Forecast reconciliation with time series selection

3.1 Constrained reconciliation with selection

Unbiasedness constraint

3.2 Unconstrained reconciliation with selection

4 Monte Carlo simulations

4.1 Model misspecification in a hierarchy

4.2 Exploring the effect of correlation

5 Applications

5.1 Forecasting Australian domestic tourism

5.2 Forecasting Australian prison population

6 Conclusion

Acknowledgement