Forecast Adjustment Under Shocks: A Unification

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Abstract

This work systematizes and unifies the rich landscape of model adjustment and model correction methods, with a special focus on forecast adjustment under the presence of shocks.

1 Introduction

Forecasting amid anticipated shocks raises unavoidable questions: should the forecast model be abandoned in favor of a discretionary or ad-hoc or one-off adjustment? Does the does the discretion of a forecaster rule out a quantitative method for making the adjustment? What is the ultimate purpose of the adjustment, and how it is to be used?

This work aims to systemaize and unify a range of conceptual approaches and tools that have developed across the broad ecosystem of the econometric and forecasting literatures.

difference between discretionary and automated

Setting the model back on track

what we are talking about here is not forecast combination, but there may be, nevertheless, a role for forecast combination: combining the forecasts generated by small differences in covariate and/or donor choice

The role and meaning of similarity

1.1 Model Adjustment Using Similarity-Based Parameter Correction: A Global Overview

1. a random object to forecast that depends on a linear specification
2. a parametric model family shared by donors
3. a correction term for the model family shared by donors
4. a parametric specification for the correction term
5. a reliable estimation procedure for the shared model

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6. a reliable estimation procedure for the correction term
7. a correction function that aggregates (i.e. maps) donor correction terms based on some notion of similarity

2 Setting

3 Model-Specific Considerations

3.1 ARIMA

3.2 GARCH

3.3 HAR

3.4 VAR

4 Real Data Examples

5 Discussion

- Binary Outcome Forecasts
- Density Forecasts
- Quantile Forecasts

References