

ECB Workshop on Forecasting Techniques

“The Anatomy of Out-of-Sample Forecasting Accuracy”

by Borup, Coulombe, Rapach, Schütte and Schwenk-Nebbe

Discussion by Michel van der Wel

Erasmus U Rotterdam

June 13, 2023



Paper Summary

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 - Two metrics for importance of individual predictors for predicted target values
 - New metric (PBSV) for contribution of individual predictors for loss in sequence of fitted models



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- Paper develops Shapley-based metrics for interpreting models
 - Two metrics for importance of individual predictors for predicted target values
 - New metric (PBSV) for contribution of individual predictors for loss in sequence of fitted models
- Empirical study of forecasting US inflation provides sensible leading predictors (oil, components of CPI) and discrepancies between in-sample and out-of-sample importance



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- Paper cleverly adjusts setting for
 - Dealing with large number of predictors (use sampling)
 - Expanding samples (not one value; take average)
 - Retraining of the samples \rightarrow (i/o)Shapley-VI $_p$
 - Loss-function effects rather than predicted values \rightarrow PBSV $_p$

2. Empirical application

- Curious to robustness regarding
 - Forecasting y_{t+h} rather than $\frac{1}{h} \sum_{k=1}^h y_{t+k}$
 - Including predictors and moving average of predictors
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- For PCA, possible to compare with significance?

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- Can you take the panel nature into account? [You do!]
- Compare to `scikit-learn` package (which also provides feature importance estimates)
- Closer comparison of findings with existing literature and evaluation also of signs

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In conclusion:

- Opens the black box with clever adaptations to time series setting
- Great work!



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