

Giulia Mantoan

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EDUCATION

- Ph.D. in Finance and Econometrics** 2016-2021E
Economic Modelling & Forecasting group
University of Warwick, Warwick Business School (WBS)
Supervisors: Prof. Ana Galvão and Prof. James Mitchell
- M.S. in Models and Methods for Economics** 2013-2015
Ca' Foscari University (Italy)
Supervisor: Prof. Roberto Casarin.
- B.S. in Economics**, Ca' Foscari University (Italy) 2010-2013
Supervisor: Prof. Stefano Magrini.

RESEARCH INTERESTS

Primary: Bayesian Econometrics, Forecasting
Secondary: Macroeconomics, Monetary policy

PUBLICATIONS

- “Bayesian Calibration of Generalized Pools of Predictive Distributions” (2016), with R. Casarin (Ca' Foscari University) and F. Ravazzolo (Free University of Bozen-Bolzano), **Econometrics**, 4(1), p.17.

WORK IN PROGRESS

- “Optimal Pooling and Finite Mixture Distribution Combinations of Probabilistic Forecasts”.
- “Are Central Banks’ Fancharts Reliable? On Calibration of Density Path Forecasts” with Prof. Ana Galvao (University of Warwick) and Prof. James Mitchell (University of Warwick, Economic Statistics Centre of Excellence).
- “Quantile Density Combination: An Application to US GDP Forecast” with Knut Are Aastveit (Norges Bank) and Saskia ter Ellen (Norges Bank)

PRESENTATIONS AT CONFERENCES

- 2018 Computational and Financial Econometrics Conference (CFE), Pisa (Italy)
NBP Workshop on Forecasting, Narodowy Bank Polski (NBP) Warsaw (Poland)
- 2019 International Association for Applied Econometrics Conference (IAAE), Nicosia (Cyprus)
72nd European Meeting of the Econometric Society (ESEM), Manchester (UK)
Norges Bank (Norway), Internal Research Seminar.

AWARDS

- 2016-2020 Ph.D. scholarship from Warwick Business School.
- 2016-2020 Ph.D. scholarship from Economic and Social Research Council (ESRC).
- 2016 Riccardo Faini Award for the best master thesis (Ca' Foscari).

TEACHING EXPERIENCE

- 2017-2019 University of Warwick, UK
Teaching Assistant
Advanced Econometric Theory - Ph.D. students in Economics - Module leader: Dr. Giovanni Ricco.
- 2017-2020 University of Warwick, UK
Teaching Assistant
Quantitative Methods for Finance - Master students - Module leader: Prof. Cesare Robotti (2018-2018), Prof. Anthony Garratt (2018-2019).
- 2017-2018 University of Warwick, UK
Teaching Assistant
Global Integrative Project – Module leader: Dr. Frederik Dahlmann.

PROFESSIONAL AND ACADEMIC EXPERIENCE

- Apr-Nov 2019 PhD Internship at Norges Bank, Norway
I worked on predefined research project with the target of producing a complete paper to be published in the Norges Bank Working Paper series. During this period I worked on the paper entitled “Quantile density combination: An application to US GDP forecast” with Knut Are Aastveit and Saskia ter Ellen which is now at a draft stage and submitted to the main conferences in the field. I also participated in research activities at Norges Bank, attending and presenting this work at Norges Bank research seminars.
- 2015-2016 Prometeia SPA, Italy
Junior Economist, Financial Markets Analysis Unit
Prometeia is an outstanding leader in the private sector for research and forecasting. My main role was developing models for estimation and forecasts for the Italian and European banking financial institutions.
- 2015 Univerisit Paris 1 Panthon Sorbonne, France
Visiting Student
Modules in Population Economics and Labour Economics, French course (level B2).
- 2015 Harvard National Model United Nations 2015 edition; Boston, Massachusetts
As part of the Ca Foscari delegation, I represented Armenia at the United Nations Model in the Disarmament and International Security Committee in Boston.
- 2014 CFA Institute Research Challenge 2014; Milan, Italy.
As part of the Ca Foscari team, I participated in the 2014 edition of the global competition. In particular, I built a macro analysis of Luxury Market.

LANGUAGES

English (fluent), Italian (native) and French (basic)

PROGRAMMING SKILLS

MATLAB, Stata, R, L^AT_EX.

PERSONAL INFORMATION

Full name: Giulia Mantoan
Date of birth: 29/Mar/1991
Citizenship: Italian

Quantile density combination: An application to US GDP forecast

with Knut Are Aastveit (Norges Bank) and Saskia ter Ellen (Norges Bank).

Often, forecast combination schemes are applied to the entire predictive distribution, regardless the forecast accuracy may differ across regions. In this paper we combine density forecasts from quantile regressions. Our forecasts combination scheme assigns weights to the individual predictive density forecasts based on the quantile score by Gneiting and Ranjan (2011). Compared to standard combination schemes, our approach has the advantage of assigning different set of combination weights to the various quantiles of the predictive distribution. We apply our approach to US GDP growth forecasts based on quantile regressions using a broad set of common leading indicators. The results show that combined density forecasts based on quantile scores significantly outperform pooling the entire distribution based on equal weights, optimizing the CRPS or log scoring rule. In particular, our approach provides more accurate and better calibrated forecast for the lower tail of the GDP distribution. Thus, our framework seems particularly promising for estimating GDP-at-risk.

Are Central Banks' Fancharts Reliable? On Calibration of Density Path Forecasts

with Prof. Ana Galvao (University of Warwick) and Prof. James Mitchell (University of Warwick, Economic Statistics Centre of Excellence).

Central banks communicate their monetary policies through point and density forecasts. It is well known that density forecast suffers from a lack of interpretability, that challenges its communication. For this reasons, central banks publish regularly density forecast using the so called "fan charts" or path forecasts. Path forecast is much more than a simple collection of predictions: it is informative of the dynamics of the variable of interest. The dynamic is given by the presence of time-dependency among horizons. A change in time-dependence among horizon will impact the path's confidence bands. This paper propose investigate how time-dependence affect the path forecasts with the purpose of evaluate the density path forecast accounting for time-dependence. We will use the historical fan charts published by Bank of England.

**Optimal Pooling and Finite Mixture Distribution:
a Comparison between Approaches to Density Forecast Combination**

The combination of two or more density forecasts entails a long tradition the statistics and forecasting literature. However, little attention in econometrics has been given to the finite mixture distribution as a statistical model for combining density forecasts. Combination procedures based on a mixture density distribution are able to account for parameter uncertainty in addition to weights uncertainty, which are features normally not considered in the traditional "two-step" approaches. The aim of this paper is to compare the "one-step" mixture approach with a more traditional "two step" approach for combining density forecasts. The comparison has been achieved with several Monte Carlo simulations and applications. From the comparison, the "two-step" set of procedures result to be more accurate in combining density forecasts when the sample size is small, the individual models are nonnested or when the number of forecasts to combine is high. The "one-step" is more accurate in combing density forecasts when the sample size is big enough, the individual models are nested, when data presents breaks or when the number of forecasts to combine is low.

Bayesian Calibration of Generalized Pools of Predictive Distributions,

with Prof. R. Casarin (Ca' Foscari University) and Prof. F. Ravazzolo (Free University of Bozen-Bolzano).

Decision-makers often consult different experts to build reliable forecasts on variables of interest. Combining more opinions and calibrating them to maximize the forecast accuracy is consequently a crucial issue in several economic problems. This paper applies a Bayesian beta mixture model to derive a combined and calibrated density function using random calibration functionals and random combination weights. In particular, it compares the application of linear, harmonic and logarithmic pooling in the Bayesian combination approach. The three combination schemes, i.e., linear, harmonic and logarithmic, are studied in simulation examples with multimodal densities and an empirical application with a large database of stock data. All of the experiments show that in a beta mixture calibration framework, the three combination schemes are substantially equivalent, achieving calibration, and no clear preference for one of them appears. The financial application shows that the linear pooling together with beta mixture calibration achieves the best results in terms of calibrated forecast.