

Andrea Renzetti

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Research Interests: Econometrics, Empirical macroeconomics, Bayesian econometrics

Current Position

October 2023 - Present | **Postdoctoral Research Fellow** - Bocconi University, Department of Economics

Education

2019 - 2024	Ph.D. in Economics , University of Bologna Advisor: Prof. Andrea Carriero
January 2023 - April 2023	Visiting Ph.D. scholar, University of Pennsylvania Sponsor: Prof. Frank Schorfheide
2017 - 2019	M.Sc. in Economics , University of Rome Tor Vergata Final grade: 110/110 cum Laude
2014 - 2017	B.Sc. in Economics , University of Rome Tor Vergata Final grade: 110/110 cum Laude
Fall 2016	Exchange Student, University of Barcelona

Previous Positions

June 2022 - December 2022	Ph.D. Trainee - European Central Bank, Directorate General Economics
March 2021 - June 2021	Research Intern - Bank of Italy, D.G. for Economics, Statistics and Research
January 2022 - February 2022	

Research

Publications “**Labour at risk**” with Claudia Feroni and Vasco Botelho, *European Economic Review* (2024) [\[Paper\]](#)

Working Papers “**Theory coherent shrinkage of time-varying parameters in VARs**”
This paper introduces a novel theory-coherent shrinkage prior for Time-Varying Parameter VARs (TVP-VARs). The prior centers the time-varying parameters on a path implied a priori by an underlying economic theory, chosen to describe the dynamics of the macroeconomic variables in the system. Leveraging information from conventional economic theory using this prior significantly improves inference precision and forecast accuracy compared to the standard TVP-VAR. In an application, I use this prior to incorporate information from a New Keynesian model that includes both the Zero Lower Bound (ZLB) and forward guidance into a medium-scale TVP-VAR model. This approach leads to more precise estimates of the impulse response functions, revealing a distinct propagation of risk premium shocks inside and outside the ZLB in US data. [\[Job Market Paper\]](#)
(Submitted - Under review)

“Firm heterogeneity and aggregate fluctuations: a functional VAR model” with Massimiliano Marcellino and Tommaso Tornese [\[Paper\]](#)

We develop a Functional Augmented Vector Autoregression (FunVAR) model to explicitly incorporate firm-level heterogeneity observed in more than one dimension and study its interaction with aggregate macroeconomic fluctuations. Our methodology employs dimensionality reduction techniques for tensor data objects to approximate the joint distribution of firm-level characteristics. More broadly, our framework can be used for assessing predictions from structural models that account for micro-level heterogeneity across multiple dimensions. Leveraging firm-level data from the Compustat database, we use the FunVAR model to analyze the propagation of total factor productivity (TFP) shocks, examining their impact on both macroeconomic aggregates and the cross-sectional distributions of capital and labor across firms.

“Nowcasting distributions: a functional MIDAS model” with Massimiliano Marcellino and Tommaso Tornese [\[Paper\]](#)

We propose a functional MIDAS model to leverage high-frequency information for forecasting and nowcasting distributions observed at a lower frequency. We approximate the low-frequency distribution using Functional Principal Component Analysis and consider a group lasso spike-and-slab prior to identify the relevant predictors in the finite-dimensional SUR-MIDAS approximation of the functional MIDAS model. In our application, we use the model to nowcast the U.S. households’ income distribution. Our findings indicate that the model enhances forecast accuracy for the entire target distribution and for key features of the distribution that signal changes in inequality.

“Modelling and forecasting macroeconomic risk with time-varying skewness stochastic volatility models” [\[Paper\]](#)

Monitoring downside risk and upside risk to the key macroeconomic indicators is critical for effective policymaking aimed at maintaining economic stability. In this paper I propose a parametric framework for modelling and forecasting macroeconomic risk based on stochastic volatility models with *Skew-Normal* and *Skew-t* shocks featuring time varying skewness. Exploiting a mixture stochastic representation of the *Skew-Normal* and *Skew-t* random variables, in the paper I develop efficient posterior simulation samplers for Bayesian estimation of both univariate and VAR models of this type. In an application, I use the models to predict downside risk to GDP growth in the US and I show that these models represent a competitive alternative to semi-parametric approaches such as quantile regression. Finally, estimating a medium scale VAR on US data I show that time varying skewness is a relevant feature of macroeconomic and financial shocks.

Work in progress

- “*Efficient Bayesian estimation of SUR models*” with Carriero, Marcellino and Tornese
- “*Generalizing the dummy observations prior*”
- “*Structural analysis with a Matrix Autoregressive Index Model*” with Mazzali

Teaching

May 2024 - September 2024

Adjunct Professor in Econometrics

University of Bologna, *Department of Statistics*

Spring 2024

Teaching Assistant - Econometrics (*MSc in Statistics*)

University of Bologna, *Department of Statistics*

Spring 2021, Spring 2022

Teaching Assistant - Macroeconomics I (*MSc in Economics*)

University of Bologna, *Department of Economics*

Spring 2022

Teaching Assistant - Econometrics (*Second cycle degree in Statistical Science*)

University of Bologna, *Department of Statistics*

Spring 2022

Teaching Assistant - Quantitative Methods - Econometrics (*MSc in Management*)

University of Bologna, *Department of Economics*

Scholarships & Awards

2023	Marco Polo Scholarship, University of Bologna
2019	Borsa Mortara - <i>Particularly deserving candidate</i> , Bank of Italy
2019	PhD Scholarship, University of Bologna
2018 - 2019	Working scholarship - International Office, University of Rome Tor Vergata
2018	First Prize - First Year Student Prizes of the M.Sc. in Economics, University of Rome Tor Vergata
2017 - 2018	Working scholarship - Vilfredo Pareto Library, University of Rome Tor Vergata
2016	Erasmus+ Scholarship, University of Rome Tor Vergata

Other activities

Presentations	2024	Empirical Macroeconomics Workshop (King's College London), Bayesian Workshop RCEA (London Brunel University), BSE Summer Forum, JRC/ECFIN Seminar Series (Ispra JRC European Commission), University of Bologna, Macro Lunch seminars Cattolica University of Milan, Bocconi Macro Brown-bag Seminars, CFE-CM Statistics 2024 (invited/scheduled)
	2023	NBER-NSF SBIES (Federal Reserve Bank of Philadelphia), 2023 Annual IAAE Conference (Oslo BI), University of Bologna
	2022	ECB Brown-bag Seminar Series (European Central Bank), University of Bologna

Refereeing	International journal of forecasting
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Other education

2021	Macroeconometrics Summer School, Barcelona Graduate School of Economics: Bayesian Time Series Methods: Introductory Bayesian Time Series Methods: Advanced High-Dimensional Time Series Models II: Big Data and Machine Learning
2020	Summer School - Bayesian Multivariate Models and Forecasting in Economics and Finance SIDE " <i>Società Italiana di Econometria</i> "

Skills

Computing Skills	Statistical software: MATLAB, R, Stata, Julia, Dynare Other software: Excel, Word, Power Point Programming: Python Writing: L ^A T _E X
	Languages Italian (native), English, Spanish

References

Andrea Carriero (Ph.D. advisor)
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