

# Andrea DE POLIS

## PERSONAL DATA

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## RESEARCH INTERESTS

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Primary fields: Macroeconometrics, Financial Econometrics, Macroeconomics

Secondary fields: Bayesian Econometrics, Forecasting, Asset Pricing

## CURRENT POSITION

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**Postdoctoral Research Associate** Jan 2024 -

Economic Statistics Centre of Excellence (ESCoE)  
Univeristy of Strathclyde

## PROFESSIONAL EXPERIENCE

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**Research Visiting** May 2025 (planned)  
Central Bank of Finland

**Research Economist** Sept 2022 - Aug 2024  
Fulcrum Asset Management

**Research Visiting** May 2023  
Macro Research Group  
Federal Reserve Bank of Chicago

**Ph.D. Research Assistant** Jan 2022 - Aug 2022  
DG-Research  
European Central Bank

**Senior Economist** May 2021 - Dec 2021  
Now-Casting Economic, Ltd

**Research intern** Sept 2018 - Jan 2019  
Monetary Policy and Economic Outlook Directorate  
Bank of Italy

## EDUCATION

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**Ph.D. in Finance and Econometrics** 2017 - 2023  
Supervisors: Prof. Ivan Petrella and Prof. Ana Galvão  
Viva Committee: Prof. Andrew Patton and Prof. Anthony Garratt  
Warwick Business School, The University of Warwick

**MSc in Economics**, Cum laude 2015 - 2017  
Tor Vergata University of Rome

**BSc in Economics** 2012 - 2014  
Roma Tre University

# RESEARCH

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## Publications

### ***Modeling and Forecasting Macroeconomic Downside Risk***

with Davide Delle Monache (Banca d'Italia) and Ivan Petrella (Collegio Carlo Alberto).

**Journal of Business & Economic Statistics**, 42 (3), 1010 - 1025, 2024.

*Abstract:* We model permanent and transitory changes of the predictive density of U.S. GDP growth. A substantial increase in downside risk to U.S. economic growth emerges over the last 30 years, associated with the long-run growth slowdown started in the early 2000s. Conditional skewness moves procyclically, implying negatively skewed predictive densities ahead and during recessions, often anticipated by deteriorating financial conditions. Conversely, positively skewed distributions characterize expansions. The modeling framework ensures robustness to tail events, allows for both dense or sparse predictor designs, and delivers competitive out-of-sample (point, density and tail) forecasts, improving upon standard benchmarks.

## Working Papers

### ***The Taming of the Skew: Asymmetric Inflation Risk and Monetary Policy***,

with Leonardo Melosi (University of Warwick, EUI) and Ivan Petrella (Collegio Carlo Alberto).

*Abstract:* We document that inflation risk in the U.S. varies significantly over time and is often asymmetric. To analyze the first-order macroeconomic effects of these asymmetric risks within a tractable framework, we construct the beliefs representation of a general equilibrium model with skewed distribution of markup shocks. Optimal policy requires shifting agents' modal forecast counter to the direction of inflation risks. We perform counterfactual analyses using a quantitative general equilibrium model to evaluate the implications of incorporating real-time estimates of the balance of inflation risks into monetary policy communications and decisions.

### ***Time-Varying Skewness and Momentum Crashes***,

with Daniele Bianchi (Queen Mary University) and Ivan Petrella (Collegio Carlo Alberto).

**Revision requested at the Review of Asset Pricing Studies.**

*Abstract:* The return on conventional momentum portfolios exhibits a predominantly negative, time-varying skewness, which deepens during momentum "crashes". This has important implications for the portfolio risk-return trade-off: the relationship between the expected return and volatility is time-varying and depends on conditional skewness. We explore the economic underpinnings of time-varying skewness by timing the capital exposure to a momentum portfolio in response to fluctuations in risk. The results show that a dynamic skewness-adjusted maximum Sharpe ratio strategy outperforms popular volatility targeting approaches. Finally, we show that momentum skewness cannot be fully reconciled with an asymmetric exposure to upside and downside market risk.

## ***Exchange Rate Dynamics and Unconventional Monetary Policies: it's all in the shadows,***

with Mario Pietrunti (Banca d'Italia).

*Abstract:* In this paper we estimate an open economy New-Keynesian model to investigate the impact of unconventional monetary policies on the exchange rate, focusing on those adopted since the Global Financial Crisis in the euro area and in the United States. To this end we replace effective, short-term, interest rates with shadow rates, which provide a measure of the monetary stance when the former reach their effective lower bound. We find that since 2009 unconventional monetary policies significantly affected the dynamics of the euro-dollar exchange rate both in nominal and real terms: while the stimulus provided by the Fed prevailed between 2011 and 2014, contributing to the weakening of the dollar, in most recent years the depreciation of the euro mainly reflected the measures adopted by the ECB.

## **Work-in-progress**

### ***Common Risks and Common Gaps.***

*Abstract:* The Okun's law puts forward a relation between the output and the unemployment gaps. I provide evidence of common non-linearities across the two quantities, highlighting common dynamics in higher order moments. I estimate a joint model for the dynamics of the marginal densities of the output gap and the unemployment gap, which can capture potential non-Gaussian features of the data through the time variation of the mean, variance and skewness. I postulate the Okun's relation to hold for the predictive densities by assuming common cyclical components for the moments. I document a considerable reduction in the uncertainty surrounding estimates of the natural rate of unemployment, or NAIRU, in the US, as compared to estimates based on symmetric models. Similarly, accounting for time-varying skewness of the output delivers estimates of the output gap that are less uncertain and more stable over time with respect to CBO projections.

### ***Testing for Conditional Skewness with Epsilon-Skew-t Distributions.***

*Abstract:* I develop a parametric test to detect the presence of instability in the third moment of time series data. The test is based on the score function of the flexible *epsilon-Skew-t* distribution, and belongs to the class of Lagrange Multiplier tests. The test presents appropriate asymptotic properties, as evaluated by means of an extensive Monte Carlo analysis. When applied to the three asset pricing anomalies of Fama and French (1993), the test points at an overwhelming evidence of conditional non-Gaussianity at the daily frequency, whereas weaker results are observed at the monthly frequency. These results should be taken as a warning of possible misspecification of asset pricing models based on symmetric likelihoods.

### ***The Ever-Changing Challenges to Price Stability,***

with Leonardo Melosi (University of Warwick, EUI) and Ivan Petrella (Collegio Carlo Alberto).

*Abstract:* US inflation risk is non-symmetric and varies considerably over time. Monetary and fiscal policies along with non-policy factors, such as unit labor costs, long-run interest rates, the unemployment gap, and commodity prices, are key drivers of the inflation risk. Macroeconomic predictors affect the long-run mean of inflation chiefly by influencing the shape and the skewness of the predictive distribution of long-run inflation. Inflation stabilization requires periodic revisions to the monetary and fiscal framework to counterbalance persistent shifts in the inflation risk. Failing to offset the inflation risk led to the large upside inflation risk of the 1960s and the 1970s. Our findings suggest that the Phillips curve is nonlinear and its slope is affected by policy and non-policy factors that have bearings on short-term volatility and risk of inflation.

### ***Mixed Frequency Functional VARs for Nowcasting and Structural Analysis,***

with Gary Koop (Univeristy of Strathclyde), Stuart McIntyre (Univeristy of Strathclyde) and James Mitchell (FRB Cleveand).

*Abstract:* We propose a functional-Vector Autoregressive model (fVAR) to nowcast the dynamics of the whole income distribution in the United Kingdom. British survey data about household income are published by the Office for National Statistics (ONS) with considerable delay, making them unappealing for policy evaluation. Our approach produces accurate predictions of past, current and future income distributions. We introduce a framework to rank the predictive ability of forecasting models when the target object is a full density, rather than a single realization. Based on this novel loss-function, we establish that our fVAR provides superior forecasting accuracy with respect to competing models. Our model further allows to carry out structural analysis on the income distribution within a traditional VAR setting.

### ***Real-Time Forecasting with High-Frequency Seasonal Patterns,***

with Ana Galvão (Bloomberg LP) and Ivan Petrella (Collegio Carlo Alberto).

*Abstract:* In this paper, we propose a novel, comprehensive approach to interpolate low-frequency official statistics from high-frequency data. Differently from standard mixed-frequency dynamic factor models, commonly used for nowcasting, we leverage on recent developments in nowcasting modeling to build a methodology that can easily deal with outlier detection, complex calendar patterns and temporal disaggregation. We deploy the new methodology to introduce a new weekly tracker for real activity in the United Kingdom based on the several new, high-frequency data provided by the Office for National Statistics (ONS). Results suggest that these new data sources, when properly managed via our model, introduce significant improvements in the predictive accuracy of traditional nowcasting models, generally based on lower-frequency data, in terms of both point and density forecasts.

## **PRESENTATIONS**

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- 2024: HM Treasury\*, Workshop Empirical Monetary Economics (OFCE, Paris), UNSW-ESCoE Conference on Economic Measurement (University of New South Wales, Sydney), The Frontier of Monitoring and Forecasting Macroeconomic and Financial Risk (SOFiE, National Bank of Belgium), 31st Annual Symposium of the Society for Nonlinear Dynamics and Economics (University of Padova), ESCoE Conference on Economic Measurement Conference (Univeristy of Manchester), University of Verona.
- 2023: Federal Reserve Bank of Chicago, 12th European Central Bank Conference on Forecasting Techniques, Society for Financial Econometrics (Sungkyunkwan University, Seoul), International Association for Applied Econometrics (BI Norwegian Business School), Money, Macro & Finance Network, 5th International Workshop in Financial Econometrics (Bahia, Brazil), Bank of England, Centre for Macroeconomics (LSE), 17th International Conference on Computational and Financial Econometrics (HTW Berlin).
- 2022: CEBRA (Pompeu Fabra University), ECB, RCEA Conference on Recent Developments in Economics, Econometrics and Finance (University of Cyprus), Fulcrum Asset Management.
- 2021: Warwick Business School, Economics Statistics Center of Excellence, International Association for Applied Econometrics (Erasmus School of Economics), 7th RCEA Time Series Workshop, International Symposium of Forecasters, 11th RCEA Money, Macro and Finance Conference, NBER-NSF SBIES (University of St. Louis), European Economic Association (University of Copenhagen), Örebro University.

2020: University of Warwick, 28th Annual Symposium of the Society for Nonlinear Dynamics and Econometrics (Zagreb University), University of Cyprus, Conference on Real-Time Data Analysis, Methods and Applications (FRB Philadelphia), 2nd Vienna Workshop on Economic Forecasting 2020 (IHS), EC2 conference (CREST & ESSEC).

2019: 13th International Conference on Computational and Financial Econometrics (University of London).

\*: scheduled.

## REFeree ACTIVITY

American Economic Review: Insights, Journal of Applied Econometrics, Journal of Economic Dynamics and Control, International Journal of Forecasting, The Manchester School, International Review of Financial Analysis

## SCHOLARSHIPS AND HONORS

WBS bursary, Warwick Business School, University of Warwick	2017 - 2021
Award for Outstanding Contribution to Teaching, Warwick Business School	2020 & 2021
Particularly deserving "Giorgio Mortara" candidate, Bank of Italy	2017
C.S.R. Pettinari scholarship	2017

## TEACHING EXPERIENCE

<b>Empirical finance</b> (MSc), Warwick Business School	2018 - 2021
Teaching assistant for Dr. Daniele Bianchi (2018 - 2019)	
Teaching assistant for Dr. Ganesh Viswanath-Natraj (2019 - 2021)	

**Research methods** (MSc), Warwick Business School

Teaching assistant for Prof. Roman Kozhan (2018 - 2019)

Teaching assistant for Dr. Gi H. Kim (2010 - 2021)

<b>Time series</b> (BSc), Economics dept., University of Warwick	2018 - 2019
Teaching assistant for Dr. Alexander Karalis Isaac	

<b>Econometrics</b> (MSc), Warwick Business School	2019 - 2020
Teaching assistant for Prof. Gianna Boero and Dr. Thomas Martin	

<b>Econometrics</b> (MSc), Economics dept., University of Warwick	2020 - 2021
Teaching assistant for Prof. Manuel Bagues	

<b>Applied Multiple Regression Analysis</b> (PhD), Warwick Business School	2021
Teaching assistant for Prof. Ana Galvão	

## ADVANCED TRAINING

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<b>Nowcasting &amp; Models for Mixed Frequency Data</b> International Institute of Forecasters, 4th annual forecasting summer school Lecturer: M. Marcellino (Bocconi University)	JUL 2021
<b>Recent Development in Financial Econometrics</b> Italian Econometric Society summer school Lecturers: A. Patton (Duke University) and K. Sheppard (Oxford University)	JUL 2018
<b>Time Series Econometrics</b> Lecturer: A. C. Harvey (Cambridge University)	MAY 2017
<b>Bayesian Methods for Macroeconomics</b> Lecturer: G. Koop (Strathclyde University)	APR 2017
<b>Bayesian Econometrics</b> Lecturer: M. D. Weeks (Cambridge University)	MAR 2017
<b>Can you speak Matlab?</b> Working with Time and Frequency in Matlab	MAR 2017
<b>Can you speak Matlab?</b> Solving optimization problems with Matlab	MAR 2016

## COMPUTER SKILLS

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Advanced Knowledge:	MATLAB, STATA, L <sup>A</sup> T <sub>E</sub> X, BEAMER, OFFICE PACKAGE
Intermediate Knowledge:	R, PHYTON, JULIA, MATHEMATICA, DYNARE. SQL

## LANGUAGES

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ITALIAN (native), ENGLISH (fluent), SPANISH (intermediate), FRENCH (basic)

## REFERENCES

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Prof. IVAN PETRELLA Collegio Carlo Alberto University of Turin ✉ <a href="mailto:ivan.petrella@carloalberto.org">ivan.petrella@carloalberto.org</a>	Prof. LEONARDO MELOSI Department of Economics University of Warwick ✉ <a href="mailto:leonardo.melosi@warwick.ac.uk">leonardo.melosi@warwick.ac.uk</a>
Dr. JAMES MITCHELL Vice President, Research Department Federal Reserve Bank of Cleveland ✉ <a href="mailto:james.mitchell@clev.frb.org">james.mitchell@clev.frb.org</a>	Dr. ANA BEATRIZ GALVÃO Global Modelling Team Bloomberg Economics ✉ <a href="mailto:ana.b.galvao@pm.me">ana.b.galvao@pm.me</a>