Dev Prakash Srivastava

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Education

Bocconi University — Italy
M.Sc. Economics and Social Sciences — *Sept 2022 – Dec 2024*

Indian Institute of Technology, Kanpur — India
M.S. Economics — *July 2021 – June 2022*

Indian Institute of Technology, Kanpur — India
B.Tech. Chemical Engineering — *July 2017 – June 2022*

Awards and Fellowships

IGIER-BIDSA VSI Fellow: Visiting Students Initiative 2023-24
Graduate Merit Award: Awarded by Bocconi University
KVPY (Young Scientist) Fellowship Award: Awarded the fellowship by Department of Science & Technology, Govt. of India. Secured a rank of 83 among 100,000 students across India

Exam Scores

GRE: 337/340 (Verbal = 169/170, Quantitative = 168/170)

Skills

Programming Languages: R, Python, MATLAB, C, SQL, STATA
Utilities: LaTeX

Working Papers

Demographic Trends and Government Debt Dynamics in the US and Europe (2025) *
Srivastava, Dev and Favero, Carlo A.

- Collected and harmonized long-run fiscal and demographic series for the US and top 5 EA economies.
- Developed a dynamic model integrating demographic projections into the intertemporal government budget constraint to analyze historical and future debt trajectories.
- Showed that ageing populations increase debt-to-GDP ratios by lowering output growth, weakening primary balances, and generating a negative interest–growth differential.
- Demonstrated that higher migration inflows and retirement reforms can mitigate these risks.

** CEPR Discussion Paper No. 20688; SSRN: 5388917; Under review at the Journal of Monetary Economics*

Research Experience

Sentiment Embeddings for Return Prediction — Nov 2024 – Jun 2025
Prof. Carlo Favero — *Dept. of Economics, Bocconi University*

- Designed and implemented a sentiment analysis pipeline that processes raw earnings call transcripts through a financial-domain fine-tuned BERT model using `torch` and `transformers` to generate firm-level sentiment embeddings.
- Augmented embeddings with contextual information from historical regulatory filings and disclosures via retrieval-augmented generation (RAG) built using `LangChain` and `Llama`.
- Integrated the resulting time series of sentiment embeddings into econometric panel models in `R` to assess their predictive power for asset returns.

Estimating Term Premia for the Euro Area and US Jun 2023 – Nov 2024
Prof. Carlo Favero *Dept. of Economics, Bocconi University*

- Constructed a panel database combining macroeconomic variables, survey expectations, and central bank guidance for five EU countries and the US.
- Estimated 10-year term premia using survey-based methods, a five-factor affine term structure model (ATSM), and a yield-drift-augmented ATSM.
- Built a Shiny web platform to disseminate findings and allow users to input custom macroeconomic expectations to generate personalized term premia estimates.

Trends & Cycles in US & Euro Area Monetary Policy Jun 2024 – Dec 2024
Prof. Carlo Favero *Dept. of Economics, Bocconi University*

- Developed a sequential econometric framework modeling U.S. and Euro Area short-term interest rates to separate structural trends from cyclical dynamics.
- Incorporated survey-based expectations and unconventional monetary policy proxies to improve forecast performance across horizons.
- Evaluated out-of-sample forecast performance against Random Walk, AR(1), and Taylor Rule benchmarks, demonstrating improved medium- and long-term accuracy.

Fragmentation Risk in the Eurozone Sovereign Bond Market Jan 2024 – May 2024
Prof. Carlo Favero *Dept. of Economics, Bocconi University*

- Developed an interactive RShiny dashboard to monitor real-time sovereign bond market fragmentation across Euro Area countries.
- Ingested market data via Python using Refinitiv APIs and processed macro-fundamentals in R to compute fundamental-implied yields and identify deviations in market pricing.
- Enabled automated visual tracking of risk premia and spread volatility across countries, updated with live data feeds.

Work Experience

Financial Modelling Intern April - July 2024
Rationis *Milan, Italy*

- Designed and implemented robust portfolio optimization pipelines using Random Matrix Theory (Marchenko-Pastur-based denoising and detoning), regime-aware covariance modeling, and hierarchical clustering techniques to construct stable GMV and Sharpe-optimal portfolios across multiple asset universes.
- Applied Nested Clustered Optimization (NCO) and recursive NCO to build stable portfolios in high-correlation settings such as Fama-French industry portfolios; employed hierarchical risk allocation via clustering and quasi-diagonalization.
- Designed a regime-aware portfolio optimizer, integrating regime-switching logic via covariance regime detection using different distance metrics, improving performance across crisis and normal regimes.
- Engineered a modular Python research pipeline for portfolio evaluation, including Sharpe ratios, rolling returns, turnover, and exposure control.

Relevant Coursework

Economics: Advanced Macroeconomics, Macroeconometrics, Monetary Policy, Econometrics, Financial Econometrics, Game Theory, Microeconomics I & II, Macroeconomics I & II, Econometrics I & II, Behavioural and Experimental Economics, Economic Growth, Development Economics

Mathematics & Statistics: Real Analysis (twice), Linear Algebra, Probability & Statistics (twice), Statistical Mechanics & Kinetics, Time Series Analysis, Bayesian Statistical Methods, Applied Stochastic Processes, Computational Methods in Engineering

Computer Science: Data Structures & Algorithms, Fundamentals of Computing

Socials Sciences: Institutions- Government-Society (I&II); Globalization-Divergence-Inequality, Philosophical Aesthetics, Introduction to Indian Society, Psychology of Adjustment

Social Initiatives

Volunteer July 2017 – April 2018

UBA, National Social Service *Govt. of India*

- Surveyed 20+ households in villages near Kanpur identifying the critical needs for sanitation and water management to develop a plan of action.
- Ran public health campaigns, sensitizing individuals about various facilities provided by the nearby government hospital, and general public health messaging.
- Organized English and computer classes for underprivileged children in multiple villages around Kanpur. Personally tutored a batch of 10 students (ranging from primary school to college)

Student Guide July 2018 – April 2019

Counselling Service *IIT Kanpur, India*

- Mentored a group of 8 freshmen, providing them holistic support to settle into campus life smoothly.
- Coordinated with 100+ other members to conduct Orientation '18 for 900+ freshers.
- Served as a link between the students and Counselling Service in identifying needful individuals.

Extracurriculars

Best Speaker, Galaxy Parliamentary Debate '19, an intra-varsity tournament of IIT Kanpur

Runners-up, National University of Judicial Sciences Parliamentary Debate '19 among 72 teams

Novice Semi-Finalist, IIT Bombay British Parliamentary Debate '18 among 150 teams