Cong Wang

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PROFILE SUMMARY

Econometrician and **Applied Scientist** with a PhD specializing in econometric modeling, machine learning, and causal inference, with extensive experience in **policy-oriented quantitative research**. At the European Stability Mechanism (ESM), research on macro-financial linkages, tools like the Bank Viability Index to evaluate financial stability and applying novel **machine learning methods** for economic modeling. My work focuses on leveraging **large-scale datasets** and advanced econometric techniques to evaluate the effects of fiscal policies, financial regulations, and structural reforms on households, businesses, and macroeconomic outcomes.

Proficient in **Python, SQL, R**, and data visualization tools like **Power BI** and **Matplotlib**, I excel in building scalable economic models, automating data pipelines, and generating actionable insights to inform evidence-based policymaking. My doctoral research introduced innovative methodologies, such as Instrumented Principal Component Analysis (IPCA), to address **high-dimensional** policy challenges in macroeconomics and international finance. With a strong foundation in analytical methods and a passion for public policy, I bring a collaborative approach to delivering robust, data-driven solutions for complex economic issues.

RESEARCH INTEREST

Primary field:	Econometrics
Secondary field:	Causal Inference, Machine learning
Industry related:	Policy analysis, Market Intelligence

EDUCATION

Sapienza University of Rome	**Rome, Italy**
PhD in Economics	*Expected in May 2025*
University of California, Los Angeles	**Los Angeles, United States**
Visiting PhD Researcher	*Mar 2023 – Sep 2023*
Barcelona School of Economics	**Barcelona, Spain**
Summer School	Jun 2022 – Jul 2022
HSE University	**St. Petersburg, Russia**
MSc in Finance	*Sep 2018 – Jun 2020*
University of Amsterdam	**Amsterdam, the Netherlands**
QTEM Programme	*Sep 2019 – Feb 2020*
Shenyang Ligong University	**Shenyang, China**
BSc in Engineering	*Sep 2012 - Jun 2016*

PROFESSIONAL EXPERIENCE

European Stability Mechanism, Chief Economist Department   **Luxembourg**
Financial Sector Analyst   *4.2024 – now*

- **Developed and optimized data-driven tools:** Enhanced the Bank Viability Index (BVI) using Python to evaluate financial stability across profitability, asset quality, capital adequacy, and liquidity metrics, ensuring precise and timely insights into Euro Area banks' health.
- **Optimized early warning systems**: Built predictive models to monitor loan performance and identify early signals of deterioration, such as transitions to Stage 3, optimizing risk detection processes.
- **Designed advanced analytical solutions:** Delivered actionable insights on macro-financial trends by integrating econometric models and data visualization techniques. Key contributions included analyses of Basel III reforms, sovereign-bank nexus risks, and capital market developments.
- **Streamlined automation and analytics**: Leveraged Python, SQL, and statistical tools to automate reporting workflows and analyze large datasets, improving operational efficiency and delivering critical intelligence to stakeholders.

University of California Los Angeles, Department of Economics   **LA, The United States**
Visiting Researcher   *3.2023 – 9.2023*

- Developed a **novel causal inference method** leveraging Instrumented Principal Component Analysis (IPCA) to improve causal estimation in high-dimensional datasets, with applications in finance and policy evaluation.
- Conducted econometric training and research in causal inference, focusing on advanced methods for identifying and quantifying causal relationships in economics.
- Designed and implemented data-driven econometric workflows, including advanced visualization, machine learning integration, and statistical modeling for cutting-edge economic research.

China Life Asset Management, Market Research Division   **Guangzhou, China**
Market Analyst   *7.2020 – 9.2021*

- **Streamlined workflows and enhanced efficiency:** Designed and implemented a data visualization tool to enable faster and more effective analysis of market trends, improving decision-making processes for internal and external stakeholders.
- **Optimized data analysis processes:** Utilized Python to analyze large datasets, ensuring accurate forecasting and actionable intelligence for business operations.

Cbonds, Research Department   **St. Petersburg, Russia**
Fixed Income Analyst   *3.2019 – 8.2019*

- **Built bond database:** Built a Panda bond database using SQL, streamlining the collection, analysis, and reporting of fixed income data, enhancing operational efficiency and accuracy.
- **Supported financial modeling and forecasting:** Utilized econometric techniques to analyze fixed income trends and deliver intelligence, analytical solutions with strategic objectives.

SCHOLARSHIPS & AWARDS

University of Rome International Mobility Scholarship	2022
University of Rome fully founded Ph.D. Scholarship	2021
QTEM Honored Graduate Diploma	2020
HSE University International Mobility Scholarship	2019
HSE University Scholarship	2018

CONFERENCE & WORKSHOP

2024 European Winter Meeting of the Econometric Society   **Palma de Majorca, Spain**
The Econometric Society.   Dec 2024

Central Bank Research Association (CEBRA) Conference   **Luxembourg**
European Stability Mechanism.   Nov 2024

ESM Policy Conference   **Luxembourg**
European Stability Mechanism.   Nov 2024

12th IEA Workshop in Econometrics and Empirical Economics   **Bertinoro, Italy**
Italian Econometric Association.   Sep 2024

IMF Financial Programming and Policies Workshop   **Luxembourg**
European Stability Mechanism.   Jun 2024

Climate and the Environment Mini-Conference   **Los Angeles, USA**
University of California, Los Angeles.   Aug 2023

2023 North American Summer Meeting (NASM)   **Los Angeles, USA**
The Econometric Society.   Jun 2023

CCPR Differences-in-Differences Mini-Conference   **Los Angeles, USA**
University of California, Los Angeles.   May 2023

Empirical Tools/Applications in Banking and Macro-Finance   **Barcelona, Spain**
Barcelona School of Economics, summer school.   Jul 2022

Workshop on Demand System Asset Pricing   **Online**
Held by Ralph S.J. Koijen and Motohiro Yogo.   Jun 2022

Innovation, Growth, and Production. Models & Data Analysis   **Rome, Italy**
Sapienza, University of Rome. Advanced Course 2022, 17th Edition.   May 2022

SKILLS

Programming Language: Python (Expert), R (Advanced), STATA (Advanced), MATLAB
Data Visualization: Power BI (Expert), Tableau (Advanced)
Data Management: SQL (Expert)
Data Terminals: Bloomberg terminal (Expert), Refinitiv Eikon (Expert)
Human Language: Chinese (Native), English (Proficient), Russian (Intermediate)

REFERENCES

Valeria Patella	Paolo Fioretti	Juan Sole
Assistant Professor	Deputy Head of Division	Principal Economist
Sapienza University of Rome	European Stability Mechanism	European Stability Mechanism
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PUBLICATIONS

Counterfactual and Synthetic Control Method: Causal Inference with Instrumented Principal Component Analysis

Job Market Paper

- *Abstract:* In this paper, we propose a novel method for causal inference within the framework of counterfactual and synthetic control. Matching forward the generalized synthetic control method, our instrumented principal component analysis method instruments factor loadings with predictive covariates rather than including them as regressors. These instrumented factor loadings exhibit time-varying dynamics, offering a better economic interpretation. Covariates are instrumented through a transformation matrix, Γ, when we have a large number of covariates it can be easily reduced in accordance with a small number of latent factors helping us to effectively handle high-dimensional datasets and making the model parsimonious. Moreover, the novel way of handling covariates is less exposed to model misspecification and achieved better prediction accuracy. Our simulations show that this method is less biased in the presence of unobserved covariates compared to other mainstream approaches. In the empirical application, we use the proposed method to evaluate the effect of Brexit on foreign direct investment to the UK.

Firms' Carbon Emissions and Stock Returns

Working paper

- *Abstract:* In recent years, the surge in unanticipated climate change risk has led to green assets outperforming their brown counterparts, a trend that contradicts the theoretical expectation that brown assets, exposed to higher risk associated with climate change, should achieve higher return compensations. This paper presents empirical evidence from the US stock market, utilizing both portfolio and individual stock analyses, to elucidate this discrepancy. Our findings reveal that, from 2002 to 2021, green portfolios, characterized by lower carbon emissions, consistently outperform brown portfolios. Similar patterns are observed at the firm level. We propose that unexpected concerns about climate change have shifted market preferences, leading to a differential demand shock for green and brown assets. This shift in preference is a key factor driving the superior performance of green assets over their brown counterparts.

Stock Return Prediction with Multiple Measures Using Neural Network Models

Published on ***Financial Innovation***

- *Abstract:* In my research on empirical asset pricing, I investigated the performance of machine learning methods in predicting stock returns using various factor models. My findings demonstrated that neural network models consistently perform well with firm-specific variables, and their accuracy significantly improves with the inclusion of macroeconomic factors such as financial market data, economic activities, and investor sentiment. This improvement varies across different stock return measures. Additionally, I identified notable differences in model performance and variable importance when comparing abnormal returns from Fama–French models to excess returns, highlighting the complex interplay between factor models, stock returns, and macroeconomic conditions.