

SUJOY UPADHYAY

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Education

Doctorate of Philosophy

08/20 – 05/25 (Expected)

Ph.D Candidate, Economics

University of Illinois Chicago

- Ph.D. courses taken: Econometrics Sequence (Part 1, 2 and 3), Time Series Econometrics, Computer Algorithms 1, Probability Theory, Computational Statistics.
- Engaged in research in the fields of Labor, Public, and Applied Macroeconomics, using highly developed causal inference and time series models to reveal complex patterns and generate impactful insights.

Master of Science

01/19 – 05/20

Finance

University of Illinois Chicago

- MS courses taken: Investments, Options and Futures Markets, Quant Methods in Finance, Applied Linear Algebra, Data Mining, Advanced Calculus 3, Special Topics in Finance, Advanced Machine Learning.
- Facilitated with the best project award for "Netflix: A Fundamental and Quantitative Analysis" in a class of 30 + students in Finance 570 (Quantitative Finance).
- Graduated Summa Cum Laude with a 4.0 GPA.

Professional Experience

Anheuser-Busch InBev

05/18 – 12/18

Associate Data Scientist

Bangalore, India

- Conducted extensive data collection by extracting information on marketing inputs (advertising spending, pricing, promotions, etc.) while using SQL for efficient database querying.
- Leveraged Factor Analysis and econometric modelling to identify the efficacy of various marketing strategies on Python and R.
- Utilized Market-Mix-Modelling to optimize Budweiser's annual advertising budget exceeding \$1 billion in the US market as part of a dynamic team.

Anheuser-Busch InBev

05/17 – 08/17

Data Science Intern

Bangalore, India

- Improved in-house time series capabilities and used models like STL, UCM, and ARIMA to achieve 97% accuracy in predicting monthly sales for important global brands like Budweiser and Stella Artois on R.
- Documented the working methodology for models like STL and UCM to facilitate knowledge transfer.
- Received a pre-placement offer as a recognition of outstanding performance during the internship

Technical Skills

1. **Languages:** Python, R, Stata, SQL, Tableau, Microsoft Excel.
2. **Big Data Capabilities:** Apache Spark.
3. **Time Series models:** AR, MA, ARMA, ARIMA, STL, Prophet, UCM.
4. **Causal Inference models:** Difference in Differences (DID), Regression Discontinuity, Instrumental Variable.
5. **Machine Learning:** Decision Trees, Random Forests, Regression, Naïve-Bayes, SVM, KNN.
6. **Deep Learning Frameworks:** Artificial Neural Network, Convolutional Neural Network.

Online Learning

1. **Certification:** Udemy's Spark and Python for Big Data with Pyspark.

Awards

Liautaud Graduate Fellowship

01/19–08/20

University of Illinois Chicago

Chicago, USA

- Awarded the coveted UIC Liautaud Graduate Fellowship out of over 300 Graduate students to pursue a master's degree at the UIC business school.

Machine Learning Projects

Credit Risk Evaluation: Beyond Linear Models | *Python, Stata*

01/22 – 05/22

- Implemented Credit Risk Modeling using machine learning techniques, including CatBoost, XGBoost, Random Forest, and Light GBM.
- Achieved higher recall rates without using SMOTE (Synthetic Minority Over-sampling Technique) in CatBoost, demonstrating the algorithm's robustness in handling imbalanced datasets.
- Observed consistent and stable performance in Random Forest, regardless of the use of SMOTE, highlighting its reliability in credit risk prediction.

Futuristic Play: Predicting Transfer Values in European Football Leagues | *Python*

01/20 – 04/20

- Used web scrapping to build a data set of all soccer transfers since the year 2000 in the top 5 leagues in Europe.
- Build multiple models including fixed effect multivariate regression, ANN, as well as ridge and lasso regression to predict transfer values based on multiple player traits.
- The Neural Network model attained an out-of-sample accuracy of 88% using the adjusted R-squared framework.
- The project was awarded as the best ML paper in a class of 60 students.

Research Projects

Updated Phillips Curve and Inflation Forecasting | *Python, Stata*

08/23- 05/24

- * Involved in collecting, cleaning, and normalizing macroeconomic and accounting data from the Bureau of Labor Statistics, the Federal Reserve Bank of St Louis, and the Compustat data.
- * On track to modify the well-known and extensively used Phillips Curve so as to make better inflation forecasts than the currently accepted industry standards.
- * Working with time series models and regression analysis models to achieve the stated target.

Impact of the New Pension Scheme on Consumption Pattern in India | *Stata*

09/22-05/23

- * Investigated the causal impact of the implementation of the New Pension Scheme on the consumption pattern of pension holders in India.
- * Implemented a Difference in Difference model in this study to estimate the true causal impact of the policy.
- * The results unveil a substantial 18% reduction in consumption among households influenced by the policy.

Housing Market and Differential Returns | *Python, Stata*

08/21-12/21

- * Delved into why the period between the 1970s and 2007 (the subprime crisis), the income inequality between the bottom 50% earners and the top 10% earners saw a massive rise but the wealth inequality measure was relatively stagnant.
- * Cleaned and performed exploratory data analysis on the American Community Survey (ACS) and the House Price Index (HPI).
- * The results provide evidence towards the fact that the bottom half of the population holds a major portion of their wealth in the form of non-financial assets like houses and cars historically and so the rise in house prices over the last few decades mitigated the rise in wealth of the richest 10 %.

Teaching Experience

Economics Department, University of Illinois Chicago

08/20 – 12/22

Graduate Instructor

Chicago, USA

- * Designed courses and set midterms and finals for Econometrics (Econ 300) and Industrial Organisation. (Econ 330)
- * Taught bi-weekly classes of 30+ students and held weekly office hours.

Economics and Finance Department, University of Illinois Chicago

08/19 – 12/22

Teaching Assistant

Chicago, USA

- * Assisted in multiple courses - Introduction to Microeconomics, Introduction to Macroeconomics, and International Macroeconomics.
- * Graded homework assignments, examinations, conducted discussion sessions, and held office hours.

Leadership / Extracurricular

Bengali Students Association

08/23 – 08/24

Treasurer

University of Illinois Chicago

- Associated with maintaining a comprehensive oversight of the organization's financial accounts, ensuring accuracy and fiscal integrity
- Active involvement in organizing Bengali festivities throughout the year.