

BISHMAY BARIK

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Education

- M.Sc. Economics | Shiv Nadar University, Delhi-NCR** CGPA: 8.97/10 (3.6/4.0) | Dean's List, 2025 2023-2025
- **Subjects:** Macroeconomics (I & II) (*Distinction*), Econometrics (I & II), Microeconomics (I & II), Economics of Discrimination, Development Economics, Behavioural Economics
 - **Dissertation:** *Caste in Stone? Cultural Distance and the Education Game*

- B.Sc. Economics (Hons.) | XIM University, Bhubaneswar** CGPA: 9.47/10 (3.8/4.0) | Second Ranker 2020-2023
- Merit Scholarship recipient for three consecutive years
 - **Subjects:** Macroeconomics, Microeconomics, Development Economics, International Economics, Game Theory and Behavioural Economics
 - **Dissertation:** *Economics of Discrimination: Review of Gary Becker's work and its application on India*

Research Experience

- Research Associate | Centre for Advanced Financial Research and Learning (CAFRAL), RBI** July 2025 - Present
- Full-time position at RBI, Mumbai, Maharashtra, India.

- Research Assistant (continuing part time) | QuantEcon** May 2025 - Present
- Principal Investigator:** Dr. John Stachurski
- Designing open-access undergraduate economics course using Pydides/WebAssembly for real-time simulation, teaching scientific computing for inequality, resource scarcity, and climate change
 - Enhancing QuantEcon's intermediate Python lectures by rewriting selected series with JAX, improving computational efficiency, numerical accuracy, and scalability

- Data Science Intern | Development Data Lab** Mar - Sept 2025
- Principal Investigator:** Dr. Paul Novosad
- Cleaning and coding ASER (2007-2022) for incorporation into SHRUG Dataset by Development Data Lab

- Research Assistant | Culture and Debt in India** Aug 2024 - Present
- Principal Investigators:** Dr. Satyajit Chatterjee, Dr. Ashwini Deshpande & Dr. Nirupama Kulkarni
- Analyzing emigration patterns and debt holdings across castes, religions, and social strata using CMIE-CPHS, focusing on state/district variations
 - Investigating loan-taking behavior across castes/religions, exploring cultural norms' influence on financial decisions

- Research Assistant | Ashoka University** Apr - May 2025
- Principal Investigator:** Dr. Bhaskar Dutta
- Replicating methodologies from Journal of Development Economics paper using ASER at state level

- Research Assistant | "Punishment and Crime: Impact of Death Penalty on Local Crime Rates in India"** Dec 2024 - Jan 2025
- Authors:** Dr. Ashwini Deshpande & Dr. Anisha Sharma

- Research Intern | CAFRAL, RBI** 2024
- Principal Investigators:** Dr. Gautham Udupa & Dr. Vidhya Soundararajan
- Converting Stata codes to MATLAB equivalents; reviewing RBI circulars on Priority Sector Lending; reviewing literature on developmental factors affecting stock market participation

Public Contributions

- lipi-swap: Devanagari to Roman Transliteration Utility** 2025
- Tools:** Python (requests, BeautifulSoup, pandas, unidecode)
- Python utility for converting Devanagari script (Hindi) into Roman English characters, solving practical challenges in handling non-Latin text when working with Indian administrative datasets
 - Integrates transliteration engine into web scraping workflow for hierarchical Indian administrative data (states, districts, blocks, panchayats); ensures datasets remain readable and compatible across platforms
 - Eliminates encoding issues in CSV exports by converting geographic entities labeled in Hindi script (e.g., "पंचायत" → "panchayat")

- State-wise Jati Distributions Dashboard** 2025
- Tools:** Python (Streamlit, pandas), DuckDB, Apache Parquet, AWS S3
- Interactive Streamlit dashboard visualizing caste (*jati*) distribution across India using CMIE-CPHS (2014-2024); dynamic filters by state/district/year/month, highlights dominant *jatis*
 - Direct cloud integration: queries remote Parquet files from AWS S3 without local downloads; highly optimized SQL queries via DuckDB for efficient data retrieval over HTTPS
 - Performance optimization: `@st.cache_data` caching for metadata loading and database queries; columnar storage format enables fast aggregation without loading full dataset into memory

Dissertation and Research Projects

Caste in Stone? Cultural Distance and the Education Game (Master's Thesis)	2024-25
Supervisors: Dr. Partha Chatterjee, Dr. Pubali Chakraborty	
<ul style="list-style-type: none"> Developed three-period macroeconomic model analyzing intergenerational human capital/income disparities across caste/religious groups using CPHS and Samaj Survey data Quantified cultural distance's role in perpetuating intergroup disparities, linking cultural norms variation to human capital accumulation and income outcomes 	
Shedding Light on Consumption: Night-Time Luminosity as Predictor of Consumption Expenditure in India	2025
<i>Tools:</i> Python (Streamlit, Plotly, TensorFlow, Pillow)	
<ul style="list-style-type: none"> Exploring night-time light intensity correlation with consumption expenditure using SECC/DMSP Nightlights data from SHRUG Neural network with TensorFlow/Keras for prediction; SHAP analysis for model interpretability 	
Tracing Disparities: Educational Spending Before/After Covid-19 Among Social Groups in India	2024
Supervisor: Dr. Gitanjali Sen <i>Co-author:</i> Manya Pahwa <i>Tools:</i> Python, STATA	
<ul style="list-style-type: none"> Difference-in-Differences model estimating pre/post-Covid educational expenditure trends across religion/caste groups using CMIE-CPHS Explored reasons for differential social group impacts during pandemic 	
Does Overconfidence Lead to Procrastination?: A Cognitive Reflection Test Experiment	2024
Supervisor: Dr. Punarjit Roychowdhury	
<ul style="list-style-type: none"> Bridge between overconfidence and procrastination using Cognitive Reflection Test to identify overconfident individuals and study their procrastination behavior 	
Environmental Kuznets Curve (EKC) Analysis: Case Study on Ganga and Yamuna	2024
Supervisor: Dr. Ram Ranjan <i>Co-author:</i> Manya Pahwa <i>Tools:</i> STATA, R, Excel	
<ul style="list-style-type: none"> Econometric model testing EKC in Ganga/Yamuna; analyzed pollution patterns and identified causes 	
Economics of Discrimination: Review of Gary Becker's work and its application on India (B.Sc. Dissertation)	2022-23
Institution: XIM University, Bhubaneswar Supervisors: Dr. Bharatee Bhusana Dash, Dr. Pintu Parui	

Teaching

Graduate Teaching Assistant Shiv Nadar University, India	2023-2024
<ul style="list-style-type: none"> Semester IV (Postgraduate): ECO512: Macroeconomics II Dr. Kurt Horner, Dr. Trishita Ray Barman 	
<ul style="list-style-type: none"> Semester III: ECO302: Intermediate Macroeconomics Dr. Aditi Singh, Dr. Trishita Ray Barman 	
<ul style="list-style-type: none"> Semester II: ECO461: International Economics Dr. Trishita Ray Barman 	
<ul style="list-style-type: none"> Semester I: MAT101: Calculus I Dr. Niteesh Sahni 	

Software

Python | STATA | L^AT_EX | Markdown | Jupyter Notebook | Jupyterlab Myst

Technical Tools & Workflow

Workflow & Development: Git/GitHub (CLI-based version control and pipeline management), Bash scripting, GNU Make (project pipeline automation)

AI-Assisted Development: Claude Code (terminal-based AI coding assistant for daily development workflows)