

# 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 (part-time) | QuantEcon** May 2025 - Dec 2025  
**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

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

## Teaching

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

## Software

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Python | STATA | L<sup>A</sup>T<sub>E</sub>X | Markdown | Jupyter Notebook | Jupyterlab Myst

## Technical Tools & Workflow

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**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)