SANKALP SHARMA

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EDUCATION

- **Madras School of Economics** — Central University of Tamil Nadu
  Master of Arts in Economics, First Division (GPA: 8.89/10), Batch Rank 1 — *July 2019 - May 2021*
  - ○ *Masters' Thesis: Two Essays on Employment in India*
  - ○ *Other Research: Internal Trade in India: Patterns and Determinants, Decomposition Analysis of BMI Inequality in India*

- **Ramjas College** — University of Delhi
  Bachelor of Arts with Honors in Economics, First Division (GPA: 7.162/10) — *July 2015 - July 2018*

PEER-REVIEWED PUBLICATIONS

- **COVID mortality in India: National survey data and health facility deaths**; *Science (2022)* (with Paul Novosad, Aditi Bhowmick, Prabhat Jha, Chinmay Tumbe, Yashwant Deshmukh, Wilson Suraweera, Sze Hang Fu, Leslie Newcombe, Hellen Gelband, Patrick Brown)

BOOK CHAPTERS

- **Characterizing the Indian Workforce in the 21st Century: Patterns and Heterogeneities** (*Forthcoming*, with Dr. Sowmya Dhanaraj and Dr. Vidya Mahambare)

WORK-IN-PROGRESS

- **Geography of intergenerational mobility in India: Evidence from 700 million names** (with Paul Novosad and Sam Asher)

- **Profiling Female Exclusion from Labor Markets: A Latent Class Approach** (with Dr. Sowmya Dhanaraj and Dr. Vidya Mahambare)

- **Internal Trade in India: Patterns and Determinants** (with Prerna Pandey and Haripriya E.)

RESEARCH GRANTS

- **Azim Premji Foundation** (INR 5.8L): Dynamics, determinants and welfare implications of informal employment in India (with Dr. Sowmya Dhanaraj and Dr. Vidya Mahambare; APU/2020/01128/1641)

CONFERENCE PRESENTATIONS

- **Asian Development Bank**, Asian Economic Development Conference 2022

- **Indian Statistical Institute**, Annual Conference on Economic Growth and Development 2021

- **Delhi School of Economics**, Winter School 2021, organized by The Econometric Society

- **Indian Institute of Foreign Trade, Kolkata**, Empirical Issues in Trade and Finance (EIITF) 2021

- **Jindal School of Government and Public Policy**, Annual Conference on Economics and Public Policy 2021

MEDIA WRITING

- Do young Indian women work? Gujarat tops single working women, among lowest in married (with Dr.Vidya Mahambare and Dr. Sowmya Dhanaraj), The Print, 16 Nov 2021

- India's new employment policy ought to focus on young adults (with Dr.Vidya Mahambare and Dr. Sowmya Dhanaraj), The Mint, 15 Nov 2021

- Women, Lower Caste Postgrad Students Have Higher Anxiety (with Mohit Verma), The Quint, 13 Aug 2021

- "Workers are moving off Indian farms, but where are they going?" (with Dr.Vidya Mahambare and Dr. Sowmya Dhanaraj), The Mint, 25 Mar 2021

- "Education levels of SC, ST, OBC rising. A new study looks at caste gap in jobs, income too" (with Dr.Vidya Mahambare and Dr. Sowmya Dhanaraj), The Print, 9 Feb 2021

- "Manufacturing or high-tech? This is what India's most prosperous states focus on" (with Dr.Vidya Mahambare and Dr. Sowmya Dhanaraj), The Print, 9 Feb 2021

- "In 'progressive' Tamil Nadu, Karnataka, only 1 in 5 young urban women in paid work" (with Dr.Vidya Mahambare and Dr. Sowmya Dhanaraj), The Print, 27 Jan 2021

- "More young urban Indian men appear to be studying longer, not looking for jobs: New research," (with Dr.Vidya Mahambare and Dr. Sowmya Dhanaraj), The Print, 20 Jan 2021.

EXPERIENCE

- **Research Associate** — Development Data Lab
  PIs: Dr. Paul Novosad and Dr. Sam Asher — *October 2020 - Present*
  - Jointly leading a research project that leverages 700 million names from the 2011 Socio-Economic Caste Census to estimate intergenerational mobility in India across space and time.
  - Jointly leading the development of SHRUG 2.0, a high-resolution open data platform for India. Also integrating large-scale satellite and remote sensing data (night lights, NDVI/EVI, forest cover, pollution) into the platform.
  - Assembled the first complete and standardized open-source maps for India's 600,000 villages and 8,000 towns with standardized administrative location identifiers using bespoke geospatial algorithms.
  - Assisting in the technical development of National Data Analytics Platform (NDAP), a flagship open data platform of the Government of India.
  - Assisted the development of the DDL COVID open-access platform to provide granular COVID-19 case/vaccination data as well as further demographic and economic data. Open access COVID mortality data for India hosted on the platform was used by the WHO to revise global excess mortality estimates.
  - Developing bespoke algorithms to scrape and parse data from historical data archives. Applied OCR and deep learning tools to process data from the 1951 Indian Census as well as Indian ethnographies from the 19th century.

- **Data Science Intern** — Accenture AI
  Supply Chain Advanced Analytics Practice — *May 2020 - June 2020*
  - Developed end-to-end technical capability and a product dashboard built using Python Dash, Flask, React.js, and CSS for a top Indian mining industry client.
  - Built bespoke optimization models using Pyomo, a Python-based, high-level algebraic programming language (AMPL). Deployed open-source solvers such as GLPK and MindtPy to solve a mixed integer non-linear programming (MINLP) use-case.
  - Established distributed computing pipelines to exponentially scale down optimization run-time and increased the overall model efficiency, which is significantly higher than current industry-standard tools for open-pit mining.

- **Research Assistant** — Indian Statistical Institute, Delhi
  Prof. Mudit Kapoor — *Sept. 2018 - June 2019*
  - Co-authored a working paper, analyzing the multi-dimensional relationship between economic resources and neonatal mortality for recent births using data from the fourth round of the National Family Health Survey.
  - Created Bayesian models using STAN, a probabilistic programming language (interfaced in R) to obtain posterior predictive distributions for neonatal mortality and also update prior estimates derived using Sample Registration System data.
  - Received grant from NITI Aayog to rank 731 District Hospitals in India. Provided technical inputs while drafting the methodology of ranking hospitals and used Principal Component Analysis to generate a systematic and comprehensive ranking using proprietary HMIS (Health Management and Information System) data.
  - Perform miscellaneous exploratory data analysis (primarily on STATA and R) and proofread research drafts for academic collaborations.

- **Research Intern, Development Economics** — Brookings India
  Adviser: Dr. Shamika Ravi — *July 2018 - August 2018*
  - Created the Maternal Health Index using real-time HMIS Data to generate insights on the spatial and temporal impact of maternal health inputs on the maternal mortality ratio. Used the Distance-from-Ideal approach to estimate dimension indices for inputs to break the assumption of perfect substitutability seen across wide-ranging development indices
  - Developed a comprehensive Financial Inclusion Index based on NFHS-4 household data on bank accounts, mobile phones, and Aadhaar Cards. Further applied De Morgan Laws to disentangle the independent effects of individual components to develop a multi-layered index that provides robust estimates for beneficiary inclusion and vulnerability at the national, state, and district level. Eventually published as a part of Brookings India Impact Series.
  - Compiled child mortality estimates from NFHS-4 using synthetic cohort life table approach at national, state, and district level as well as disaggregated estimates by wealth quintile, religion, number of daughters etc.

- **Research Intern** — Abdul Lateef Jameel Poverty Action Lab
  Principal Investigator: Madeline McKelway (Massachusetts Institute of Technology) — *December 2017 - February 2018*
  - Worked on a multi-stage Randomized Controlled Trial to understand the impact of a psychosocial intervention on women's self-efficacy, agency, and labor supply.

- - Conducted primary data analysis to identify spillover effects of improved psychological outcomes on income, consumption, savings, and education decisions.
  - Responsible for refining survey design, overall project management, survey logistics, and conducting qualitative focus groups

- **Research Intern**   PRS Legislative Research
  Adviser: Anviti Chaturvedi   *March 2017 - April 2017*
  - Undertook empirical analysis of the environmental policy framework in India using sectoral data on regulatory clearances and delays in regulatory approvals in critical sectors.
  - Wrote a policy whitepaper on the state of the Environmental Impact Assessment (EIA) framework in India and its effects on forest cover and tribal welfare.

- **Head of Entrepreneurship Development**   Asmat NGO
  Founding Project Member   *January 2017 - September 2017*
  - Adopted a village in Sirsa District, Haryana as part of a fully student-run NGO and carried out holistic rural development initiaves by generating policy awareness and information dissemination.
  - Conducted a comprehensive survey to challenge the validity of the Open Defecation Survey conducted by the Government of Haryana and reported the findings to the District Administration, which led to an audit of existing survey data.
  - Spearheaded the development of corporate and philanthropic relationships with a diverse range of stakeholders to obtain funding as well as providing entrepreneurial opportunities for rural population.

Honors and Awards

- Awarded the MSE Merit Scholarship (INR 25,000) for securing first rank in the Masters program

- Qualified UGC National Eligibility Test for Assistant Professorship (99.762 percentile)

- Regional Winner (South Zone) of Reserve Bank of India Policy Challenge 2020 (awarded INR 15,000)

- Selected for the 2019 cohort of the Young India Fellowship awarded by Ashoka University with scholarship (Did not avail)

Programming Skills

- **Languages**: Python, **R**, Bash, LaTeX, SQL

- **Softwares:** STATA, QGIS

- **Tools/Libraries:** Emacs, Git, Snakemake, Tesseract OCR, Python Dash, Pyomo, PuLP, Gurobi, STAN, PyMC, SurveyCTO

Extracurricular Activities

- Parliamentary Debating (winner of multiple debating and adjudication awards), Model UN (winner at national and international conferences), Trekking (backpacked across Ladakh, Spiti, Western Himachal Pradesh)