

DEEPSHIKHA BATHEJA
RESEARCH FELLOW
ONE HEALTH TRUST (FORMERLY CDDEP)

CONTACT INFORMATION

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OHT ADDRESS

Obeya Pulse, First Floor, 7/1, Halasur Road,
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RESEARCH POSITIONS AND AFFILIATIONS

2020- Research Fellow, One Health Trust, Bengaluru
2024- Adjunct Faculty, Birla Institute of Technology And Science (BITS), Pilani and Hyderabad, India
2023- Associate Editor, Rapid Reviews/ Infectious Diseases, managed by UC Berkeley and MIT Press
2023- Programme member of the Just Transitions for AMR working group
2023- Member of WHO's global experts panel on AMR and gender
2023- Part of the roster of economists at the International Centre For Antimicrobial Resistance Solutions
2021- Consultant at the World Bank

EDUCATION

University of California, Riverside: PhD in Economics (2014 to 2020)
Thesis advisors: Anil Deolalikar, Sarojini Hirshleifer
TERI University: M.Sc. Economics, specialization in Environmental & Resource Economics(2010-2012)
Thesis advisors: Badal Mukhopadhyay, Soumendu Sarkar
University of Delhi: B.A. (Hons.) Economics (2006 to 2009)

FIELDS

Fields: Health, Development and Labor Economics; Field Experiments
Research Interests: antimicrobial resistance, economics of gender, firm and employee productivity, human capital accumulation, environment, economics of organization, mental health, climate change

GRANTS, HONORS AND FELLOWSHIPS

2024: Knowledge Translation Grant, British Academy (10,000 GBP)
MSD Fellowship for Global Health (35,000 USD) (with Ramanan Laxminarayan and others)
2023: MSD Fellowship for Global Health (35,000 USD) (with Giridara Gopal & Ramanan Laxminarayan)
Penn Global Research and Engagement Grants (150,000 USD) (with Jere Behrman, Subha Mani, Vinay Nadkarni and others)
WHO TDR (50,000 USD) (with Esmita Charani, Ramanan Laxminarayan and others)
Knowledge Translation Grant, British Academy (10,000 GBP)
2022: British Academy Global Convening Award (1.8 million USD) (Co-Investigator with Sonia Lewycka, Phaik Yeong Cheah and others)
MSD Fellowship for Global Health (35,000 USD) (with Giridara Gopal & Ramanan Laxminarayan)
2021: MSD Fellowship for Global Health (29,831 USD) (with Jyoti Joshi & Ramanan Laxminarayan)
China-India Visiting Scholars (CIVS) Fellowship- Ashoka University (4,752 USD)
2020: JPAL's PPE Initiative Fund (45,500 USD) (with Sarojini Hirshleifer and Opinder Kaur)
2019: Dissertation Year Program Fellowship (15,400 USD)
2018: Small Projects Grant, International Growth Center (IGC) (20,000 GBP)
BLUM Initiative Grant, UC Riverside (4,000 USD)
2014: Dean's Distinguished Fellowship Award, UC Riverside (until 2019)

ACADEMIC PAPERS: HEALTH POLICY AND ECONOMICS

Peer Reviewed Published Research

- [23] **Batheja, D.**, Banerji A., Nandi, A., Summan, A., and Laxminarayan, R., (2024) “COVID-19 and Women’s Age at Marriage: New Evidence from India” *Accepted* for publication in Population and Development Review
- [22] Charani, E., Dlamini, S., Koch, A., Singh, S., Hodes, R., Laxminarayan, R., **Batheja, D.**, Ramugondo, E., Mukherjee, A.S. and Mendelson, M., (2024) “[Power Relations in Optimisation of Therapies and Equity in Access to Antibiotics \(PROTEA\) Study](#): Investigating the Intersection of Socio-economic and Cultural Drivers on Antimicrobial Resistance (AMR) and its Influence on Healthcare Access and Health-providing Behaviours in India and South Africa” published in Wellcome Open Research
- [21] **Batheja, D.**, Goel, S., Fransman, W., Mantsoki, A., Ongarello, S., & Laxminarayan, R. (2023). “[Understanding the value of biobank attributes to researchers using a conjoint experiment.](#)” published in Nature Scientific Reports
- [20] **Batheja, D.**, Kurian, V., Buteau, S., Joy, N. and Nair, A., (2023) “[Role of Oxygenation Devices in Alleviating the Oxygen Crisis in India](#)” published in PLOS Global Public Health
- [19] **Batheja, D.**, Duong, P., Parab, V., Panarello, D., Joshi, J., & Goel, S. (2023). “[The Educational and Health Impact of COVID-19 on Children With Special Needs: A Systematic Review.](#)” published in Horyzonty Wychowania/Horizons of Education
- [18] Carcamo, C., Shilton, S., Mallma Salazar, P.S., Oses, P.P., Slimming, P.A.T., **Batheja, D.**, Banerji, A., Reipold, E.I., and Martínez-Pérez, G.Z. (2023) “[SARS-CoV-2 Self-Testing in Peru: A Survey of Values and Acceptability of the General Population](#)” published in BMJ Open
- [17] Folayan, M., Shilton, S., Undelikwo, V., Alaba, O., Amusan, R., Ibrahim, M., Ogbozor, P.A., Mojisola, O., **Batheja, D.**, Banerji, A. and Reipold, E.I., (2023) “[People’s willingness to use COVID-19 self-testing in Nigeria: a cross-sectional survey.](#)” published in BMJ Open
- [16] Brumwell, A.N., Babatunde, G.A., Wilson, M.W., Roux, K., Marks, M.M., Adam, J.K., Ivanova, E., **Batheja, D.**, Goel, S., Shilton, S., and Martínez-Pérez, G.Z. (2023) “[Values Relating to COVID-19 Self-Testing Among the Urban and Rural South African General Population: A Cross-Sectional Survey](#)” published in Preventive Medicine Reports
- [15] Thomas, C., Shilton, S., Thomas, C., **Batheja, D.**, Goel, S., Mone Iye, C., Ivanova, E. and Martínez-Pérez, G.Z. (2022) “[Values and preferences of the general population in Indonesia in relation to rapid COVID-19 antigen self-tests: A cross-sectional survey](#)” published in Tropical Medicine & International Health
- [14] Martínez-Pérez, G.Z., Shilton, S., Saruê, M., Cesario, H., Banerji, A., **Batheja, D.**, Cunha, J.P., Baptista, R., Schirmer, J., Reipold, E.I. and Dias, A.M., (2022) “[Self-Testing for COVID-19 in São Paulo, Brazil: Results of a Population-Based Values and Attitudes Survey](#)” published in BMC Infectious Diseases
- [13] Manguro, G., Shilton, S., Omenda, S., Owira, P., **Batheja, D.**, Banerji, A., Chabeda, S.V., Temmerman, M., Jako, W., Ndungu, J. and Luchters, S., (2022) “[Are Kenyans Likely to Use COVID-19 Self-Testing Kits? Results From a Cross-Sectional Survey](#)” published in International Journal of Public Health

Working Papers: Health Policy

- [12] **Batheja, D.**, Goel, S., and Charani, E., “Understanding Gender Inequities in Antimicrobial Resistance: Role of Biology, Behaviour and Gender Norms” *Revise and Resubmit*
- [11] Banerji, A., Bhagawati, R., Gopal, G., Goel, S., Manoff, S., Sapre, A. and **Batheja, D.**, “Drivers of COVID-19 Vaccine Hesitancy in India: Evidence from a Mixed Method Study” *Revise and Resubmit*
- [10] Samria, D., C.C. Murdock, Nandi, A., and **Batheja, D.** “Effects of Socio-economic Characteristics and Household Water Management on Malaria Incidence, Prevention and Control: Evidence from a Survey in Two Urban Sites in Gujarat, India”
- [9] Goel, S., Lewycka, S., and **Batheja, D.** “Gender, Bargaining Power, and Antimicrobial Usage: Evidence from Vietnam”
- [8] Goel, S., and **Batheja, D.** “Gender Inequalities in Social Listening: Evidence from Two Quantitative Case Studies in India”
- [7] Lall, A., Nampoothiri, V., Koch, T., Charani, E., **Batheja, D.**, “A Systematic Literature Review on Gender, Climate Change and Antimicrobial Resistance”

Selected Works in Progress: Health Policy

- [6] **Batheja, D.**, Goel, S., and Laxminarayan, R., “Gender and Antimicrobial Resistance: Quantitative Evidence from USA”
- [5] Reddy, S., Goel, S., Laxminarayan, R., and **Batheja, D.**, “Climate Change and Antimicrobial Resistance: Quantitative: Evidence from the United States”
- [4] Banerji, A., Bhagawati, R., Goel, S. and **Batheja, D.**, “Indoor Air Pollution and Women's Health: Evidence from Karnataka, India”
- [3] **Batheja, D.**, “Caste Discrimination and Antimicrobial Resistance”
- [2] **Batheja, D.**, Chatterjee C. and Narayanan, R., “Effect of Pollution and Temperature on Eye Health: Evidence from India”
- [1] **Batheja, D.**, Pascual, M.M., Wimberly, M.C., Nandi, A., and C.C. Murdock. “Redefining Thermal Suitability for Urban Malaria Transmission in the Context of Humidity”

ACADEMIC PAPERS: ECONOMICS

Working Papers

- [8] “Gender Peer Effects in the Workplace: A Field Experiment in Indian Call Centers” (*Under Review*)
Featured in [World Bank Development Impact Blog](#) , [Ideas for India](#), [IGC Blogpost](#) and [Hindustan Times](#)

Several theories suggest that gender integration in the workplace may have negative effects in gender-segregated societies. This paper presents the results of a randomized controlled trial on the effect of gender integration on work productivity, implemented in call centers located in five Indian cities. Employees were randomized to either mixed gender teams (30-50% female peers) or control groups of same gender teams. I find precisely estimated zero effects on both productivity (intensive margin) and share of days worked during the study period (extensive margin) of being assigned to a mixed gender team. For male employees, I find that conditional on being assigned to mixed gender teams, men with progressive gender attitudes

have higher productivity than men with regressive gender attitudes. There is an overall decrease in gender attitudes and an increase in the secondary outcomes of knowledge sharing and comfort with the opposite gender for male employees in mixed gender teams. For female employees, there is a decrease in time spent talking and socializing with co-workers for those assigned to mixed gender team relative to all-female teams.

Best Paper Award, Women in the Economy Workshop: 3rd Annual Workshop, Indian Statistical Institute

[7] “[Effect of Co-residence with Parents-in-law on Female Labor Force Participation](#)” (with Anil Deolalikar and Abhik Banerji) (*Under Review*)

We study the impact of co-residence with mother-in-law and father-in-law on woman’s labor force participation in India. We use two rounds of IHDS panel data for the analysis taking death of healthy parent-in-law as the exogenous source of variation. Our results show that co-residence with father-in-law has a significantly negative effect on women’s labor supply. Depending on the specification, losing one’s father-in-law increases the labor force participation of women by approximately 9 to 12 percentage points, compared to a similar household where the father-in-law still co-resides in the second round. This effect is driven by increased autonomy for women, by 3 to 3.3 percentage points, after the death of father-in-law.

[6] “[More than particulate matter matters: Pollution and productivity in Indian call centers](#)” (with Sarojini Hirshleifer and Jamie T. Mullins) (*Under Review*)

We measure the impact of three components of air pollution on daily labor productivity in call centers in five Indian cities. We find that a one standard deviation increase in fine particulate matter (PM_{2.5}), a pollutant that has been the primary focus of the literature on the harms of air pollution, has a large effect of 0.15σ on productivity. This represents a minority of the total harms from pollution, however, since we find an impact from carbon monoxide of 0.14σ as well as an impact of 0.09σ from ozone. In particular, carbon monoxide is responsible for more than half of the total productivity lost from pollution, as the result of a relatively large number of high carbon monoxide days in our sample. Our results underscore the importance of considering components of air pollution beyond particulate matter.

[5] “Does Signalling College Quality Matter? An Experimental Study in India” (with Sarojini Hirshleifer and Opinder Kaur)

We measure the impact of two main signals of tertiary-level human capital accumulation, college quality and certification, on the first stage of the hiring process in India. As part of a correspondence experiment, we send 18,000 resumes to 1500 job postings for recent engineering graduates at small and medium firms in eight major cities. In precisely estimated results, we find that these employers do not respond to signals of tertiary education quality. Specifically, there is no impact on callbacks of having graduated from a mid-tier college ranked in the top 300 relative to one outside of the top 1000. There is also no impact of scoring in the highest as opposed to the lowest quartile of a widely-used post-tertiary certification test. There is modest evidence that women benefit in the first stage of hiring in this market.

Works in Progress: Economics

[4] “COVID-19 and Mental Health: Experimental Evidence from India” (with Jere Behrman, Ramanan Laxminarayan, Subha Mani, and Arindam Nandi)

[3] **Batheja, D.**, Mani, S., Nandi, A., Behrman, J., and Laxminarayan, R. “Birth Order, Gender and Learning Outcomes in India”

[2] "Why does Pollution affect Productivity? Understanding the Mechanisms in the Context of Indian Call Centers" (with Sarojini Hirshleifer and Jamie Mullins)

[1] "Physical and Mental Health Crimes against Women: Experimental Evidence from Urban Indian Slums" (with Jere Behrman, Subha Mani, Vinay Nadkarni and others)

OTHER PUBLICATIONS AND POLICY REPORTS

[6] Contributed [Addressing gender inequalities in national action plans on antimicrobial resistance](#), World Health Organization, 2024

[5] Varadan, S. R., Chandler, C. I. R., Weed, K., Ahmed, S. M., Atuire, C., **Batheja, D.**, ... & Lewycka, S. (2023). [A just transition for antimicrobial resistance: planning for an equitable and sustainable future with antimicrobial resistance](#). *The Lancet*.

[4] "Adolescent Girls in Gujarat: The Key to Gujarat's Goal of being a Trillion Dollar Economy." World Bank Report 2023 (Forthcoming)

[3] "Demographic Change and Implications for Human Development Outcomes and Strategies in Tamil Nadu." World Bank Background Paper, 2022

[2] "Rajasthan 2040: Towards Gender Inclusive Growth." World Bank, Background Paper, 2022

[1] "Efficiency Comparison of Bus Operators in Delhi" published in *Journal of Transport Literature*, Volume 9, Number 1, January 2015.

INVITED PRESENTATIONS AND CONFERENCES

2024:

- Advances with Field Experiments Conference, London School of Economics, UK
- ASPICON, 6th National Conference & Workshop on Antimicrobial Stewardship Practices, PGIMER, Chandigarh
- Gender, Climate change and AMR workshop, University of Capetown, South Africa
- Scientific symposium and policy workshop on antimicrobial resistance. Hosted by the Academy of Medical Sciences and the Indian Council of Medical Research (ICMR), Delhi, India
- ESCMID Global 2024, Barcelona, Spain
- The British Academy: A Just Transitions framework for equitable and sustainable mitigation of antimicrobial resistance, Bangkok, Thailand
- Gender and Antimicrobial Research Workshop (Hosted), Bengaluru, India

2023:

- 18th Annual Conference on Economic Growth and Development at Indian Statistical Institute, Delhi
- Millbank House, UK Parliament, London, United Kingdom
- Economics Seminar, University of Sussex, Brighton, United Kingdom
- Faculty of Law, The University of Hong Kong
- IHOPE Seminar, L.V. Prasad Eye Institute, Hyderabad, India
- Global Distinguished Scholar Lecture Research, Shanghai Jio Tong University, China
- The British Academy: A Just Transitions framework for equitable and sustainable mitigation of antimicrobial resistance, London, United Kingdom

2022:

- Behavioral Research in Economics Workshop, BREW-ESA, IIM Bengaluru, India
- Royal Economic Society Annual Conference at Ashoka University, New Delhi, India,
- 2nd Annual IHOPE Conference, L.V. Prasad Eye Institute, Hyderabad, India

- The INAMRSS/CeBIL Copenhagen AMR Workshop: Solutions to AMR from the Social Sciences, University of Copenhagen, Denmark

2021:

- Women in the Economy Workshop at Indian Statistical Institute, Delhi
- Women in the Workforce at IGC India webinar
- 16th Annual Conference on Economic Growth and Development at Indian Statistical Institute, Delhi

2020:

- Pacific Conference for Development Economics (PacDev), University of California, Berkeley

2014-2019 (*PhD*)

- UC Irvine Applied Brownbag, USA
- Indian Society of Labor Economics (ISLE) at Indira Gandhi Institute of Development Research, Mumbai, India
- UCR Econometrics Brownbag on power calculations in RCTs, USA
- UCR Applied Brownbag on pre-analysis plan of job market RCT paper, USA
- The Ronald Coase Institute, Bogota, Colombia
- International Association for Feminist Economics (IAFFE), Seoul, South Korea
- Association for Public Policy Analysis and Management (APPAM) Regional Student Conference
- National Conference for the Indian Association for Women's Studies (IAWS)

NEWSPAPER, POPULAR PRESS AND MEDIA

“Antimicrobial Resistance and Gender” on CDDEP’s Blog, March 08, 2022 (with Srishti Goel)

“Does the gender of your co-worker matter? Evidence from call centres” in Ideas for India, October 05, 2020

“The ripple effect of gender inclusivity on India’s economy” in the Hindustan Times, August 02, 2021

“Women must 'lean in' to be taken seriously in the political sphere” in the Hindustan Times, April 30, 2014 (with Devaki Jain)

“Women’s voices in India-China talks” in Gateway House Indian Council on Global Relations, Nov 8, 2013 (with Devaki Jain)

“Need progressive masculinities to get feminist view” in *The Tribune*, August 23, 2012

“Strengthening SME sector will open up a new strategy of broad-based, fast growth,” *The Economic Times*, Sep 22, 2012 (with Devaki Jain)

Podcast: “[Gender Inequality and Superbugs](#)” (Host: Maggie Fix, One Health Trust)

Organized a pioneering “Gender, Caste, Climate Change and Antimicrobial Resistance Workshop” covered by [Financial express](#), Health of Asia and other media outlets

OTHER EMPLOYMENT

Teaching Experience as Adjunct Faculty at BITS Pilani, India (January 2024--)

- As Instructor- Health Economics at the PhD program on “Data Sciences for Global Health”

Teaching Experience at University of California, Riverside (August 2015-March 2020)

- As Instructor (*Upper Division Undergraduates*):
 - Economic Development: Theory and Policy (Summer 2016)
 - Women’s Labor and the Economy (Fall 2017)
- As Teaching Assistant:
 - Introduction to Microeconomics (5 times)
 - Introduction to Macroeconomics (3 times)

Research Assistant to Dr. Joseph Cummins, Assistant Professor at UC Riverside (July 2017 to September 2017)

- Replicated published economics papers which use synthetic control methodology

Research Assistant to Dr. Devaki Jain, Honorary Fellow at Oxford University (January 2012 to June 2014)

- Co-authored several conference papers on the role of women in India, which were presented in National Workshop: Center for Women's Development Studies, Gendering a state plan: Government of Karnataka, Global Bihar Summit: Government of Bihar

PROFESSIONAL SERVICE

Reviewer

- BMJ Global Health, JAC-Antimicrobial Resistance, Journal of Labor Research, Journal of Quantitative Economics, Pakistan Journal of Applied Economics, PLOS One Global Public Health, Journal of Asian and African Studies, SSM Population Health, PeerJ, Monash Bioethics Review

Service Responsibility

- Serving on WHO's global panel on "Gender and Antimicrobial Resistance"
- Contributed to WHO's report, "Addressing gender inequalities in national action plans on antimicrobial resistance"
- Led the design of OHT's PhD program in collaboration with BITS Pilani on Data Sciences for Global Health
- Served as interviewer for the M.Sc. Economics program at TERI University, New Delhi (2021)

REFERENCES

Anil Deolalikar Founding Dean, Public Policy UC Riverside anil.deolalikar@ucr.edu	Sarojini Hirshleifer Assistant Professor of Economics UC Riverside sarojini.hirshleifer@ucr.edu	Chirantan Chatterjee Reader (tenured faculty) in Economics University of Sussex Business School C.Chatterjee@sussex.ac.uk
Arindam Nandi Visiting Fellow, OHT Associate II, Population Council anandi@popcouncil.org	Subha Mani Associate Professor of Economics Fordham University smani@fordham.edu	