

# REETWIKA BASU : ECONOMIST AND RESEARCH SCIENTIST, NASA-MSFC, UAH

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RESEARCH Economic Impact Analysis of Earth Observations, Natural resources and Environmental Economics,  
INTERESTS Water Resources, Agent-Based Modeling, Econometric Applications, Consumer Behavior

EDUCATION **PhD in Economics** | Washington State University, Pullman, USA *Fall'18-Summer'23*  
• **Specialization** : Advanced Econometrics, Environmental and Natural Resources Economics

**Master of Science, Economics** | Calcutta University, Kolkata, India *Aug'14-Aug'16*  
• **Specialization** : Advanced Econometrics, Industrial Organization, Economics of Agriculture

**Bachelor of Science, Economics** | Lady Brabourne College, Kolkata, India *Aug'11-Jul'14*  
• **Dissertation title** : Does Clark-Fisher Hypothesis hold for India : a post-Independence study

PUBLICATIONS **Basu, R.**, Deval, C., Carey, L., Anderson, E., Kremer, A., Gutierrez, A. (2026). A proposed meth-  
AND REPORTS methodological framework to estimate the utility of EO-based information in data scarce contexts :  
challenges and recommendations. Environmental Research Communications. <https://iopscience.iop.org/article/10.1088/2515-7620/ae53ad/meta>

**Basu, R.**, Gifford, J., Brady, M., Cook, J., Rajagopalan, K., Yoder, J. (2025). An agent-based model of agricultural water market structure and function. Water Resources and Economics, 100267. <https://doi.org/10.1016/j.wre.2025.100267>

**Basu, R.**, Walker, K., Sirichaovanichkarn, E., Aekakkararungroj, A., Sayeed, A., Anderson, E., ... Evans, C. (2025). An Economic Impact Assessment of Smoke Watch Application in Chiang Rai, Thailand. Authorea Preprints. <https://essopenarchive.org/doi/full/10.22541/essoar.175767397.73652244/v1>

**Basu, R.**, Anderson, E., Cherrington, E., Deval, C., Guragai, S., Herndon, K., ... Sirichaovanichkarn, E. (2025). Using economic methods to assess impacts of earth observation-based services : Why and how?. Environmental Impact Assessment Review, 115, 107975. <https://doi.org/10.1016/j.eiar.2025.107975>

**Basu, R.**, Anderson, E., Deval, C., Herndon, K., Markert, A., Pransky, L., ... Sayeed, A. (2024). Serving economic prosperity : economic impact assessments (EIA) on Earth observation-based services and tools by SERVIR. [arXivpreprintarXiv:2405.15672](https://arxivpreprintarXiv:2405.15672)

Abhijin Adiga, Yohai Trabelsi, Tanvir Ferdousi, Madhav Marathe, S. S.Ravi, Samarth Swarup, Anil Kumar Vullikanti, Mandy Wilson, Sarit Kraus, **Reetwika Basu**, Supriya Savalkar, Matthew Yourek, Michael Brady, Kirti Rajagopalan, and Jonathan Yoder. 2024. "Value-based Resource Matching with Fairness Criteria : Application to Agricultural Water Trading". In Proc.of the 23rd International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2024), Auckland, New Zealand, May 6-10, 2024, IFAAMAS,16 pages. <https://arxiv.org/abs/2402.06576>

Deval, C., Anderson, E., Kruskopf, M., Limaye, A., Bhandari, B., Markert, A., Flores-Anderson, A., Muthuke D., **Basu, R.**, Shreshtha M., Laverde-Barajas M., ... (2024). Connecting Science to Sustained Impact : SERVIR's Journey in Earth Observations for Water Resources Management and Future Pathways. ESS Open Archive. <https://doi.org/10.22541/essoar.172070626.66463831/v1>

Yoder, Jonathan, Crystal Raymond, **Reetwika Basu**, Suhina Deol, Alexander Fremier, Kairon Shayne Dumalag Garcia, Guillaume Mauger, Julie Padowski, Matthew Rogers, Amanda Stahl. 2022. Climate change and stream flow : Barriers and opportunities. Preliminary project report to the Washington State Department of Ecology. June. <https://apps.ecology.wa.gov/publications/documents/2211029.pdf>

**Basu, R.**, Gallardo, R. K. (2021). Economic Issues Related to Long-Term Investment in Tree Fruits. Choices, 36(2), 1-7. [https://www.choicesmagazine.org/UserFiles/file/cmsarticle\\_774.pdf](https://www.choicesmagazine.org/UserFiles/file/cmsarticle_774.pdf)

Das, Panchanan, **Reetwika Basu**, and Abhishek Halder. "Employment, Wage and Productivity : Analysis of Trend and Causality in Indian Manufacturing Industries." The Journal of Industrial Statistics 6.1 (2017) : 41-56. [https://mospi.gov.in/sites/default/files/reports\\_and\\_publication/NSS\\_Journals/jr3\\_6\\_1March2017.pdf](https://mospi.gov.in/sites/default/files/reports_and_publication/NSS_Journals/jr3_6_1March2017.pdf)

WORKING  
PAPERS  
RESEARCH  
EXPERIENCE

Walker K., **Basu R.**, Mayer T., Delgado F., "PINECONE :Pine Ecosystem Carbon and Economics".

**Graduate Research Assistant** : School of Economic Sciences, WSU Pullman  
Guide : Dr. Jonathan Yoder, School of Economic Sciences, WSU Pullman July'20-Summer'23

**Project 1** : *Technology For Trade (T4T)*

- Developing an agent-based model (ABM) and simulating it using Python for water use and allocation in agricultural markets under appropriative rights and droughts
- Studying economic consequences of locational restrictions on water trading using ABM : Gains from trade and third party effects
- Studying economic consequences of instream flow augmentation with downstream appropriators using ABM

**Researcher** : Washington State Department of Ecology May'22-July'22

**Project** : *Climate Change and Streamflow : Barriers and Opportunities*

- Wrote a report (Task Lead) on Washington law and policy barriers to streamflow management in response to climate change

**Graduate Research Assistant** : School of Economic Sciences, WSU Pullman  
Guide : Dr. Karina Gallardo, School of Economic Sciences, WSU Pullman Aug'19-June'20

**Project 1** : *Asset Fixity in tree fruits and annual crops*

- Studied asset fixity in agriculture
- Studied the importance of policy implications and technology investment implications in asset fixity issues
- Analysed the difference in tree fruits and annual crops concerning asset fixity

**Project 2** : *Consumer willingness to pay towards ready-to-eat meals*

- Studied the effects of information dissemination and liking preference of consumers on their willingness to pay for ready-to-eat meals processed by novel technologies c
- Conducted extensive literature survey on change in consumer behaviour from existing ready-to-eat products to eagerness towards purchasing ready-to-eat meals processed via novel techniques, key sensory taste attribute that consumers assign more importance to, or what sensory taste attributes are just terrible in ready-to-eat meals

- Analysed consumer demographic data, their ready-to-eat meal consumption and food purchasing habits; consumption of ready-to-eat meals was found to be approximately **9.3 times per week** and estimated weighted average shelf life of ready-to-eat meals was found to be **25 days**

**Project 3 : Production Statistics for variety apples in Washington State**

- Collected Data for the following :
  - Bearing acres of Gala, Red Delicious, Fuji, Golden Delicious, Granny Smith, Honeycrisp and Cripps Pink in Washington State : an in-depth comparison of data - 2006 vs. 2017
  - Distribution of the bearing acreage -2017
  - FOB prices per variety 2006-2017

TEACHING  
EXPERIENCE

**Section Instructor at Carson College of Business, WSU**

Fall 2020

*Courses : EconS555 : Managerial Economics*

- Conducted weekly webinars/lectures for EconS555 MBA students and grading weekly assignments

**Graduate Teaching Assitant**

Aug'18-April'19

*Courses : EconS302 : Intermediate Macroeconomic Analysis*

- Assisted the professor in conducting help sessions for students and solved students' queries regarding course material taught and assessed mid-term and end-term answer sheets

**Guest Lecturer : Loreto College, Kolkata, India**

Jul'16-May'17

*Course 1 :Statistical Economics ;*

*Course 2 :Indian Economic History ;*

*Course 3 :Managerial Economics*

- Served as a course instructor all round the year for the above-mentioned freshmen, sophomore, and senior level classes for **50+** class strength
- Designed and assessed daily assignments, mid-term, and end-term examinations to give comprehensive knowledge about specific course topic

PRESENTATIONS

- Economic Impact : Moving from 'Data' to 'Dollars', Business of Space Conference, UAH, 2026
- Economic Impact Assessment of Application of GEOGLOWS in Ecuador, AGU 2024
- Economic Impact Assessment of Application of GEOGLOWS in Ecuador, AmeriGEO Week, UN-GGIM Webinar, 2024
- Economic Impact Assessment of Application of GEOGLOWS in Ecuador, AmeriGEO Week, August. 27, 2024
- An Agent-Based Model of Agricultural Water Markets under Appropriative Rights and Droughts
  - American Water Resources Association (AWRA), Washington Chapter, Sept.28, 2023
  - Universities Council on Water Resources (UCOWR), June 13-15, 2023
  - AgAID Annual Meeting, Oregon State University, March 6-7, 2023
  - American Water Resources Association (AWRA), November 7-9, 2022
  - School of Economic Sciences Student Seminar Series, April 2022

BOOK REVIEWS

- Auction Theory : Introductory Exercises with Answer Keys. Pak-Sing Choi and Felix Munoz-Garcia, Springer-Nature, May 2021.

TRAINING,  
PROGRAMMING  
SKILLS, AND  
LANGUAGES

- Certified in **Financial Market** from Calcutta Stock Exchange Centre of Excellence in Financial Markets (CUCSE-CEFM), Kolkata, 2015; trained in functions, systems and operations of capital markets, banking and mutual funds
- Hold knowledge in **NETLOGO, Python, Stata, Eviews** and **Microsoft Excel**
- Fluent in reading, writing, and speaking English, Bengali, and Hindi

WORKSHOP AND  
SEMINAR

- Conducted Seminar on **Economic Methods : Overview and Impact Assessment** at SCO NSSTC (Sept. 1,'23)
- Participated in a seminar on **Effective Teaching and Quality Upgradation** organized by Loreto College, Kolkata, India (Mar-Apr'17)
- Participated in the 7th National Seminar on Industrial Statistics organized by Central Statistics Office, Kolkata, India (Sept'16)
- Successfully completed workshop on '**R Analytics**' conducted by Orange Tree Global, Kolkata, India (Jan'16)

GRANTS

- Received Graduate Student Research Grant for Sustainability (2020-2021) from Endowment for Sustainable Development(ESD)
- Received Dissertation Grant (2020) from Graduate and Professional Students Association (GPSA)

AWARDS AND  
ACHIEVEMENTS

- Received Graduate Assistantship, School of Economic Sciences, Washington State University (2018-2023)
- Received Poster Presentation Award 1st place at American Water Resources Association(AWRA) Annual Conference 2022
- Received Graduate and Professional Students Association (GPSA) Senator Scholarship for the Academic years 2020-21, 2021-22 and 2022-23
- Received E8 Angels Fellowship 2020,2021 and 2022
- E8- Angels Research Fellow (Feb' 20 - April'23)
- Received certificate of merit for Indian School Certificate Examination (ISC) (2011)

LEADERSHIP AND  
SERVICES

- GPSA Senator - School of Economic Sciences (2020 - 2023)
- Secretary - School of Economic Sciences Graduate Student Association (SES GSA) (2021-22)
- Treasurer - Indian Students Association (ISA), WSU (2020-21)
- IT and PR Chair - Indian Students Association (ISA), WSU (2019-20)
- Peer Mentor - Office of International Programs, WSU (April '20-Dec '20)