

Gauri Shankar Guha

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RESEARCH INTERESTS

Risk and Impact Assessment, Climate Change, Renewable Energy, Environmental Valuation.

TEACHING INTERESTS

Economics: Environmental & Energy, Managerial, International.
Quantitative Methods: Statistics, Operations Research.

EDUCATION

Ph.D. in Energy and Environmental Economics
The Pennsylvania State University, University Park, PA 16802

MBA (PGDIT) in International Trade
Indian Institute of Foreign Trade, New Delhi, India.

MA in Economics
Birla Institute of Technology and Science, Pilani, Rajasthan, India.

Professional Certificates:
Data Mining in SAS (Arkansas State University – SAS, 2002)
Computer Network Systems (Indian Institute of Management, Ahmedabad, India, 1996)
Geographic Information Systems (Space Applications Center, Ahmedabad, India, 1993)

AWARDS

- * Faculty Award for Graduate Teaching Excellence, 2006, College of Business, ASU.
- * Best Paper Award, 2005, International Business & Economics Research Conference.
- * Distinguished Research Award, 2003, Allied Academies Annual Conference.
- * Faculty Award for Undergraduate Teaching Excellence, 2003, College of Business, ASU.
- * Norman and Ardeth Frisbey Best International Student Award, April 2001, Penn State.
- * W. La Marr Kopp International Achievement Award, April 2000, Penn State.
- * Graduate Student Leadership Service Award, March 2000, Penn State.
- * Student Paper Prize, April 1999, MEMS – 99, Ottawa, Canada.
- * ICSSR Fellowship, July 1996, Indian Council of Social Science Research.
- * UNDP Fellowship, June 1982, United Nations Development Program.
- * SV Memorial Prize for Quantitative Methods, June 1982, IIFT, India.

ANALYTICAL SKILLS AND LANGUAGES

CGE / NLP: (MPSGE / GAMS); *Statistics / Econometrics:* (TSP, E-views, SAS);
GIS: (ARCVIEW); *Other:* (Crystal Ball, Excel, FrontPage, PowerPoint).

Languages: Bengali, English, Gujarati, Hindi. [Some: French, Spanish]

PROFESSIONAL EXPERIENCE

Primary Positions

August 2001 – present: *Assistant Professor, Arkansas State University*

Teaching: Environmental Economics (PhD); Managerial Economics, Management Science, Survey of Economics (Graduate); Macroeconomics, Microeconomics (Undergraduate).

Research: Contingent Valuation, Regional Impact Assessment (Bio-Pharmaceuticals, Climate Change, Natural Hazards), Carbon Sequestration.

August 1997 – July 2001: *Graduate Assistant, The Pennsylvania State University*

Teaching: 400 level course in energy and environmental economics.

Research: Climate Change (MARA, US EPA); Economic Impact of Earthquakes (EERI); Industrial Ecology of Steel Technologies (NSF).

June 1992 – August 1997: *Director, Agro-Climatic Planning, Government of India*

Managed the research of 24 inter-disciplinary regional teams of scientists and economists. Translated regional endowment profiles, constraints and priorities into development programs. Formulated and implemented eco-friendly projects with multiple sources of funds, and stakeholder participation.

April 1989 – May 1992: *Operations Research Analyst, ACRP, Planning Commission, India*

Built a large time-series database on regional natural resource endowments and relevant socio-economic variables. Developed several econometric and programming models addressing this database that were used by policy makers in New Delhi.

January 1988 – March 1989: *Indian Institute of Management, Ahmedabad, India*

Designed a survey, coordinated the data collection and helped develop and implement an MIS system for a major warehousing corporation, with nation-wide operations.

November 1985 – December 1987: *Management Consultant, self-employed, western India*

Set up a statewide dealer network as the marketing consultant for a group of chemical and fiberglass-reinforced-plastics manufacturing companies.

July 1982 – October 1985: *Export Executive, Asian Paints, Bombay*

Export promotion and area sales management for India's largest paint manufacturer.

VISITING PROFESSOR

University of Applied Sciences, *Salzburg, Austria*. (Global Marketing / Managerial Econ)

Rovaniemi Polytechnic Institute, *Rovaniemi, Finland*. (Project Management)

University of Caen Lower-Normandy, *Caen, France*. (International Economics)

University of Duisburg-Essen, *Duisberg, Germany*. (Applied Econ in Corporate America)

DOCTORAL STUDENTS SUPERVISED

Committee Chair (PhD Program in Environmental Sciences, Arkansas State Univ)

Kellee Nicole Cook. "Economic Efficiency Assessment of Clean Energy Policy Initiatives"

Charles Blaine Buckman. "Economic Analysis of Low VOC Resins for the Pultrusion Fiberglass Reinforced Panel Industry" [Graduated: 05/2008]

Committee Member (PhD Program in Environmental Sciences, Arkansas State Univ)

Samuel McCord. "Bioassessment of the Effectiveness of Silviculture Best Management Practices in Arkansas: Benthic Invertebrate Surveys of Adjacent Streams." [Graduated: 05/2006]

Jason Self. "Environmental Value from Producing Paper from NTFP"

Aaron Archer. "Environmental Benefit-Cost Analysis of Biofuels from Crop Residuals"

Jack D Wilhide. "Family Values, Ecology and Genetics among Several Bat Species in the Ozark - St. Francis National Forests, Eastern Arkansas."

Bindu Kaimal. "Elemental analysis of bird feathers using Laser Ablation- Inductively Coupled Plasma- Mass Spectrometry"

Thomas J Benson. "Nest-site selection and habitat-specific demography of Swainson's Warblers in Arkansas"

Mellissa Milligan. "Land Use Changes along the Spring River since the 1930's". (MS Thesis)

COURSES TAUGHT

Environmental Economics (ECON 6353, Arkansas State University): Doctoral level environmental and natural resource economics.

Business Statistics (QM 2113, Arkansas State University): UG introductory statistics, probability and sampling distributions, hypothesis testing, regression.

Global Environmental Policies (ECON 4363, Arkansas State University): Junior / Senior level elective; a more intuitive treatment of Environmental Economics with global cases.

Managerial Economics (ECON 6313, Arkansas State University): MBA class on managerial applications of techniques of economic analysis.

Management Science (QM 6433, Arkansas State University): MBA class on applications of operations research techniques for managerial decision-making. [S/03].

Survey of Economics (MBA 5013, Arkansas State University): MBA refresher class combining micro- and macro- economic analysis. [F/01].

Principles of Microeconomics (ECON 2323, Arkansas State University): UG introductory microeconomics. [F/01, S/02].

Principles of Macroeconomics (ECON 2313, Arkansas State University): UG introductory macroeconomics. [F/02, F/03].

PUBLICATIONS

Refereed Journals

“Determining Growth Inducing Parameters from a Neural Network Model of Regional Exports,” *Southwest Review of International Business Research*, 19 (1): 85–88, Mar 2008. (with K. Fish)

“Cost and Carbon Savings from Innovative Conversion of Agricultural Residues,” *Energy Sources, B: Economics, Planning, and Policy*, 3(1): 103–108, January 2008. (with A. Archer, J. Self and R. Engelken)

“A Concurrent Evaluation of Trends in Commodity Exports, Economic Growth and Environmental Quality in the United States,” *International Business and Economic Research Journal*, 7(1): 125–130, January 2008.

“Data Mining of Environmental Stress Tolerances for Plants,” *Kybernetes: The International Journal of Systems & Cybernetics*, 37(1): 127–148, 2008. (with R. Segall and S. Nonis)

“Affirmative Climate Action in the United States: Emerging Issues, Adaptation And Mitigation Initiatives,” *Forum on Public Policy*, 3 (4): 313–324, 2008.

“Effects of Subsample Size on Seasonal and Spatial Comparisons of Stream Macroinvertebrate Communities,” *Journal of Environmental Monitoring and Assessment*, 135(1-3): 409-422, December 2007. (with S. McCord and R. Grippo)

“Simulation of the Economic Impact of Regionwide Electricity Outages from a Natural Hazard Using a CGE Model,” *Southwestern Economic Review*, 32(1): 101–124, Spring 2005.

“Tailwater recovery systems for irrigation – benefit / cost analysis and water resource conservation technique in Northeast Arkansas,” *Journal of the Arkansas Academy of Science*, 58: 23–31, 2004. (with J Bouldin, N Bickford & H Stroud)

“Trees for Carbon Sequestration or Fossil Fuel Substitution: the Issue of Cost vs. Carbon Benefit,” *Biomass & Bioenergy*, 27 (1): 41–55, July 2004. (with A. Baral).

“The Potential of Biotechnology: Promises, Perils and Perplexities – A Survey of Impacts on Relevant Economic Sectors,” *Economics and Economics Education Research Journal*, 5(2): 107–132, Summer 2004. (with A. Baral, S. Nonis and R. Segall.).

“The Impact of Consumer Attitudes about Bioengineering on Purchase Behavior Intentions: Moderating Effects of Innate Consumer Innovativeness and Anxiety,” *Journal of Business & Economic Research*, 2 (5), May 2004. (with S. Nonis, R. Segall)

“Towards an Environment Friendly Agriculture,” *Yojana* July 1995.

“Emerging Water Scenario in Gujarat,” *Anvesak*, 25 (1): 131–134. 1995.

“An Area Allocation Model for States by Agro-Climatic Subregions,” *ARPU Technical Paper # 20*, Planning Commission, New Delhi. 1993. (with D. Basu).

“Spatial Analysis of Agro-processing Industries in India,” *Anvesak*, 24 (2). 1994. (with N. Mathur).

“Resource Planning in Regionalized Framework: The Agro-Climatic Regional Planning Model,” *Anvesak*, 23 (1). 1993.

“Econometrics of Long-Term Growth: Trade-Offs with Inflation,” *Economic & Political Weekly* 28 (42): pp 2276–2281. 1993. (with Y. Alagh).

“Evaluation of Minor Irrigation Development in India in the Context of Agro-climatic Resource Regions,” *Anvesak*, 22 (1). 1992. (with S. Joshi).

“Planning for Difficult Land and water Regimes – A Case for Integrated Watershed Development in Panchal, Gujarat,” *Anvesak*, 21 (2): pp 145–150. 1991.

“Forestry in India: Which Way Now?” *ARPU Technical Paper # 18*, Planning Commission, New Delhi. 1991.

“Crop Input Plan: Irrigation and Fertilizer Projections based on the Agro-Climatic Regional Planning Exercise,” *ARPU Technical Paper # 11*, Planning Commission, New Delhi. 1990. (with D. Basu and S. Joshi).

Books

Conflict Management of Water Resources. UK, Ashgate. 2002. (Co-edited with M. Chatterji and S. Arlosorof).

Agro-climatic Regional Planning in India, New Delhi, Concept Publishing Company. 1996. (Co-edited with D. Basu).

Economic Dimensions of Sardar Sarovar. New Delhi, Har Anand Publishers. 1995. (Authored with Y. Alagh, R. Desai, and S. Kashyap).

Book Chapters

“Computable General Equilibrium Modeling of Electric Utility Lifeline Losses from Earthquakes,” in Y. Okuyama and S. Chang (eds.), *Modeling Spatial and Economic Impacts of Disasters*, Berlin Heidelberg: Springer-Verlag. 2004. (with A. Rose).

“Output, Employment and Poverty Issues in the Context of Agro-climatic Regional Planning,” in G.K. Chadha and A.N. Sharma (eds.), *Growth, Employment and Poverty – Change and Continuity in Rural India*, New Delhi, Vikas Publishing House. 1997 (with N. Mathur).

“Planning for Globalization and Sustainability,” in R Kapila and U Kapila (eds.), *Indian Economy Update*, New Delhi, Academic Foundation. 1996. (with N. Mathur and Y. Swaroop).

“Agro-climatic Regional Planning Models for Agricultural Planning and Policy Analysis in India,” in J Rosenhead and A Tripathy (eds.), *Operational Research for Development*, New Delhi, New Age International (P) Limited Publishers. 1996. (with D. Basu, J. Shah and A. Tripathy).

“A Decision Model for Program Selection at Regional Level,” in BN Yugandhar and A Mukherjee (eds.), *Readings in Decentralized Planning Vol 1*, New Delhi, Concept Publishing Company. 1991. (with D. Basu).

“A Model of Growth and Prices in the Indian Economy,” in Y. Alagh, R. Mody and R. Desai (eds.), *Stability and Development: Essays in Honor of Prof DT Lakdavalva*, New Delhi, Har Anand. 1991. (with Y.K. Alagh).

Conference Proceedings

“Global Perspectives on Pollution Control,” Annual Meeting of the *Southwestern Society of Economists, Federation of Business Disciplines*, Houston, March 04 – 08, 2008. (with S. Combs)

“Simulation of Carbon Credits in Arkansas from Different Climate and Economic Scenarios,” *Missouri Valley Economic Association*, 44th Annual Meeting, Kansas City, MO, October 25-27, 2007.

“Climate Change – Issues and Affirmative Action in the United States” *Oxford Roundtable on Global Warming and Sustainable Development*, Oxford Union Chamber, Oxford, UK, August 12-17, 2007.

“Economic Impacts of Controlling Agriculture-Related Phosphorus Runoff in Eastern Arkansas,” *Southern Economics Association (SEA) 2006 Annual Conference*, Charleston, SC, November 18 – 21, 2006. (with R. Wright.)

“Modeling the Economic Impacts of Sectorally Differentiated Supply Availabilities of Electricity – A CGE Analysis of Lifeline Losses Following a Potential Earthquake in Memphis, Tennessee,” *Southern Economics Association (SEA) 2006 Annual Conference*, Charleston, SC, November 18 – 21, 2006. (with A. Rose.)

“The ‘Green Oilfields’ of Arkansas – a Note on Local Bioenergy Opportunities,” *Annual Meeting of the Arkansas College Teachers of Economics & Business*, Conway, AR, October 6, 2006.

“Estimating the Value of a Public Good – Contingent Valuation of Mosquito Control in Jonesboro, AR,” *Missouri Valley Economic Association 41st Annual Meeting*, October 2004.

“Public Perceptions of Biotechnology Products – A Case Study of Mountain Home, AR,” *Allied Academies Fall Conference*, October 2004. (with L Dale).

“An Environmental Marginal Analysis of Styrene in the FRP Industry,” *Proceedings of the International Academy of Business and Public Administration Disciplines*, May 2004. (with C Buckman).

“An Input-Output Analysis of Biotech Impacts on the State of Arkansas,” *Southwestern Society of Economists Annual Conference*, Orlando, Mar 2004. (with A. Rose, S. Nonis and R. Segall)

“Earthquake Preparedness – An Assessment of Business Perceptions of Risks in Memphis, TN,” *Proceedings of the South Western Decision Sciences Institute Conference*, Orlando, Mar 2004. (with A. Syamil, A. Rose and J. Webb)

“Data Mining for Assessment of Environmental Stress Factors on Plant Genomics,” *Proceedings of the SW Decision Sciences Institute Conference*, Orlando, Mar 2004. (with R. Segall, S. Nonis)

“Marketing’s Role in Creating Value in the Biotechnology Industry,” *Proceedings of the American Marketing Association*, February 2004. (with Nonis, S., R.S. Segall)

“General Equilibrium Analysis of Electricity Lifeline Losses from a Natural Hazard,” *Southwestern Society of Economists (SSE) Annual Conference*, Houston, March 2003.

“Exploring Carbon Sequestration as a Climate Change Mitigation Strategy - Analysis of Arkansas Forests,” *Southern Economics Association (SEA) 2002 Conference*, New Orleans, November 2002. (with A. Baral).

“The Vulnerability of Forest-Based Economies to Climate Change: A CGE Analysis of the Mid-Atlantic Region of the United States,” The 2001 Open Meeting of the Human Dimensions of Global Environmental Change Research Community, Rio de Janeiro, Oct 6 – 8, 2001. (with A. Rose and S. Liao).

“Computable General Equilibrium Modeling of Electric Utility Lifeline Losses from Earthquakes,” *Southern Economic Association (SEA) 2000 Conference*, Washington DC, November 2000. (with A. Rose).

“Estimating the General Equilibrium Economic Impacts of Climate Change on Forests of the Mid-Atlantic Region of the U.S.,” *International Symposium on Development Policies*, Indira Gandhi Institute of Development Research, Mumbai, July 2000. (with A. Rose and S. Liao)

“A Translog Cost Function of the US Steel Industry,” *Proceedings of the Mineral Economic and Management Society Conference*, Ottawa, April 1999.

“A Model for Development Planning at Local Levels through Output Effect Simulation,” *Second International Conference on OR for Development (ICORD II)*, Rio de Janeiro, August 1996.

“Integrated Environmental and Economic Planning of Mountain Areas: the Agroclimatic Regional Planning Approach,” *International Conference of Planners and Experts, International Center for Integrated Mountain Development (ICIMOD)*, Kathmandu, July 1996.

“An Operational Research Approach to Sustainable Resource Allocation,” *International Federation of Operations Research Societies (IFORS), 1996*, Vancouver, July 1996. (with J. Shah and A. Tripathy).

“AGROBASE: An Integrated Information Management System Developed for Agro-Climatic Regional Planning,” *National Seminar on Information Technology for Agriculture and Development*, Computer Society of India, Ahmedabad, India. 1991. (with D.N. Basu).

Papers under Review

Economic Impacts of Controlling Agriculture-Related Phosphorus Runoff in Eastern Arkansas. (In review at the *Journal of Agriculture and Applied Economics*.)

Modeling the Economic Impacts of Sectorally Differentiated Supply Availabilities of Electricity – A CGE Analysis of Lifeline Losses following a Potential Earthquake in Memphis, Tennessee. (In review at the *International Journal of Ecological Economics and Statistics*.)

An Evaluation of Public Perceptions of Biotechnology Products - based on a Study of Acceptance Issues in Mountain Home, AR. (In review at *AgBioForum*.)

Estimating the Value of a Public Good - Contingent Valuation of Mosquito Control in Jonesboro, Arkansas. (In review at *Journal of Environmental Economics & Management*.)

FUNDED RESEARCH PROJECTS / GRANTS.

International Business Resource Center – Curriculum Completion and Program Globalization. [Associate Director]

Arkansas State University's International Business Resource Center (IBRC) seeks to expand the success of the 2004-06 BIE grant by completing international business (IB) curriculum development, globalizing a study abroad program that benefits students and faculty and, furthering the capabilities of Arkansas Delta Region (ADR) businesses to engage in international trade; particularly with China and India. The IBRC has partnership agreements with economic and trade development agencies to implement the outreach portion of the grant. (Title VI, BIE Program, U.S. Department of Education, 2006–2008.

Amount: \$382,000 (includes \$203,000 institutional match)).

International Business Resource Center – Business Outreach & Institutional Skill Development. [Associate Director]

Arkansas ranks low in the US in the export sector due to fear of uncertainty, lack of awareness of global opportunities and absence of a supply of workforce. The IBRC will provide stepping stones towards building capacity for exports from the NE Arkansas region by training students and faculty, and by providing International Business (IB) development skills to businesses. (Title VI, BIE Program, U.S. Department of Education, 2004–06. Amount: \$330,000 (includes \$165,000 institutional match)).

Bio-Pharmaceuticals: Assessment Of Economic And Environmental Issues

[Principal Investigator.]

Formal investigation of the important economic and environmental consequences of the potential development of biopharmaceuticals in Arkansas. Growing therapeutic proteins in plants is a new way to produce medicines. There is environmental as well as health concerns about the possibility of gene migration in the field and mixing of transgenic produce with normal produce in harvest and post-harvest stages. On the other hand, the potential economic prosperity appears to be equal or greater than the recent IT revolution. The fundamental research question is whether the new development will really improve quality of life and that of the environment? This study creates perceptual maps for the target market and evaluates the potential environmental risks and benefits. (Arkansas Biosciences Institute, 2003–04. Amount: \$250,000.)

Mid-Atlantic Regional Assessment [Research Associate.]

The MARA is a multi-year multi-institute study of the impacts of climate variability and change on the mid-Atlantic region, as part of the US Global Change Research Program. Several specializations were involved in studying how to reduce the vulnerabilities of species and communities from a changing climate; and how to improve decision-making. I worked with climatologists and forest scientists and built an integrated climate-economy model that dynamically optimizes forest values over time, given climate change vectors. (US EPA, PI: Dr Ann Fisher, 2000–2001.)

Multidisciplinary Center for Earthquake Engineering Research [Research Associate]

A multi-departmental NSF center for appraisal of earthquake risk, economic losses, social implications, and to suggest retrofitting measures. I used fragility curves supplied by structural engineers to design an entire economy “general equilibrium” model to estimate economic impact and suggest mitigation policies. (NSF Center since 1986, Director Dr George Lee, 1997–98 and 1999–2001.)

Industrial Ecology of Steel Technologies [Research Associate]

Evaluation of alternate steel technologies based on the criteria of effectiveness of environmental regulations, and economic efficiency. I developed a process-wise emissions database and a cost function. (NSF, PI: Dr T Considine, 1998–99.)

Re-Appraisal of the Narmada River Valley Project [Co- Principal Investigator]

Economic analysis of the Narmada River Project in India, with a World Bank estimated completion cost exceeding \$ 4.5 billion - one of the largest ever public projects. The reassessment task included evaluating environmental and human resettlement costs, as well as welfare impacts from cropping pattern and other landuse changes. The task interfaced civil engineers and agronomists, with economists. (World Bank, 1993–94.)

Agro-Climatic Regional Planning [Project Director]

This was a project of sustainable growth in the rural sector. The country was delineated into homogenous regions based on climate, land and water profiles. Detailed landuse strategies were developed consistent with local priorities and demonstration projects were initiated with stakeholder participation. Coordinated 2000 scientists, engineers, economists, bankers and civil administrators who were involved in this national project. (Govt. of India, 1992–97.)

ASSOCIATIONS

- * American Economic Association
- * Missouri Valley Economic Association
- * Southern Agricultural Economic Association
- * Southern Economic Association
- * Southwestern Society of Economists

SERVICE AND OUTREACH ACTIVITIES

Professional services

- Associate Editor, International Journal of Environmental Economics and Statistics.
- Assistant Editor, Journal of Economics.
- Reviewer, Southwestern Economic Review.

Newspaper Articles

- “Ordinary people can fight climate change,” *Jonesboro Sun*, Feb 27, 2007.
- “Arkansas has ‘green oil’ fields,” *Jonesboro Sun*, Oct 22, 2006.
- “Global training will become necessary as China, India gain power,” *Jonesboro Sun*, Dec 04, 2005.
- “Where in the world is Arkansas selling?” *Jonesboro Sun*, Mar 06, 2005.
- “Exports can have local impact,” *Jonesboro Sun*, Oct 17, 2004.
- “Globalization and environment,” *Jonesboro Sun*, Feb 29, 2004.
- “The buzz about biotech,” *Jonesboro Sun*, Oct 05, 2003.
- “Developments in pharming,” *Jonesboro Sun*, Feb 23, 2003.
- “Alaska drilling has drawbacks,” *Jonesboro Sun*, Sep 15, 2002.
- “Businesses adapting to climate,” *Jonesboro Sun*, May 12, 2002.
- “Fall is lesson in enronomics,” *Jonesboro Sun*, Feb 03, 2002.
- “Economic emergency ahead,” *Jonesboro Sun*, Oct 07, 2001.

Institutional Committees

- Faculty Senate, Arkansas State University, 2003–05.
- Graduate Programs Committee for Environmental Sciences Program, since 2003.
- Steering Committee for New Program (PhD / MS) in Biosciences, ASU, 2003-04.
- International Students Committee, Arkansas State University, since 2003.
- International Business & outreach Committee, College of Business, ASU, since 2004.
- Planning Committee, College of Business, ASU, since 2004.
- Graduate Programs Committee, College of Business, ASU, 2002-06.
- Departmental Curriculum Committee, Economics & Decision Sciences, ASU, 2002-03.

Community Outreach

- Led a 24 person delegation to China for 10 days in June 2008.
- Led a 39 person delegation to China for 10 days in May 2007.
- Led a 27 person delegation to China for 10 days in June 2006.
- Organized a “Business in China” workshop at the ASU Convocation Center on Wednesday October 25, 2006 – attended by over 100 persons.