

Vikram Dayal

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Professor, Institute of Economic Growth
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Present responsibilities

I work in the IES unit of the Institute of Economic Growth, Delhi. I teach public economics in the training programme that IEG conducts for the Indian Economic Service. I have been communicating the use of R to diverse audiences. My research is mainly in environment and development economics.

Experience

- IES unit, Institute of Economic Growth, 2005 onwards
- The Energy and Resources Institute (TERI). Resource and Development Economics Area, 1994 – 2005
- Teaching Assistant, University of Colorado at Boulder, USA. Taught Principles of Microeconomics. 1992–93.

Education

- Ph D in Economics, University of Delhi. ‘Economic analysis of Ranthambhore National Park’. 2006.
- Masters in Economics with specialization in Natural Resource Economics. University of Colorado at Boulder, USA. 1993.
- Masters in Economics. Jawaharlal Nehru University, Delhi. 1991.
- Bachelors in Economics. Hindu College, University of Delhi. 1989.

Publications

Books

- Demystifying Causal Inference: Public Policy Applications with R. New Delhi: Springer, 2023. (with Murugesan A.)

- Quantitative Economics with R: A Data Science Approach. New Delhi: Springer, 2020
- The Environment in Economics and Development: Pluralist Extensions to Core Economic Models. New Delhi: Springer, 2014
- An Introduction to R for Quantitative Economics: Graphing, Simulating and Computing. New Delhi: Springer, 2014

Edited Books

- Edited with A Duraiappah, N Nawn, Ecology, Economy and Society: Essays in Honour of Kanchan Chopra: Springer, 2018.
- Edited with K Chopra, Handbook of Environmental Economics in India. Delhi: Oxford University Press, 2009.

Papers in peer-reviewed journals

- Heat action plans in eight Indian cities: Knowledge gaps and opportunities for intersectoral heat governance, Indian Journal of Medical Research, 2025, 162(3): 330-341 (with Rajib Dasgupta, Purnamita Dasgupta, Arabinda Mishra, Anussha Murali, Girika Sharma, Purnasha Pany)
- Responding to heat-related health risks: the urgency of an equipoise between emergency and equity, Lancet Planet Health 2024;8: e933–36 (with Dasgupta P, Dasgupta R, Ebi K L, Heaviside C, Joe W, Kolli R K, Mehra M K, Mishra A, Raghav P)
- Drain on your health: Sanitation externalities from dirty drains in India, Review of Development Economics, DOI: 10.1111/rode.12924, 2022 (with Murugesan, A., and Rahman T.)
- Emphasizing visual tools: using R to understand dynamic models of biology and epidemiology, International Journal of Mathematical Education in Science and Technology, 2022 DOI: 10.1080/0020739X.2022.2047811
- Air pollution trade-offs in developing countries: an empirical model of health effects in Goa, India, Environment and Development Economics, 1-22. doi:10.1017/S1355770X21000152, 2021 (with Das, S., Murugesan, A., and Rajarathnam, U.) Volume 27 , Issue 2 , April 2022 , pp. 145 - 166
- Towards pluralism in a public economics course in India, Int. J. Pluralism and Economics Education, 4(4):400–406 , 2013
- Modes of transport, basic amenities and wellbeing: Findings from Delhi City, Journal of Urban Regeneration and Renewal, 5(3): 253—256 , 2012 (with Preeti Kapuria and Arup Mitra)

- A Stakeholder Perspective into Wildlife Policy in India, *The Journal of Wildlife Management*, 76(1), 10-18, 2012 (with Shekhar K Niraj and Paul R Krausman)
- Temporal and spatial analysis of wildlife seizures in India from 1992 to 2006, *International Journal of Ecological Economics and Statistics*, 24(1): 79-109, 2012, (with Shekhar. K. Niraj and Paul. R. Krausman)
- Population pressure and environment in the context of growth: evidence from an Indian city, *International Journal of Urban Sustainable Development* DOI:10.1080/19463138.2011.613616, 2011 (with Preeti Kapuria and Arup Mitra)
- Applying methodological pluralism to wildlife and the economy, *Ecological Economics*, 69: 1610–1616, 2010 (with Shekhar K. Niraj and Paul R. Krausman)
- Inter- and intra-village diversity among forest dependent households in Ranthambhore National Park, India, *International Journal of Ecological Economics and Statistics*, 10: 27–39, 2008
- An Empirical Study of Sanitation and Health in Rural Uttarakhand, India, *International Journal of Ecological Economics and Statistics*, 10:91–99, 2008 (with Anand Murugesan and Saurabh Chugh)
- Social diversity and ecological complexity: how an invasive tree could affect diverse agents in the land of the tiger, *Environment and Development Economics*, 12(4): 553 – 571, 2007
- A microeconometric analysis of household extraction of forest biomass goods in Ranthambhore National Park, India, *Journal of Forest Economics* 12(2): 145–163, 2006
- Valuing air pollution in India, *Pacific and Asian Journal of Energy* 8(2): 207–220, 1998 (with Sumeet Saksena)

Chapters in Books

- Causal Inference with Matching: Evaluation of Programs and Policies. In *Data Science for Modeling Managerial and Socioeconomic Problems: Concepts, Techniques, and Applications* (pp. 229-248). Singapore: Springer Nature Singapore. (with Rahul M)
- Uncertainty and causality in public policy: The Cases of Heart Disease and Climate Change. In *Sustainable Development Insights from India: Selected Essays in Honour of Ramprasad Sengupta*. Editors: Dasgupta, Purnamita, Saha, Anindita Roy, Singhal, Robin. Springer, 2021.

- Analyzing Institutions in Resource and Development Econometrics: Recognizing Institutions, Exploring Levels, and Querying Causes, in Vikram Dayal, A. Duraiappah, and Nandan Nawn (Eds.), *Ecology, Economy and Society: Essays in Honour of Kanchan Chopra*. Springer, 2018
- Traversing Diverse Paths in Ecological Economics with Enigmatic Models in Global Change, Ecosystems, Sustainability: Theory, Methods, Practice edited by Pranab Mukhopadhyay, Nandan Nawn and Kalyan Das. New Delhi, Sage, 2017
- Overview, In *Handbook of Environmental Economics* edited by Chopra, Kanchan and Dayal, Vikram. Delhi: Oxford University Press, 2009 (With K Chopra)
- Recent developments in Natural Resource Accounting, In *Handbook of Environmental Economics* edited by Chopra, Kanchan and Dayal, Vikram. Delhi: Oxford University Press, 2009
- A Microeconomic Analysis of Household Extraction of Forest Biomass Goods in Ranthambhore National Park, India, In *Growth, Equity, Environment and Population* edited by Chopra, Kanchan and Rao, C H Hanumantha. Delhi: Sage, 2008
- Air, In *Looking Back to Change Track*. New Delhi: TERI, 2007 (With T S Panwar and Sumit Sharma)
- Market-based instruments, In *Directions, innovations, and strategies for harnessing action for sustainable development*, edited by R K Pachauri and R K Batra. New Delhi: TERI, 2001
- The costs of degradation, In *Looking Back to Think Ahead: GREEN India 2047*, edited by R K Pachauri and P V Shridharan. New Delhi: TERI, 1998 (with Kinsuk Mitra, Sanjeev Singh Ahluwalia, Sudheer Sharma, Sumeet Saksena)
- Greening of economic growth. In *India: Development Policy Alternatives*, edited by V L Kelkar and V V Bhanoji Rao. New Delhi: Tata McGraw Hill, 1996 (with R K Pachauri)
- Energy sector: investment requirements and financing options. In *Energy and environmental challenges in central Asia and the Caucasus: windows for co-operation*, edited by Preeti Soni. New Delhi: Tata Energy Research Institute, 1996

[Working, discussion papers, preprint](#)

- A Detailed, Visual Description of Growth Rates Across Countries for Fifty Years till 2023 using the Penn World Table Version 11.0 (November 21, 2025). Dayal, Vikram, *A Detailed, Visual Description of Growth Rates*

Across Countries for Fifty Years till 2023 using the Penn World Table Version 11.0 (November 21, 2025). Available at SSRN: <https://ssrn.com/abstract=5782802>

- Causal Inference: Developing Intuition for Basic Ideas With Symbols and Simulation (April 30, 2025). Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5231346
- R for Environmental Economics (December 6, 2021). Available at SSRN: <https://ssrn.com/abstract=3978880> (with M Rahul) [Updated: 2025]
- A teaching and learning tool (shiny web app) for illustrating the concept of sampling distributions in econometrics (December 5, 2021). Available at SSRN: <https://ssrn.com/abstract=3977939>
- COVID-19: visualizing peaks and waves in recorded cases across the globe, Research Square preprint 2021. 10.21203/rs.3.rs-651674/v2
- Demystifying causal inference: ingredients of a recipe. (With A Murugesan), IEG Working Paper 2020.
- ‘Neighbors Can Make You Sick: Hygiene and Health,’ World Bank DEC Working Paper Series, WPS 84797, 2014, Washington DC. (with A Murugesan and T Rahman)
- Analyzing Institutions in Resource and Development Econometrics: Recognizing Institutions, Exploring levels and querying causes. Sandee Working Paper, No 70-12, 2012.
- An integrated empirical model of health effects of air pollution: the case of mining in Goa, India. IEG Discussion Paper Series No. 139/2009 (with S Das, A Murugesan, R Uma, M Sehgal, and S K Chhabra)

Reports

- Urban social-ecological systems and globalization – submitted to Stockholm Resilience Centre by IEG, New Delhi, India, 2010
- Economic instruments for forest ecosystem management, prepared by IEG with WWF-India, 2007
- Role of infrastructure in poverty reduction, prepared by TERI for Japan Bank for International Cooperation, 2006
- Economics of Forest Livelihoods, Himachal Pradesh Forest Sector Reforms Project, Prepared by TERI for URS Management Consultants, 2005
- Natural resource accounting in the Yamuna sub-basin, Prepared by TERI for Ministry of Environment and Forests, Government of India, 1997

- India: a country profile, Prepared by TERI for Cambridge Energy Research Associates, 1995
- Natural resource accounting: a means to measure sustainable development in India, Prepared by TERI for IDRC, Canada, 1994
- Financing options for the energy sector in developing countries, prepared by TERI for the World Energy Council, 1994

Dissemination

Video

- Quantitative Economics with R, Springer Nature video, online 9 June 2021. <https://link.springer.com/video/10.1007/978-981-16-3434-5>

Teaching workshops

- I taught in the IEG Winter School on Causal Inference, 2025.
- Lectures on Introduction to Causal Inference, Regression Discontinuity Design (RDD); Randomized Control Trials (RCTs) — workshop on Quantitative Methods for Economic Research organised by the Department of Economics, Shaheed Bhagat Singh College in collaboration with The Indian Econometrics Society (TIES) held from 24-26 September 2025.
- I taught in the first IEG Summer School on Causal Inference, May 2025 (took two classes).
- I was a Resource person (with M Rahul) for the pre-conference one day workshop titled 'Application of R Software for Health Data Analysis' organised as part of the 12th Annual IHEPA Conference in collaboration with Institute of Economic Growth, New Delhi. January 21, 2025.
- I taught in the first IEG Winter School on Causal Inference, Nov 25 to Dec 4, 2024 (took two classes).
- Causal Inference: Political Research Applications in R, online, European Consortium for Political Research. Monday 25 July – Friday 29 July 2022. With Anand Murugesan.
- INSEE Workshop on R for Ecological Economics, online. 20 September, 22 September, and 24 September 2021. I taught with Rahul M.
- Research methods in environmental and natural resource economics using R, Teaching Workshop for SANDEE, 17 May 2021 to 21 May 2021, I taught with Heena Gaude, AK Enamul Haque, Pranab Mukhopadhyay and Mani Nepal.

- ‘Diverse paths in ecological economics,’ presented in panel discussion on ‘INSEE and the future of Ecological Economics’ on December 5-7, 2013 at Tezpur University, Assam.

[Presentations etc.](#)

- What can you do with R?, Keynote presentation, 19 November 2021, Shri Ram Research Festival, The Economics Society, Shri Ram College of Commerce.
- Using R for Environmental Economics, 6th International Conference on South Asian Economic Development, 2021, South Asian University, 26 Feb 2021. <https://www.youtube.com/watch?v=yj6h0-iLm6s&t=413s>
- Exploratory data analysis using R in Faculty Development Programme organized by Mahatma Hansraj Faculty Development Centre and Mata Sundri College for Women, Delhi University, 7 January 2021
- ‘Diverse paths in ecological economics,’ presented in panel discussion on ‘INSEE and the future of Ecological Economics’ on December 5-7, 2013 at Tezpur University, Assam.
- ‘Climate change and the invasion of the invasives’ presented at Workshop ”Towards Greening the Economy” ,IEG, 22nd of February, 2012
- Analyzing institutions in resource and development econometrics: recognizing institutions, exploring levels, and querying causes, in Fall 2011, Workshop in Political Theory and Policy Analysis, Bloomington.
<http://ostromworkshop.indiana.edu>
- ATREE and Noragric, UMB, The Norwegian University of Life Sciences, organised a policy dialogue on Reducing Emissions from Deforestation and Forest Degradation (REDD) Plus for an audience of policy makers, academics, media persons, NGO leaders and others at the India International Centre, Delhi on 14th July 2011. Their presentations were followed by a discussion led by Nitin Sethi from Times of India, and Vikram Dayal from Institute of Economic Growth.
- ‘Institutional analysis and multi-level modelling in environment and development economics.’ Sandee@10 Conference, Kathmandu, December 2010
- The scope of environmental economics, talk delivered to St Stephen’s economic society, September 2009. <https://theecosoc.wordpress.com/2009/09/>
- Prosopis juliflora in Ranthambhore National Park, ATREE and School of Ecology and Conservation, UAS, Bangalore organised an international conference on ‘Invasive Plants in the Tropics: Ecology, Management and Livelihoods’ in Bangalore on 5 and 6 January, 2009.

- Spatial variations in population and environmental pressure and the urban transport system in Delhi (work with Preeti Kapuria and Arup Mitra), Stockholm Resilience 2008 conference in Stockholm, Sweden 14-17 April 2008
- Fuelwood, land and conservation, Paper presented at Beijer Research Seminar on Environmental Economics, 18–20 September, 2000, Dhulikel, Nepal
- Institutional change and green budget initiatives in India, Paper presented at the UNDP ‘Pro-poor and gender- and environment-sensitive budgets’ workshop, New York, 28–30 June, 1999

Newspaper Articles

In the Economic Times:

- Controlling air pollution in Delhi, 10 May, 1998.
- An energy shortage closer to home (with Anjana Das), 15 January, 1998, and
- Keeping count of nature’s gifts, 8 October, 1996.

IEG training programmes

- Lecture given in training programme for Indian Statistical Service 2015
- Gave lectures as part of the IEG team at Indira Gandhi National Forest Academy, Dehradun, May 2009 and July 2008.

Invited guest lectures

Have given guest lectures over the years at Ambedkar University, Delhi, Delhi University School of Environmental Studies, Teri University, Wildlife Institute, Dehradun.

Other

- Associate Editor, Ecology, Economy and Society, April 2017 to March 2023
- Member, Board of Studies, School of Human Ecology, Ambedkar University, Delhi
- Life Member, Indian Society of Ecological Economics
- Award. Global Development Network First Prize Medal for Research for the paper on ‘Social Diversity and Ecological Complexity, how an Invasive Tree could affect Diverse Agents in the land of the Tiger’, 2008 Awards and Medals Competition, in Kuwait in 2009.