

# Environment and Development Economics

Volume 27 Part 3 June 2022



# ENVIRONMENT AND DEVELOPMENT ECONOMICS

published in association with the Beijer Institute of Ecological Economics,  
Royal Swedish Academy of Sciences

**AIMS AND SCOPE** *Environment and Development Economics* aims to publish papers on the environmental problems associated with the process of economic development. It encourages submission of two categories of paper. The first comprises scientific papers. The second comprises environmental policy discussion papers. The first is carried in a section on Theory and Applications. The second is carried in a regular section, Policy Options, and an occasional more focussed Policy Forum.

The journal publishes on a wide range of topics including:

- \* the environmental impact of economy-wide policies
- \* optimal environmental regulation and incentives in a development context
- \* the valuation of environmental resources in developing countries and incentives in environmental policy
- \* the environmental effects of institutional change
- \* modelling interdependent economic and environmental processes

**SUBSCRIPTIONS** *Environment and Development Economics* (ISSN 1355-770X) is published bimonthly in February, April, June, August, October and December. Six parts form a volume. The subscription price (excluding VAT), which includes print and electronic access, and postage, of Volume 27 in 2022 is £469 (\$757 in the USA, Canada and Mexico), for institutions and £80 (\$129 in the USA, Canada and Mexico) for individuals ordering direct from the publisher and certifying that the journal is for their personal use. The electronic-only price available to institutional subscribers is £354 (US\$589 in the USA, Canada and Mexico). Single parts are £85 (US\$138 in the USA, Canada and Mexico). Prices include delivery by air where appropriate. Orders which must be accompanied by payment, may be sent to a bookseller, subscription agent or direct to the publisher: Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge, CB2 8BS, UK; or in the USA, Canada and Mexico: Cambridge University Press, Journals Fulfillment Department, 1 Liberty Plaza, Floor 20, New York, NY 10006, USA. EU subscribers who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Japanese prices for institutions are available from Kinokuniya Company Ltd, PO Box 55, Chitose, Tokyo 156, Japan. Special arrangements exist for subscribers in most low-income countries. Apply to: Journals Marketing Department, Cambridge University Press, University Printing House, Shaftesbury Road, Cambridge, CB2 8BS, UK.

Periodicals postage is paid at New York, NY, and at additional mailing offices. POST-MASTER: send address changes in the USA, Canada and Mexico to: *Environment and Development Economics*, Cambridge University Press, 1 Liberty Plaza, Floor 20, New York, NY 10006, USA.

**Copying** This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organizations in the USA who are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of U.S. Copyright law) subject to payment to C.C.C. of the per-copy fee of \$12.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 1355-770X/2019.

ISI Tear Sheet Service, 3501 Market Street, Philadelphia, PA 19104, USA, is authorised to supply single copies of separate articles for private use only.

Organizations authorised by the Copyright Licensing Agency may also copy material subject to the usual conditions.

For all other use, permission should be sought from Cambridge or from the American Branch of Cambridge University Press.

This journal is included in the Cambridge Core service which can be found at <http://cambridge.org/core>.

ISSN 1355-770X © Cambridge University Press

## CONTENTS

MARGARET CHITIGA-MABUGU, MARTIN HENSELER, RAMOS MABUGU AND HELENE MAISONNAVE The impact of the COVID-19 enforced lockdown and fiscal package on the South African economy and environment: a preliminary analysis	209
DOMENICO BUCCELLA, LUCIANO FANTI AND LUCA GORI 'Green' managerial delegation theory	223
OSCAR ZAPATA Happiness in the tropics: climate variables and subjective wellbeing	250
JULIEN WOLFERSBERGER, GREGORY S. AMACHER, PHILIPPE DELACOTE AND ARNAUD DRAGICEVIC The dynamics of deforestation and reforestation in a developing economy	272
LUCAS COSTA, ANDRÉ ALBUQUERQUE SANT'ANNA AND CARLOS EDUARDO FRICKMANN YOUNG Barren Lives: drought shocks and agricultural vulnerability in the Brazilian Semi-Arid - Corrigendum	294

# ENVIRONMENT AND DEVELOPMENT ECONOMICS

published in association with the Beijer Institute, Royal Swedish Academy of Sciences

## CO-EDITORS

Carlos Chávez, *Universidad de Talca*  
Susana Ferreira, *University of Georgia*  
E. Somanathan, *Indian Statistical Institute*  
Jeffrey R. Vincent, *Duke University*

## ASSOCIATE EDITORS

H. Jo Albers, *University of Wyoming*  
Carmen Arguedas, *Autonomous University of Madrid*  
Juliano Assunção, *Pontifícia Universidade Católica do Rio de Janeiro*  
Mintewab Bezabih, *Ethiopian Development Research Institute*  
Jing Cao, *Tsinghua University*  
Olivier Chanel, *Aix-Marseille Université*  
Xiaoguang Chen, *Southwestern University of Finance and Economics*  
Sahan Dissayanake, *Portland State University*  
Håkan Eggert, *University of Gothenburg*  
Kyle Emerick, *Tufts University*  
Shihe Fu, *Xiamen University and WISE*  
Mads Greker, *Oslo Metropolitan University*  
Sumeet Gulati, *The University of British Columbia*

François Libois, *Paris School of Economics and INRA*  
Alejandro López-Feldman, *Centro de Investigación y Docencia Económicas*  
Hélène Ollivier, *Paris School of Economics*

## ASSISTANT EDITOR

Dimi Xepapadeas

## EDITORIAL BOARD

Edward B. Barbier, *Colorado State University*, Allen Blackman, *Inter-American Development Bank and Resources for the Future*, Margaret Chitiga, *University of Pretoria*, Partha Dasgupta, *Cambridge University*, Aart de Zeeuw, *Tilburg University and Beijer Institute*, Salvatore Di Falco, *University of Geneva*, Carl Folke, *Beijer Institute*, George Halkos, *University of Thessaly*, Alemu Mekonnen, *Addis Ababa University*, Katrin Millock, *CNRS, Paris School of Economics*, Subhrendu Pattanayak, *Duke University*, Charles Perrings, *Arizona State University*, Karen Pittel, *Ifo Institute for Economic Research and University of Munich*, Ping Qin, *Renmin University of China*, Martin Quaas, *Universität Leipzig*, Juan Robalino, *CATIE and Universidad de Costa Rica*, Elizabeth Robinson, *University of Reading*, Elisabetta Strazzera, *University of Calgiari*, Anant Sudarshan, *University of Chicago*, María Alejandra Vélez, *Universidad de los Andes*, Anastasios Xepapadeas, *Athens University of Economics and Business and University of Bologna*, Mahmud Yesuf, *American University*.