

Center for Global Trade Analysis Newsletter

Climate Change, Agriculture, and Poverty

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Understanding the link between climate change and poverty is vital for the formulation of intelligent, effective policy responses to climate change. In this paper, we focus on agriculture as the primary means through which the impacts of climate change are transmitted to the poor. In so doing, we highlight the importance of earnings effects precipitated by commodity market responses to climate change. Indeed, in those regions: (i) which are less severely affected by climate change, (ii) where poverty is concentrated in rural, agricultural areas, and (iii) where adverse climate shocks boost the demand for unskilled labor, it is even possible that global climate change could reduce poverty rates through higher commodity prices and farm earnings. Adverse climate impacts on publicly accessible forests and wildlife resources could also have a significant impact on the poor who rely on them for firewood, food, and other consumption items. In short, the poverty consequences of climate change are much more nuanced than has been suggested in most discussions to date.

With the proliferation of studies assessing the likely agricultural productivity impacts of climate change, policy makers are in desperate need of guidance regarding the comparability and reliability of such reports. We evaluate the three main approaches to assessing these impacts and conclude that each has its own limitations and should not be used in isolation. Decision makers must press those doing crop simulation analysis for more regional and national scale validation of their work, while the statistical studies (including the Ricardian) analyses need to be carefully evaluated for robustness. In general, too little attention has been paid to the potential for climate variables exceeding key thresholds which might give rise to sharp drops in the productivity for some cropping activities.

We believe it is possible that the poverty impacts of attempts to mitigate climate change could have a greater effect on the poor in some developing countries than the climate change impacts themselves. Preliminary evidence suggests that both the direct effects of payments to sequester carbon, as well as the indirect effects on wages and food prices, could have important poverty impacts. Yet progress to date on mobilizing resources for mitigation has been limited and so policy-makers are focusing increasingly on adaptation. Accordingly, we review existing studies of the poverty impacts of historical climate events. This work highlights the role of climate shocks as a key cause of households falling into, or remaining trapped in, poverty in rural areas. Because these events hit the entire population at once, traditional methods of risk sharing which work well for idiosyncratic events are no longer adequate. As a consequence, poor farming households are prone to modifying behavior in anticipation of such shocks, and these ex ante behavioral changes can significantly reduce profitability of farming. Economists’ traditional response to this problem is to offer weather insurance, and we review a number of valuable studies which look at this potential solution. What is most surprising is the modest uptake of such insurance schemes. Poor households are often distrustful of such schemes. They are also hard-pressed to front the costs of even modest premiums, and, when disaster hits, they cannot afford to wait for the resulting payment. Much can be done to improve the value of weather insurance schemes to low income households, but the poor will inevitably rely on a variety of coping mechanisms for dealing with extreme climate events.

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Global FDI Dataset

A global bilateral multi-region multi-sector foreign direct investment (FDI) stocks and flows database has been contributed to GTAP by Houssein Boumellassa, Christophe Gouel and David Laborde from CEPII (Centre d'Etudes Prospectives et d'Informations Internationales) as a result of a project initiated by DG Trade of the European Commission. This database is fully consistent, balanced and suitable for use in CGE work. This database is fully consistent, balanced and suitable for use in CGE work. This has now been extended to all 57 GTAP sectors by Csilla Lakatos and Terrie Walmsley. Updates to this dataset are expected in the forthcoming months.

To access this dataset, please visit: www.gtap.agecon.purdue.edu/resources/free_resources.asp and scroll to the “Free Satellite Data and Utilities” section.

Free Access to GTAP Data Base

Individuals who contribute an I-O Table for the GTAP Data Base will receive a free copy of the data base. By GDP and population size, the top 8 countries not in GTAP are Saudi Arabia, United Arab Emirates, Israel, Algeria, Libya, Iraq, Puerto Rico, and Kuwait

Other I-O tables in serious need of updating are those listed in the GTAP Chopping Block. For Version 8, countries with I-O tables prior to 1993 will not be included in the data base, these countries are Hong Kong, Zimbabwe, Tanzania, and Uganda.

For further information, please visit: www.gtap.agecon.purdue.edu/databases/contribute/.

GTAP Resource Center Highlights

GTAP Working Paper Series

“[Modeling Biofuels Policies in General Equilibrium: Insights, Pitfalls and Opportunities](#)”

by Golub, Alla, Thomas Hertel, Farzad Taheripour and Wally Tyner

GTAP Working Paper No. 61

“[Effects of GHG Mitigation Policies on Livestock Sectors](#)”

by Golub, Alla, Ben Henderson, Thomas Hertel, Steven Rose, Misak Avetisyan and Brent Sohngen

GTAP Working Paper No. 62

“[The Global Supply and Demand for Agricultural Land in 2050: A Perfect Storm in the Making? AAEA Presidential Address](#)”

by Hertel, Thomas

GTAP Working Paper No. 63

GTAP Research Memoranda Series

“[Development of the GTAP Version 7 Land Use Data Base](#)”

by Avetisyan, Misak, Uris Baldos and Thomas Hertel

Research Memorandum No. 19

“[International Marine Bunkers: An Attempt to Assign its Usage to the Right Countries](#)”

by McDougall, Robert and Nico van Leeuwen

GTAP Research Memorandum No. 20

For further information about the GTAP Resource Center, please visit: www.gtap.agecon.purdue.edu/resources/.

GTAP Events

2011 African Short Course in Global Trade Analysis

"Introduction to Applied General Equilibrium Analysis in a Multi-Region Framework"

April 10-16, 2011 | United Nations Conference Center | Addis Ababa, Ethiopia

The objectives of this course are to introduce participants to a standardized framework for conducting global trade analysis in an applied general equilibrium setting, provide hands-on training with software that has been tailored to global trade analysis and give participants the opportunity to interact with economists working on global trade and resource use issues while becoming part of an international network.

Applications for this course will be accepted on the GTAP website from November 1-30, 2010. A number of scholarships are available for this course.

For further information, please visit: www.gtap.agecon.purdue.edu/events/Short_Courses/2011-African/.



UN Conference Center
Addis Ababa, Ethiopia

Fourteenth Annual Conference on Global Economic Analysis

"Governing Global Challenges"

June 16-18, 2011 | San Giobbe Campus, Ca' Foscari University of Venice | Venice, Italy

The overall theme of the conference is "Governing Global Challenges" with minor sub-themes on environment and climate; trade; distributional and equity issues; dynamics and growth; energy supply and security; international health issues; poverty, employment and development; conflicts; natural resources supply and security; methodology; and software and data.

Abstracts and organized session proposals will be accepted on the GTAP website from November 1, 2010 through January 15, 2011. Registrations will be accepted from early January through April 30, 2011.

For further information, please visit: www.gtap.agecon.purdue.edu/events/conferences/2011/.



Ca' Foscari University of Venice
Venice, Italy

Nineteenth Annual Short Course in Global Trade Analysis

"Introduction to Applied General Equilibrium Analysis in a Multi-Region Framework"

August 6-12, 2011 | Purdue University | West Lafayette, Indiana, USA

The objectives of this course are to introduce participants to a standardized framework for conducting global trade analysis in an applied general equilibrium setting, provide hands-on training with software that has been tailored to global trade analysis and give participants the opportunity to interact with economists working on global trade and resource use issues while becoming part of an international network.

Applications for this course will be accepted on the GTAP website from November 1, 2010 through February 20, 2011.

For further information, please visit: www.gtap.agecon.purdue.edu/events/Short_Courses/2011/.



Purdue University
West Lafayette, USA

Center for Global Trade Analysis Activity

The Center for Global Trade Analysis staff and graduate students have been busy presenting and publishing the following:

Travel and Presentations

Alla Golub, Thomas Hertel, Farzad Taheripour and Wallace Tyner. "Modeling Biofuels Policies in General Equilibrium: Insights, Pitfalls and Opportunities". Alla Golub presented the paper at workshop "Economic Models of Land Use and Biofuels" at the University of Illinois, Champaign, IL, September 27, 2010.

Nelson Villoria will represent the Center at the first meetings of the Agricultural Model Intercomparison and Improvement Project (AgMIP Long Beach, CA, October 27-29, 2010). AgMIP is a distributed climate simulation exercise for historical model intercomparison and future climate change conditions with participation of multiple crop and world agricultural trade modeling groups around the world.

Golub, A., T. W. Hertel, F. Taheripour and W. E. Tyner (2010). "Modeling Biofuels in General Equilibrium", Chapter 6 (pp. 153-187) in J. Gilbert (ed.), Frontiers of Economics and Globalization Vol. 7, Emerald Publishing.

Strutt, A., T. W. Hertel and S. Stone (2010). "Exploring Poverty Impacts of ASEAN Trade Liberalization for Cambodia, Lao PDR, Thailand and Vietnam", Chapter 8 (pp. 217-245) in J. Gilbert (ed.), Frontiers of Economics and Globalization Vol. 7, Emerald Publishing.

New Employees

The year 2010 proved to be a very successful period of growth for the Center for Global Trade Analysis. The Center was able to create two new positions to help fulfill the ever-expanding research opportunities available in the global trade analysis field.



Steinbuks

Dr. Jevgenijs Steinbuks was hired as a Post-Doctoral Research Associate and works on the modeling opportunities in agriculture for climate change mitigation as well as the coordination of data collection and dissemination for the GTAP-E Model.

Dr. Nelson Villoria was hired as a Research Assistant Professor and works on international trade and changes in global land use. Dr. Villoria will also coordinate the Annual Short Courses in Global Trade Analysis as well as advising a number of the Center's graduate students.



Villoria

About GTAP



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The Global Trade Analysis Project is coordinated by the Center for Global Trade Analysis, which is housed in the Department of Agricultural Economics at Purdue University.

The Center for Global Trade Analysis' mission is to provide leadership in economic policy analysis through better data, fostering collaboration, and research.

Guidance and financial support for the project is provided by the GTAP Consortium, which consists of national and international agencies, with further support provided by sales of the GTAP Data Base.

If you are interested in learning more about GTAP and the Center for Global Trade Analysis, please visit our website: www.gtap.agecon.purdue.edu.

