

Center for Global Trade Analysis Newsletter

Impacts of EU biofuels directives on global markets and EU environmental quality: An integrated PE, global CGE analysis



Britz



Hertel

Wolfgang Britz and Thomas W. Hertel

As policy makers become increasingly aware of the impact of their decisions on the global economy, as well as the impact of developments in the global economy on regional and national resource use, the demand for cross-scale analysis of economic and environmental policies has become a high priority. This paper contributes to this literature by developing a new methodology to link two widely used policy models in order to provide an integrated assessment of the environmental impacts of EU biofuels mandates.

By combining the CAPRI model of EU agricultural production and resource use with the GTAP model of global trade and land use, we are able to estimate both the global impacts of EU biofuels policies as well as the detailed, regional changes in land use and nutrient surplus.

The applicability of this combined modeling approach extends well beyond biofuels. It could offer important insights into the global impacts of EU agricultural policy reforms, as well as analysis of the EU-regional impacts of global agreements on trade policy or climate change mitigation. In short, the methodology developed in this paper holds great promise for future, cross-scale analysis of global issues bearing on agriculture, land use and the environment.

German Researcher Visiting Center through March

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Pelikan

Dr. Janine Pelikan is a Researcher at the Johann Heinrich von Thünen Institute and is currently visiting the Center for Global Trade Analysis to work on combining the CAPRI Model of EU agricultural production and resource use with the GTAP Model.

By doing this, she will be working on a paper for the Thirteenth Annual Conference on Global Economic Analysis (June 9-11, 2010 Bangkok, Thailand) that analyzes the global, EU and regional effects of introducing an obligatory set-aside rate in the EU.

Janine has been actively involved in the GTAP Network since 2005 participating in numerous conferences and successfully completing the 14th Annual Short Course in Global Trade Analysis.

Please help us welcome and wish Janine a productive visit at the Center for Global Trade Analysis!

GTAP Data Base Developments

GTAP 7 Data Base Interim Release 1

In the forthcoming months, the Center expects to release GTAP 7 Data Base Interim Release 1 to the subscribers of GTAP 7 Data Base. This release would contain revised Input-Output tables for all the 27 EU member countries, contributed by Marc Mueller, Scott McDonald and Csilla Lakatos. More detailed inputs would be incorporated for the agricultural production and domestic support data in EU (by Hans Jensen) and USA (by Hsin Huang). Further, this version would include a new Input-Output table for China (Zhan-Ming Chen). Myanmar table has been removed due to data quality issues.

New Labor Splits Dataset

In an effort of collaboration between the Center for Global Trade Analysis and the GTAP Consortium on data-issues, Marinos Tsigas and Alison Weingarden from the US International Trade Commission have been working with the Center on contributing new splits for labor for the GTAP 7 Data Base. This dataset would contain wage and employment data for five categories of labor for many of the GTAP countries. This work is in progress. An organized session, which would feature presentations that explain and apply this dataset using the GTAP Data Base, has been planned for the Thirteenth Annual Conference on Global Economic Analysis.

Center for Global Trade Analysis Seeking Research Assistant Professor



Research Assistant Professor in Global Economic Analysis

Center for Global Trade Analysis, Department of Agricultural Economics, Purdue University

Nature of Position: Research and Policy Analysis in Global Economic Analysis. Non tenure-track faculty position. The incumbent will have full voting rights on all departmental matters except those involving curriculum, faculty promotions, and tenure. Performance will be evaluated annually by the Executive Director of the Center for Global Trade Analysis and potential for promotion in rank will be evaluated annually by a committee of tenured faculty. Reappointment to the position is contingent on funding availability and satisfactory performance.

Principle Duties: The Center for Global Trade Analysis, housed in the Department of Agricultural Economics at Purdue University, is the home of the Global Trade Analysis Project (GTAP), a global network of researchers and policy makers conducting quantitative analysis of international policy issues. For more information on the Center's activities, visit: www.gtap.agecon.purdue.edu. The Center maintains an active research program in global economic issues including topics ranging from agricultural trade, to energy policy, climate change mitigation, land use, international migration, and poverty analysis. As a member of the Center, this individual will develop an internationally recognized research program in global economic analysis in conjunction with the Global Trade Analysis Project (GTAP). S/he will be expected to publish, supervise graduate students, and lead international research projects, as well as contribute to the ongoing development of the GTAP Data Base. S/he will also be expected to seek and obtain external competitive grant support.

Qualifications: The successful applicant will hold a Ph.D. in economics, agricultural, or environmental economics, and will have substantial research experience in global economic analysis – including a solid foundation in applied general equilibrium modeling of policy issues and experience working with large-dimensioned, global economic data sets.

Application: A complete application should include a statement describing the applicant's research interests, leadership experience, and a CV. Names, addresses, and phone numbers of at least three references who can evaluate the applicant's qualifications for this position should be also provided. Please email the aforementioned information to Meghan Alexander (megalex@purdue.edu).

Closing Date: February 15, 2010, or until an acceptable candidate is found.

Purdue University is an Equal Opportunity / Equal Access / Affirmative Action employer fully committed to achieving a diverse workforce.

GTAP Events

Thirteenth Annual Conference on Global Economic Analysis

"Sustainable and Inclusive Trade for Growth and Development"

The 13th Annual Conference will be held from June 9-11, 2010 and be hosted by the United Nations Economic and Social Commission for Asia and the Pacific in Bangkok, Thailand. Registrations are currently being accepted through April 30, 2010. For further information, please visit:

www.gtap.agecon.purdue.edu/events/conferences/2010/.



United Nations Conference Centre
Bangkok, Thailand

Eighteenth Annual Short Course in Global Trade Analysis

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

The 18th Annual Short Course in Global Trade Analysis will be held August 7-13, 2010 on the campus of Purdue University in West Lafayette, Indiana, USA. Applications for this course are currently being accepted through February 21, 2010. For further information, please visit:

www.gtap.agecon.purdue.edu/events/Short_Courses/2010/.



Purdue University
West Lafayette, USA

2010 Short Course in Dynamic Global Trade Analysis

"Dynamic Modeling and Applications in Global Economic Analysis"

The 2010 Short Course in Dynamic Global Trade Analysis will be held October 8-13, 2010 on the campus of Purdue University in West Lafayette, Indiana, USA. Applications for this course are currently being accepted through April 4, 2010. For further information, please visit: www.gtap.agecon.purdue.edu/events/Dynamic_Courses/2010/.

GTAP Network Research Highlights: "Dynamic Model of Migration"



Aguiar



Walmsley

Angel Aguiar and Terrie Walmsley have recently developed a dynamic model of international migration combining the Global Migration model (GMig2) and the Dynamic GTAP model (GDyn). The need for a dynamic model to analyze migration stems from the fact that migration interacts with changes in population (e.g., the decline in population caused by declining birth rates in many developed countries) and human capital accumulation to produce changes in the supply of skilled and unskilled workers which, when combined with capital accumulation, are essential for ensuring continued high economic growth. Another benefit of the dynamic model is that it takes into account the timing of the policies.

The dynamic model of migration includes equations which will allow us to track: a) the accumulation of capital over time, b) the ownership of capital and the income flows to those capital owners, c) the movement of migrants and other changes in the labor force over time, d) the flow of remittances back to the migrants, e) the real income of migrants and permanent residents, and f) separately identifies undocumented workers and their use by sector.

This model was used in Angel Aguiar's Ph.D. thesis to analyze possible reforms to the U.S. immigration policy. The analysis was centered in policies affecting undocumented workers in the United States. For this the GMig2 data base and model were also extended to include estimates of U.S. undocumented workers by country of origin and by sector of occupation.

Combinations of the following policy scenarios are considered: increased border control, one-time legalization (amnesty), and increased quota of foreign unskilled workers. The results indicate that increasing border control is detrimental to the U.S. economy, which is consistent with the literature. Under the model assumptions, adding both the increase in quota for unskilled migrants and amnesty to the increased border control provided most benefits with an increase in the growth of the U.S. GDP, investment, and capital stocks. In dollar terms, the model results indicate that the combination of increased border control, amnesty, and increased foreign unskilled quota causes an average loss of approximately \$30/year for domestic unskilled workers and \$460/year for foreign documented workers. Skilled domestic workers, on the other hand, would gain \$50/year and skilled foreign workers \$36/year.

Center for Global Trade Analysis Activity

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

Presentations

Hertel, T.W. "Global Data Base Infrastructure for Long Run Analysis of Agriculture, Climate and the Environment", Session organized for the second meeting of the UK Science Advisor's Foresight Project, ERS/USDA, Washington, DC, November 9, 2009.

Hertel, T.W. "Climate Volatility and Poverty Vulnerability: An Overview", presented at the World Bank Workshop on Climate, Agriculture and Poverty, Washington, DC, October 19, 2009.

Publications

Hertel, T.W., A.A. Golub, A.D. Jones, M. O'Hare, R.J. Plevin, D.M. Kammen. "Global Land Use and Greenhouse Gas Emissions Impacts of U.S. Maize Ethanol: Estimating Market-Mediated Responses". *BioScience* (forthcoming in March 2010).

Ahmed, S. A.; and T. L., Walmsley, "The Liberalization of Temporary Migration: India's Story", *South Asia Economic Journal*, 10 (1), 2009.

Taheripour, F., T.W. Hertel and W.E. Tyner, (2009). "Biofuels and their Byproducts", *Biomass and Bioenergy*, <http://dx.doi.org/10.1016/j.biombioe.2009.10.017>.

Preckel, P.V., J.A.L. Cranfield and T. W. Hertel, (2010). "A Modified, Implicit Directly Additive Demand System", *Applied Economics*, 42(2):143-155.

Hertel, T.W., W.E. Tyner and D.K. Birur, (2010). "Global Impacts of Biofuels", *Energy Journal*, 31(1):75-100.

Britz, W. and T. W. Hertel, (2009). "Impacts of EU Biofuels Directives on Global Markets and EU Environmental Quality: An integrated PE, Global CGE analysis", *Agriculture, Ecosystems and the Environment*, doi:10.1016/j.agee.2009.11.003

Taheripour, F., and W. Tyner (2010), "Biofuels, Policy Options, and Their Implications: Analyses Using Partial and General Equilibrium Approaches," in Khanna, Scheffran, and Zilberman (eds.), *Handbook of Bioenergy Economics and Policy*, Series of *Natural Resource Management and Policy*, Vol. 33.

Ando, A., M. Khanna, F. Taheripour (2010), "Market and Social Welfare Effects of the Renewable Fuels Standard," in Khanna, Scheffran, and Zilberman (eds.), *Handbook of Bioenergy Economics and Policy*, Series of *Natural Resource Management and Policy*, Vol. 33.

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.

