

AgEcon 618: Applied General Equilibrium Analysis – a sampling of work at the Center for Global Trade Analysis, Purdue University and affiliated institutions

I. Energy and Climate Policy

Böhringer, C., Fischer, C., & Rivers, N. 2023. “Intensity-Based Rebating of Emission Pricing Revenues”, *Journal of the Association of Environmental and Resource Economists*.

Böhringer, C., Fischer, C., Rosendahl, K. E., & Rutherford, T. F. 2022. “Potential impacts and challenges of border carbon adjustments”, *Nature Climate Change*.

Chepeliev, M., Hertel, T., van der Mensbrugghe, D. 2022. Cutting Russia's fossil fuel exports: Short-term economic pain for long-term environmental gain. *The World Economy*. <https://doi.org/10.1111/twec.13301>

Chepeliev, M., Osorio-Rodarte, I., and van der Mensbrugghe, D. 2021. Distributional impacts of carbon pricing policies under the Paris Agreement: Inter and intra-regional perspectives. *Energy Economics*. Vol. 102 (2021). <https://doi.org/10.1016/j.eneco.2021.105530>

Chepeliev, M., and van der Mensbrugghe, D. 2020. Global fossil-fuel subsidy reform and Paris Agreement. *Energy Economics*. Vol. 85 (2020). <https://doi.org/10.1016/j.eneco.2019.104598>

Golub, A.A., B.B. Henderson, T.W Hertel, P. Gerber, S.K. Rose and B. Sohngen (2012). “Global Climate Policy Impacts on Livestock, Land Use, Livelihoods and Food Security”, *Proceedings of the National Academy of Sciences* <http://www.pnas.org/content/early/2012/09/26/1108772109>
A. Global Land use Impacts and GHG Emissions from Biofuels

Hertel, T., A. Golub, A. Jones, M. O’Hare, R. Plevin and D. Kammen (2010) “Global Land Use and Greenhouse Gas Emissions Impacts of US Maize Ethanol: Estimating Market-Mediated Responses”, *BioScience* 60(3):223-231.

II. Climate impacts

Hertel, T., W., M. B. Burke and D. B. Lobell (2010) “The Poverty Implications of Climate-Induced Crop Yield Changes by 2030”, *Global Environmental Change* <https://doi:10.1016/j.gloenvcha.2010.07.001>

Lima, Cicero Z. de, Jonathan R. Buzan, Frances C. Moore, Uris Lantz C. Baldos, Matthew Huber, and Thomas W. Hertel. “Heat Stress on Agricultural Workers Exacerbates Crop Impacts of Climate Change.” *Environmental Research Letters* 16, no. 4 (March 2021): 044020. <https://doi.org/10.1088/1748-9326/abeb9f>.

Saeed, W., I. Haqiqi, Q. Kong, M. Huber, J. R. Buzan, S. Chonabayashi, K. Motohashi, and T. W. Hertel (2022). “The Poverty Impacts of Labor Heat Stress in West Africa Under a Warming Climate”, *Earth’s Future* doi: 10.1029/2022EF002777

III. Biodiversity and Ecosystem Services

Johnson, Justin Andrew, Uris Lantz Baldos, Erwin Corong, Thomas Hertel, Stephen Polasky, Raffaello Cervigni, Toby Roxburgh, Giovanni Ruta, Colette Salemi, and Sumil Thakrar. 2023. “Investing in Nature Can Improve Equity and Economic Returns.” *Proceedings of the National Academy of Sciences* 120 (27): e2220401120. <https://doi.org/10.1073/pnas.2220401120>

IV. International trade policy

A. Trade measures to protect the environment:

Taheripour, Farzad, Thomas W. Hertel, and Navin Ramankutty. "Market-Mediated Responses Confound Policies to Limit Deforestation from Oil Palm Expansion in Malaysia and Indonesia." *Proceedings of the National Academy of Sciences* 116, no. 38 (September 17, 2019): 19193–99. <https://doi.org/10.1073/pnas.1903476116>.

B. Trade Policy Response to Stochastic Shocks: Special Safeguard Mechanism

Hertel, T., W. Martin and A. Leister, 2010. "Potential Implications of the Special Safeguard Mechanism (SSM): The Case of Wheat", *World Bank Economic Review*.

C. Regional trade agreements:

McDonald, S.; and Walmsley, T. L., "Bilateral Free Trade Agreements and Customs Unions: The Impact of the EU South Africa Free Trade Agreement on Botswana". *World Economy*, 31(8), 993-1028, https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=1644

D. Poverty impacts of trade policy:

Hertel, T. W., R. Keeney, M. Ivanic, and L. A. Winters, 2009. "Why isn't the Doha Development Agenda more Poverty Friendly?", *Review of Development Economics* 13(4):543-559.

V. International Migration

Walmsley, T. L., Aguiar, A. H., & Ahmed, S. A. (2017). Labour Migration and Economic Growth in East and South-East Asia. *The World Economy*, 40(1), 116–139. <https://doi.org/10.1111/twec.12334>

Walmsley*, T. L.; Winters, L. A.; and Ahmed, S. A., "Measuring the Impact of the Movement of Labour Using a Model of Bilateral Migration Flows", *GTAP Technical Paper No. 28*, Center for Global Trade Analysis, Purdue University, Indiana, USA, 2007.

https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=2529

VI. Technological Change

Van Meijl, H. and Frank van Tongeren, 1998 "Endogenous International Technology Spillovers and Biased Technical Change in the GTAP Model", GTAP Technical Paper No. 15, Center for Global Trade Analysis.

http://ae761-e.agecon.purdue.edu/AgEcon_618/Modules/Module_10/Readings/Supp/TP15.pdf

Stevenson JR, Villoria N, Byerlee D, Kelley T, Maredia M (2013) Green Revolution research saved an estimated 18 to 27 million hectares from being brought into agricultural production. *Proceedings of the National Academy of Sciences* 110(21):8363–8368.

VII. Trade Facilitation

Hertel, T. W. and T. Mirza (2009). “The Role of Trade Facilitation in South Asian Economic Integration”, Chapter 2 (pp. 12-39): The Asian Development Bank Study on Intraregional Trade and Investment in South Asia, Manila: The Asian Development Bank.

VIII. Methodology

A. Firm Heterogeneity

Akgul, Z., N.B. Villoria and T.W. Hertel, (2016) “GTAP-HET: Introducing Firm Heterogeneity into the GTAP Model”, Journal of Global Economic Analysis, (1):111-180.

B. Oligopoly

Elbehri, A. and T.W. Hertel, 2006. “A Comparative Analysis of the EU-Morocco FTA vs. Multilateral Trade Liberalization,” Journal of Economic Integration 21(3): 496-525.

C. Integration of Econometrics with Systematic Sensitivity Analysis (SSA)

Hertel, T.W., D. Hummels, M. Ivanic and R. Keeney, 2007. “How Confident Can We Be in CGE-based Analysis of Free Trade Agreements?,” Economic Modelling 24 (2007) 611–635.