

# GTAP Board Report 2014

European Commission

The European Commission and its different services are active users of the GTAP database and other products provided by the GTAP Center. This report highlights GTAP related activities for the period 2013-2014 and priority areas for future developments.

## GTAP related activities

*DG TRADE* uses the GTAP database and standard and dynamic versions of the GTAP model as tools for analysis of different trade policy initiatives carried out in-house and by external consultants. Most notably, these products have been used as inputs into the analysis of the impacts of the EU-US FTA, EU-Singapore FTA, Economic Partnership Agreements, EU-Ukraine FTA etc.

*DG ENER* uses economic models that encompass a trade dimension. This is done via consultants' work, including under the framework contract for modelling, currently with the National Technical University of Athens. NTUA is operating the GEM-E3 model, which is based on GTAP. Further work was done recently on many different energy and climate scenarios for establishing a policy framework for 2030. These scenarios are currently developed further regarding energy efficiency policies.

*DG JRC* uses the GTAP database to run global CGE models like MAGNET, GLOBE and GEM-E3, as well as for the calibration of the regional CGE model RHOMOLO. Furthermore, the GTAP Africa Data Bases is extended with external data and used to calibrate single-country CGE model STAGE for individual African countries.

The RHOMOLO model, which DG JRC is currently developing, is implemented at regional (subnational) level. In that sense, it is extension of the CGE modelling approach taken in GTAP.

It is expected that DG TRADE, DG JRC and ESTAT (as advisory partner) will work together for improving the EU28 Input-Output database in GTAP, also including a breakdown of taxes less subsidies on products into VAT, other taxes on products and subsidies on products. The agricultural data will be disaggregated to GTAP detail (with an improvement of agricultural support expenditures). An analysis of the effects of the ESA95-ESA10 shift on IO tables will also be reported. The base year will be 2010. This work builds further on the IO tables for EU27 Member States submitted to GTAP in 2009 (Mueller et al., 2009).

## Priority areas

Different services of the European Commission that are actively using the GTAP database as an input in their daily activities highlighted different areas of priority for future improvements.

## **Public procurement**

Improving the representation of public procurement flows in the GTAP database and model remains high among the priorities of the European Commission. Several important steps have been already made in this direction most importantly with the ongoing DG Trade project "*Public Procurement data base extension und modelling modification for analysis purposes*" to be finalized by September 2015.

## **GTAP database**

- Disaggregation of Business Services into ITC, Professional services, Technical services: with the growing importance of services, the current coverage of services in the GTAP database is often too limited
- Additional regional disaggregation of European neighbours (e.g. Bosnia Herzegovina, Serbia, Algeria and Libya)
- More sectoral detail in the manufacturing sector particular for the energy-intensive sectors
- The GTAP database could be provided in an official GTAP-MRIO format.
- More information on the representation of tariffs by type (specific, mixed, compound, tariff rate quotas with fill rates and rents).
- We have a keen interest in having energy trade represented in detail, including for biomass and biofuels.
- One could provide more insights and documentation about why the GTAP database may deviate from the values published in the National Accounts.

## **Other issues**

- We strongly encourage taking 2010 as a new base year for GTAP 9 for the following reason. By September 2014, all Member States are obliged to submit to Eurostat a full set of ESA10 (SNA08) supply and use tables at basic prices (also at purchasers' prices), input-output tables, matrices of taxes less subsidies on products and matrices of trade and transport margins of the year 2010. And all of them will be publicly available from the Eurostat website later on. Therefore, the use of a different base year would imply the need to use projections and updating methods that would certainly increase uncertainties in the EU data used by GTAP.
- Better representation of the institutional accounts and their transfers within the GTAP database (particular attention to government and taxation).
- Increasing attention towards the so-called "bio-economy"; biofuel, 2nd generation biofuel, bio-energy, bio-plastic etc...
- An update and time-series extension of the GTAP migration data base
- The construction of a GTAP baseline up to 2030 or beyond where the GTAP database is extrapolated in the future, based on clear assumptions on global indicators like GDP growth, population etc.

## Selected publications

### Official EU publications

European Commission (2013). *EU energy, transport and greenhouse gas emission trends to 2050 - Reference scenario 2013*:

[http://ec.europa.eu/energy/observatory/trends\\_2030/doc/trends\\_to\\_2050\\_update\\_2013.pdf](http://ec.europa.eu/energy/observatory/trends_2030/doc/trends_to_2050_update_2013.pdf)

European Commission (2013). "EU Strategy on adaptation to climate change" Commission Staff Working Document. [Impact Assessment](#) (SWD(2013) 132 final)

European Commission (2013). "The Clean Air Policy Package" Commission Staff Working Document. [Impact Assessment](#) (SWD(2013)531).

European Commission (2013). "[The Economic Impact of the EU-Singapore Free Trade Agreement](#)", An analysis prepared by the European Commission's Directorate General for Trade

European Commission (2014). "[Communication on 2030 framework for climate and energy policies](#)" Commission Staff Working Document. Impact Assessment.

European Commission (2014). *Executive summary of the Impact Assessment accompanying the document: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A policy framework for climate and energy in the period from 2020 up to 2030* <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0016&from=EN>

European Commission (2014). *Employment effects of selected scenarios from the Energy Roadmap 2050* [http://ec.europa.eu/energy/observatory/studies/doc/2013\\_report\\_employment\\_effects\\_roadmap\\_2050.pdf](http://ec.europa.eu/energy/observatory/studies/doc/2013_report_employment_effects_roadmap_2050.pdf)

### Journal articles:

Arto, I., Rueda-Cantuche, J.M. and Peters, G. (2014) "Comparing the use of GTAP-MRIO and WIOD for carbon footprint analysis", *Economic Systems Research*, under revision.

Brandsma, Andries and d'Artis Kancs (2014), "RHOMOLO: A Dynamic General Equilibrium Modelling Approach to the Evaluation of the EU's Regional Policies", Forthcoming in *Regional Studies*, vol.48. <http://www.tandfonline.com/action/showAxArticles?journalCode=cres20>

Cardenete A, Boulanger P, Delgado MC, Ferrari E, M'barek R. Agri-food and bio-based analysis in the Spanish economy, *Review of Urban & Regional Development Studies*; forthcoming 2014 <http://onlinelibrary.wiley.com/doi/10.1111/rurd.12022/abstract>

Ciscar, JC, Saveyn, B., Soria, A., Szabo, L., Van Regemorter, D., Van Ierland, T. (2013). [A Comparability Analysis of Global Burden Sharing GHG Reduction Scenarios](#). *Energy Policy* 55, 73-81.

Henseler M, Piot-Lepetit I, Ferrari E, Gonzalez Mellado A, Banse M, Grethe H, Parisi C, Hélaine S. On the asynchronous approvals of GM crops: Potential market impacts of a trade disruption of EU soy

imports. *Food Policy* 41; 2013. p. 166-176

<http://www.sciencedirect.com/science/article/pii/S0306919213000560>

Philippidis G, Resano, H. Sanjuán A.I. Capturing zero trade values in gravity equations of trade: An analysis of protectionism in agro-food sectors, *Agricultural Economics*, 44(2) 2013, p. 141-159.

<http://onlinelibrary.wiley.com/doi/10.1111/agec.12000/abstract>

Philippidis G, Resano, H. Sanjuán A.I. Shifting Armington trade preferences: A re-examination of the Mercosur–EU negotiations. *Economic Modelling* 40 2014. p. 21-32

<http://www.sciencedirect.com/science/article/pii/S0264999314001126>

Revoredo C, Philippidis G, Toma L, Renwick A. The Impact of EU Export Refunds on the African Continent: An Impact Assessment. *Journal of Development Studies* 49 (12); 2013. p. 1651-1675

<http://www.tandfonline.com/doi/abs/10.1080/00220388.2013.807500#.U14rQBBLpzo>

### **JRC reports and Working Paper Series:**

Barrios, S., Pycroft, J., and Saveyn, B. (2013). [The marginal cost of public funds in the EU: the case of labour versus green taxes](#). Taxation Papers 35, Directorate General Taxation and Customs Union, European Commission.

Boulanger P, Ferrari E, Michalek J, Vinyes Pinto C. Analysis of the impact of Croatia's accession to the EU on the agri-food sectors. A focus on trade and agricultural policies. EUR 25835. Luxembourg (Luxembourg): Publications Office of the European Union; 2013.

<http://ftp.jrc.es/EURdoc/JRC77246.pdf>

Capros, P., D. Van Regemorter, L. Paroussos, P. Karkatsoulis, T. Revesz, C. Fragkiadakis, S. Tsani, I. Charalampidis, authors; M. Perry, J. Abrell, J. C. Ciscar, J. Pycroft, B. Saveyn, editors (2013). [GEM-E3 Model Documentation](#). JRC Scientific and Technical Reports. EUR 26034 EN.

Ciaian P, d'Artis Kancs and Miroslava Rajcaniova (2013), "Bioenergy and Global Land Use Change", LICOS Discussion Paper Series: <http://www.econ.kuleuven.be/licos/publications/dp/dp-336> and EERI Research Paper Series: [http://www.eeri.eu/documents/wp/EERI\\_RP\\_2012\\_12.pdf](http://www.eeri.eu/documents/wp/EERI_RP_2012_12.pdf)

Ciscar JC, Feyen L, Soria A, Lavalle C, Raes F, Perry M, Nemry F, Demirel H, Rozsai M, Dosio A, Donatelli M, Srivastava A, Fumagalli D, Niemeyer S, Shrestha S, Ciaian P, Himics M, Van Doorslaer B, Barrios S, Ibáñez N, Forzieri G, Rojas R, Bianchi A, Dowling P, Camia A, Libertà G, San Miguel J, de Rigo D, Caudullo G, Barredo J-I, Paci D, Pycroft J, Saveyn B, Van Regemorter D, Revesz T, Vandyck T, Vrontisi Z, Baranzelli C, Vandecasteele I, Batista e Silva F, Ibarreta D (2014). [Climate Impacts in Europe. The JRC PESETA II project](#). JRC Scientific and Technical Reports. EUR 26586 EN

Dillen K, Ferrari E, Tillie P, Philippidis G, Helaine S. Contribution to the economic impact assessment of policy options to regulate animal cloning for food production with an economic simulation model. EUR 25856. Luxembourg (Luxembourg): Publications Office of the European Union; 2013

<http://ftp.jrc.es/EURdoc/JRC79995.pdf>

Kavallari A, Rau M, Rutten M, authors Boulanger P, M'Barek R, editors. Economic Growth in the Euro-Med Area through Trade Integration: Focus on Agriculture and Food. Regional impact analysis. EUR

26231. Luxembourg (Luxembourg): Publications Office of the European Union; 2013  
<http://ftp.jrc.es/EURdoc/JRC84800.pdf>

**Conference papers:**

Boulanger P, Ferrari E, Michalek J, Philippidis G, Vinyes Pinto C. Modelling the effects of Croatia's accession to the EU: Trade and Agricultural Policies. In Conference Proceedings: 135 EAAE Seminar: Challenges for the Global Agricultural Trade Regime after Doha. EAAE; 2013. p. 1-8. JRC83996

Boulanger P, Philippidis G, Vinyes Pinto C. The impacts of a CAP budget reform on the world economy: a CGE assessment. In Conference Proceedings: 16th Annual Conference on Global Economic Analysis: New Challenges for Global Trade in a rapidly Changing World. GTAP

Sanjuan Lopez A, Philippidis G, Resano Ezcaray H. Gravity estimation of non-tariff measures on EU-US agri-food trade: implications for further analysis. Oral presentation in: 16th Annual Conference on Global Economic Analysis; 11 June 2013; Shanghai (China); Global Trade Analysis Project (GTAP)

Boulanger P, Kavallari A, Rau M, Rutten M. Trade openness and investment in North Africa: A CGE application to deep and comprehensive free trade areas (DCFTAs) between the EU and respectively Egypt, Morocco and Tunisia. In Conference Proceedings: IATRC Symposium 2013 - Productivity and Its Impact on Global Trade. IATRC; 2013. p. 1-28

Sanjuan Lopez A, Philippidis G, Helena R. Gravity estimation of non-tariff measures on EU-US agri-food trade: implications for further analysis. Oral presentation in: IX congreso de Economía Agraria; 03 September 2013; Castelldefels (Spain); CREDA - AEEA (Organiser). 2013

Kancs, d'Artis and Damiaan Persyn (2014) "Variety Gains from Trade Integration in Europe", GTAP 2014 Conference Paper:  
[https://www.gtap.agecon.purdue.edu/resources/res\\_display.asp?RecordID=4502](https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=4502)

Brandsma, Andries and d'Artis Kancs (2014), "RHOMOLO: A Dynamic General Equilibrium Modelling Approach to the Evaluation of the EU's Regional Policies", Forthcoming in Regional Studies, vol.48.  
<http://www.tandfonline.com/action/showAxArticles?journalCode=cres20>

Ciaian, Pavel, d'Artis Kancs, Giuseppe Piroli and Miroslava Rajcaniova (2014), "From a rise in B to a fall in C? Environmental impact of biofuels", GTAP 2014 Conference Paper:  
[https://www.gtap.agecon.purdue.edu/access\\_member/resources/res\\_display.asp?RecordID=4483](https://www.gtap.agecon.purdue.edu/access_member/resources/res_display.asp?RecordID=4483)  
and EERI Research Paper Series: [http://www.eeri.eu/documents/wp/EERI\\_RP\\_2014\\_01.pdf](http://www.eeri.eu/documents/wp/EERI_RP_2014_01.pdf)

**GTAP 2014 Conference:**

Abrell, Jan, Frederik Neuwahl, Bert Saveyn, Zoi Vrontisi and Fabian Wagner (2014). "Competitiveness modelling for air quality policies in the EU" GTAP 2014 Conference Paper

Dudu, Hasan, Cristina Vinyes, Emanuele Ferrari "Economic impact of a Green Revolution in Sub-Saharan Africa: A CGE analysis" GTAP 2014 Conference Paper

Ferrari, E., Scott McDonald, Rehab Osman, Hasan Dudu "Black and Blue Gold: effects on regional agriculture in Kenya" GTAP 2014 Conference Paper

Kancs, d'Artis and Damiaan Persyn (2014) "Variety Gains from Trade Integration in Europe", GTAP 2014 Conference Paper

Kutlina-Dimitrova, Z., and Lakatos, C (2014) " Determinants of direct cross-border public procurement in EU Member States", GTAP 2014 Conference Paper

Müller, Marc, Emanuele Ferrari, George Philippidis "CAADP Policies in West Africa: An activity-based CGE perspective" GTAP 2014 Conference Paper

Osman, R. , Scott McDonald, Emanuele Ferrari "Water Scarcity and Irrigation Efficiency in Egypt" GTAP 2014 Conference Paper

Ouraich, Ismail, Hasan Dudu, Wallace E. Tyner , and Erol Cakmak "Could Free Trade Alleviate Effects of Climate Change: A Worldwide Analysis with Emphasis on Morocco and Turkey" GTAP 2014 Conference Paper

van Dijk, M. – LEI, Geert Woltjer – LEI, George Philippidis "Validating CGE Models employing an Historical approach" GTAP 2014 Conference Paper