

BATModel

better agri-food trade modelling for policy analysis

What are the gaps that BATModel addresses?

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THIS PROJECT HAS RECEIVED FUNDING FROM
THE EUROPEAN UNION' HORIZON 2020 RESEARCH
AND INNOVATION PROGRAMME
UNDER GRANT AGREEMENT N. 861932

Funded by the European Union. Views and opinions here expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the European Commission can be held responsible for them.

Better Agri-food Trade MODELLing for policy analysis

- Better account for previously neglected or insufficiently covered issues in trade modelling
- For each issue: **combination of econometrics and modelling works**
- **Outputs** available on the BATModel website
 - Deliverables
 - Published articles
 - GitHub for pieces of codes



WP1: Measuring distributional and sustainability impacts of trade policy

Objectives:

- To develop a conceptual framework to **better understand** the **broader welfare** implications of trade liberalization and trade policy, with an emphasis on **distributional** and **sustainability** impacts, focusing on:
 - on the **environment** and environmental policy
 - on **labor market** and trade adjustment costs
 - on social, **nutritional** and **health** outcomes



WP1: Outputs

- D1.1 - Broaden welfare implications of trade policy [available]

Conceptual framework; characterization of enhancements from WP2-6 that can be linked to SDGs; literature review for subsequent tasks

- D1.2 - Interaction between trade and environmental policy [available]

Using two different models (CAPRI and MIRAGE) and one common scenario

- D1.3 - Employment outcomes and distributional consequences of trade policy [available- **Session 2**]

- D1.4 - Broader welfare effects of agri-food trade policies - a case study [coming soon]

Econometric and simulation models on how trade liberalization and exposure to foreign imports affect people's health and their nutritional status



WP2: Emerging trade flows

WP leader: Christophe Gouel (INRAE)

Objectives:

- To develop **methodologies**
 - to allow trade models to create trade flows that previously did not exist (prohibitive trade costs, tariffs or NTMs)
 - to address the related problem: small trade flows tend to remain small even after the significant decrease in trade costs (“small shares stays small”)



WP2: Outputs

- D2.1 – Data for detailed trade modelling [\[available\]](#)

TRQs for agri-food products in 2016; CIF rates for agri-food products; Measures of NTM-related trade barriers; Stylized facts on zero trade flows

- D2.2 – Detailed trade model [\[available\]](#)

3 modules: a Tariff Line Module (disaggregation of selected trade flows to HS6 level with an explicit modelling of Tariff Rate Quotas) ; a highly disaggregated version of GTAP database, namely GTAP-AGROFOOD; a Spatial Price Equilibrium module (permitting emerging trade flow)

Everything is available in CGEBox

- D2.3 – Armington-type trade models without CES [\[available\]](#)

Collection of alternative models to the Armington CES able to solve the emerging trade flows: NQES (a flexible functional form); replacement of CES by LES-CES ; Spatial Equilibrium Model in CAPRI



WP3: Markets, quality and competition

WP leader: Yaghoob Jafari (UBO)

Objectives:

- To analyze the impact of **product quality differentiation** on trade in the agri-food sector and to identify the role of intermediate input markets in both quality differentiation and trade
 - To introduce both **horizontal** and **vertical** quality differentiation in trade simulation models of agri-food products.
 - To provide a numerical prototype model that links theoretical and empirical advances on product quality differentiation



WP3: Outputs

- D3.1 – Documentation of the modelling structure [available]

A unified general equilibrium framework, at the firm level with both vertical and horizontal quality diff.

- D3.2 – Firm productivity, product quality, and trade [available]

Empirical analysis of the impact of productivity, consumer preferences and product quality on exports

- D3.3 – Imports of intermediate inputs: competition, quality and trade [available]

Theoretical and empirical modelling of the impact of increased imported intermediate inputs on trade through the quality channel

- D3.4 – Documentation on the prototype model and its numerical illustration

Documentation on the modified theoretical structure including econometric results to enable the prototype implementation of the model with product quality differentiation



WP4: Global Value Chains

WP leader: Luca Salvatici (ROMA3)

Objectives:

- To improve our understanding of the impact of GVCs on the agri-food sector and to improve existing models by integrating key aspects of GVCs
 - collect, process new data and calculate new indicators of GVCs
 - assess the (bi-directional) interaction of trade policies with GVCs
 - analyze how the governance of GVCs affects the participation and performance of firms throughout the chain
 - extend existing CGE models to capture key GVC aspects

[overview of the work done in session 3]



WP4: Outputs

- D4.1 – Trade policies and GVC participation [available]

Computation of GVC-adjusted protection indices according to the country

- D4.2 – GVC participation [available]

Computation of micro-base indicators of GVC participation position for agriculture and food exports

- D4.3 – Agri-food firms and GVCs [available]

Firm-level analysis of the impacts of the participation in retailer-led GVCs (for France and Italy)

- D4.4 – GVCs in a CGE model [available]

Describing an integrated GVC-CGE model and testing its implications for regular indicators

- D4.5 – GVCs and market power [coming soon]

Firm-level estimates of mark-ups and their relationship with policy and global market shocks



WP5: Non-tariff measures

WP leader: Anne-Celia Disdier (INRAE)

Objectives:

- To improve the analysis of NTMs (SPS and TBT)
 - To refine the econometric estimations of the NTM effect beyond the standard-gravity approach (gravity models, two-stage modelling, panel estimations with firm-level data, a price/quantity approach, and quasi-experimental techniques)
 - To shed light on both the costs and benefits of NTMs: estimation of AVEs for different NTMs, suitable for use in simulation modelling approaches
 - To better include the prevailing NTMs in simulation models

[overview of the work done in session 4]



WP5: Outputs

- D5.1 – Intermediate technical report on NTM effects, fixed costs and welfare

[available]

- D5.2 – Report on NTMs along the supply chain [available]

Analysis of the impact of NTMs on trade in value added and GVCs in the agri-food sector

- D5.3 – Final report and data on NTM effects, fixed costs and welfare [coming soon]

Econometric estimations of the effects of NTMs on trade and welfare, as well as results on regulatory divergence; econometric approaches to deal with distinct NTMs impact according to type and route, together with application in a case study

- D5.4 – Report on regulatory divergence and welfare implications [coming soon]

Quantifying the impacts of NTMs using the MIRAGE CGE model; reporting on scenario analysis, research findings and methodological developments



WP6: Geographical Indications

WP leader: Luisa Menapace (TUM)

Objectives:

- To develop data and methods to analyze welfare and trade effects of GIs based on economic theory and firm-level data.
- To evaluate the linkages between GIs, local development and trade
- To improve simulation models

[overview of the work done in session 4]



WP6: Outputs

- D6.1 – The effects of GIs on territorial competitiveness and local performance of internationalization [available]

Analysis of the role of GIs as a driver of territorial competitiveness and of local performances of internationalization (comparison of areas with and without GIs in different European countries)

- D6.2: Impact of GIs on firms' performance [available]

Analysis of the performance of GI certified firms versus non-certified firms in international markets

- D6.3 – Theoretical assessment of trade and welfare effects of GI protection [avail.]

Modelling of GIs that highlight the trade and welfare effects of alternative schemes of GI protection

- D6.4 – Economic wide impact assessment of GI trade [coming soon]

Economy-wide impact assessment of GIs revealed at regional/national/world-wide levels using CGEBox



WP7: Modelling platform

WP leader: Wolfgang Britz (UBO)

Objectives:

- To develop the operational backbone in the form of well-documented and tested, modular and open access software modules which implement the advances in WP1-6.
- To ensure that new modules are implemented in at least two existing simulation models in BATModel (CAPRI, CGEBox, MAGNET, MIRAGE) and are scrutinised in a large-scale policy relevant test case.

[overview of the test case in session 5]



WP7: Outputs

- D7.1 – Definition test case and application in existing models [available]

- D7.2 – Common guidelines for documentation and coding [available]

Analysis of the performance of GI certified firms versus non-certified firms in international markets

- D7.3 – BATModel modules (model code and supporting documentation)

[in progress]

Modelling of GIs that highlight the trade and welfare effects of alternative schemes of GI protection

- D7.4 – Report on the results of the policy relevant test case [coming soon]

Summary of policy relevant results of the application of the improved models to the test case (CETA)



Background on WP7

1. **Long-term impact of BatModel** relevant for WP7 is **better policy-relevant analysis of trade policies to inform policy design and evaluation**
2. Requires **easy and continued access** by analysts to the **scientific outcomes of BATModel**
3. WP7 supports this by
 1. **Implementation** of the scientific outcomes from **WP1-6 in multiple models** used across the EU for policy impact assessments => directly lasting impact on tools in use
 2. A **modular implementation** which is largely **independent from a specific model** to easily port the code to other models => new or other tools can implement the BATModel outcomes
 3. A **clear and standardized coding and documentation** of these modules => reduce implementation effort
 4. Access to **permanent module-store** to ensure a lasting impact



WP7: BATModel modules

- o Make outcomes from WP1-WP6 permanently accessible
 - 1. Implement selected outcomes (according to Dow) in suite of models (CAPRI, CGEBox, GTAP, MAGNET, MIRAGE) used in BatModel => improved models immediately available for policy relevant analysis
 - 2. by a modular implementation which can be easily implemented beyond BatModel
- o The modules available on GitHub repository (permanent open access, <https://github.com/BATModules/BATModules/wiki>)
- Some already available
- o Code accompanied with documentation

Home
Torbjörn Jansson edited this page on Sep 6, 17 revisions

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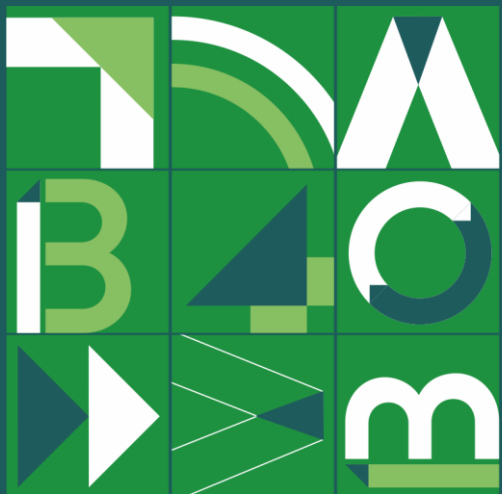
Welcome to the BATModules Wiki! Here you can find documentation of the modules developed in the [BATModel project](#) to enhance the modelling of agri-food trade policies. If you know what you are looking for you can directly access the documentation through the links in the sidebar. Else you can browse through the table below which provides a short description of the objective of each module, with links to the associated documentation and code.

Module	Objective	Doc.	Code
Regional environmental impact	A top-down link from a GTAP-based CGE model to CAPRI. The CGE model provides price changes and CAPRI computes regional agricultural supply responses and derives environmental regional environmental impacts.	Wiki	GAMS
Remove self-trade from a GTAP database	The standard GTAP data aggregation procedure joins regional endowments while keeping within-region trade separate. This is conceptually inconsistent and complicates analysis of trade impacts as well as tracing direct and indirect impacts through global value chains. The self-trade removal module can be included in the data preparation process, moving self-trade that appears when aggregating countries or regions to domestic supply. The resulting database will	Wiki	GEMPACK



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