

Modelling Agricultural Domestic Support and Consumer Tax Equivalents

In addition to direct producer supports, agricultural trade is affected by the extent to which consumer prices of farm products are distorted by various policies, as captured by consumer tax equivalents (CTEs). CTEs include the impact of policy measures such as tariffs, as well as any direct subsidies of food prices; they are generally positive and opposite in sign to the OECD's consumer support estimates (CSEs). The current study builds on the recently developed GTAP-DS (Domestic Support) model to improve understanding of the impacts of CTEs, as well as agricultural domestic support.

The GTAP-DS model (Anderson et al., 2022) extends the standard GTAP version 7 model (Corong et al., 2017) by modifying the net tax specification to separate out subsidy and tax wedges. This allows us to trace the economic implications of changes in agricultural domestic support subsidies, while maintaining agricultural taxes in place. In the current study, we draw on recent data from OCED (2022) to augment the GTAP version 11 Data Base (Aguiar et al., 2022) and GTAP-DS model. In particular, we incorporate new data on agricultural consumer subsidies and taxes to facilitate more comprehensive analysis of the implications of CTEs than has previously been possible using the GTAP model.

We begin with an overview of the specification of agricultural distortions in the GTAP framework, before discussing changes made to the GTAP Data Base and model code to separate out agricultural subsidy and tax instruments, as well as to integrate consumer subsidies and taxes into the model. We then present exploratory simulations in which agricultural domestic support measures (input, factor and output subsidies), as well as CTEs, are eliminated. Analysis of the impacts on overall economic welfare is presented, as well as discussion of sectoral implications of the scenarios modelled, for a range of regions and countries. We take care to decompose simulation results into contributions arising from each separate measure to identify their relative economic importance, clearly demonstrating the significance of the enhancements we make to the model and database.

References

- Aguiar, A., Chepeliev, M., Corong, E., & van der Mensbrugghe, D. (2022). The Global Trade Analysis Project (GTAP) Data Base: Version 11. *Journal of Global Economic Analysis*, 7(2).
<https://jgea.org/ojs/index.php/jgea/article/view/181>
- Anderson, K., Corong, E. L., & Strutt, A. (2022, 8-10 June). The GTAP-DS (Domestic Support) Model Presented during the 25th Annual Conference on Global Economic Analysis, Virtual Conference.
- Corong, E. L., Hertel, T. W., McDougall, R., Tsigas, M. E., & van der Mensbrugghe, D. (2017). The standard gtap model, version 7. *Journal of Global Economic Analysis*, 2(1), 1-119.
<https://doi.org/http://dx.doi.org/10.21642/JGEA.020101AF>
- OECD. (2022). Agricultural support (indicator). doi: 10.1787/6ea85c58-en