

Analysis of the global economy and environment at ABARE is based on simulations of its in-house global trade and environment model, GTEM, which runs in either recursively or forward-looking dynamic mode.

Currently, the GTAP database forms the social accounting matrix of GTEM and the emissions and population databases of GTEM are compiled by ABARE. ABARE appreciates the ongoing effort put in by GTAP staff in improving the quality of the database over time. In future ABARE would also like to use the emissions database compiled by GTAP.

When a new version of the GTAP database is released or a pre-release version is made available, it is ABARE practice to examine the database before adopting it in GTEM. Any problems found and suggestions for tackling the problems are regularly provided by ABARE to the GTAP directorate.

In our recent exercises, we have observed that the ‘default’ values of model parameters are responsible for producing unreliable and/or strange simulation results when the simulation horizon is sufficiently long - say, more than 20 years. This indicates that the time has now come for us to think about short run and region specific values of model parameters and how they would evolve with time and with changes in global economic structure. For example, if per capita income of Nepal in 2050 reaches that of the US in 2000, would the consumption pattern of the Nepalese representative consumer in 2050 remain that observed in 2000 or that of the US as observed in 2000 or be something different?

As the dynamics involved in the evolution of model parameters will remain as a theoretically interesting issue for some time, we may, nevertheless, devote some attention to improving the empirical basis of the ‘short’ run values of these parameters by commodity, by region and by user types. Parameters of special interest are: elasticity of substitution between primary factors, Armington elasticity of substitution, the ‘flexibility’ parameter of investment demand function and CDE parameters underlying the consumer demand system. Although everything depends on everything in GE models, the elasticity of factor substitution has been found to impact on the existence of a model solution; the Armington elasticity of substitution and the flexibility parameter have been found to impact on the welfare consequences of trade policy reforms; and the CDE parameters have been found to play crucial role in determining the baseline emissions levels as well as impacts of trade policy reform. All of these simulation results are important in contributing to the policy debate. An informed policy position can only be taken if we are reasonably sure of the values of the underlying parameters used in the model simulations.

We propose that some efforts be dedicated to the estimation of model parameters at a reasonable level of disaggregation.

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