The Commission has continued to make use of GTAP products and other CGE tools (Monash model of the Australian economy and regional model of Australia, MMRF) in support of its research agenda in trade and other reforms.

GTAP use GTAP was used in a study quantifying the effects of formula reduction of import tariffs on industrial products by WTO member countries. Various proposed formulae were simulated using the GTAP model and an aggregated version of the database 5 to analyse their effects on Australia and its trading partners. In this study, GTAP 5 tariffs on industrial products were replaced by estimated Post-Uruguay Round bilaterally applied tariff rates and proposed tariff formula reductions were calculated using the Australian customs statistics and the trade and protection statistics from WTO database. This new system, the ITAS ('Integrated Tariff Analysis System'), produces the estimates of Post-Uruguay Round applied rates and associated GTAP shocks consistent with the 10 different formulae proposed in late 2003 in the context of Doha.

ITAS In order to analyse the effects of different approaches to reducing tariffs in the context of multilateral liberalisation, the Commission has developed ITAS (the Integrated Tariff Analysis System), a suite of programs to: • read and standardise (at the HS6 level) selected trade and tariff data from the WTO's Integrated Database and Consolidated Tariff Schedule; • create a master database that combines the standardised data; • apply a variety of tariff reduction rules to selected members' tariff schedules; and • provide tools to summarise this master data in a variety of ways for subsequent analysis and presentation. The summaries are based on bilateral tariff rates for a selection of WTO members, and calculations at a disaggregated level of the effects of applying different rules on each member's tariff schedule and the tariffs faced by its exports. The summaries include: the original tariff schedules (both bound and applied rates), the derived rates and various indexes of the changes between the initial and derived rates. Most of the aggregated analysis is based on unweighted averages, but part of the analysis (developed to calculate shocks for the GTAP model) produces trade-weighted averages. A 17-country database will soon be available at the Commission's website: www.pc.gov.au.

Further work on services trade barrier estimates The Commission has published estimates of assistance to a wide range of industries since the early 1970s. However, until very recently, the Commission has not attempted to develop estimates of assistance to tourism. One reason has been that tourism has not been identified as a separate industry in ABS industry data. Using the ABS Tourism Satellite Account published in 2000, the Commission was able to publish provisional estimates of assistance to tourism in its recent study on the Great Barrier Reef Catchment. A team of researchers is currently working on a project to review and refine the Commission's methodology for calculating assistance to tourism. The aim of this project is to provide a comprehensive understanding and, as far as possible, quantification of such assistance.

Parameter issues Attempts have been made to address two issues concerning the Armington trade elasticities in GTAP and other CGE models 1. An alternative approach was developed by Xiao-guang Zhang and George Verikios (2003) to estimate Armington elasticities directly from three GTAP databases (versions 3, 4 and 5). The new approach derives percentage changes in the quantities and prices of goods as well as tariffs imposed from these historical databases to estimate Armington substitution elasticities. This approach is simple to implement and produces database-and model-consistent estimates. Moreover, the Armington elasticities can be estimated

for individual countries or individual import sources, so that the region-generic restriction imposed on the default parameters can be relaxed. Country-specific characteristics can be distinguished in their responses to changes in trade policy. 2. A theoretical study was carried out by Xiao-guang Zhang (2004) to quantify the relationship between Armington elasticities and terms of trade effects of trade policies, such as import tariffs, in global CGE trade models. The study reveals some unique properties of Armington models in comparison with 'conventional', non-Armington models, and shows how each level of Armington elasticities may affect the terms of trade effect of a tariff. A simple and useful analytical framework is also developed with this study, which can be implemented to any model for analysing the terms of trade effects. The results of this study will be presented at this year's annual conference.

Planned activities of relevance to GTAP for 2003-04 Prepare a new model with foreign capital and investment. The model is based on GTAP and FTAP. As the first step, the model will combine the GTAP database and a new FTAP database of FDI flows and stocks, which is more disaggregated than the previous one (48 countries and regions, 19 industries or sectors). Eventually, the model will incorporate a more complete balance of payment account for each country or region in the database. The proposed model will be tested and used to analyse the proposed Australia-China Free Trade Agreement, in conjunction with other national models.

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