

## **"An updated global baseline for the Dynamic GTAP model"**

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### **Summary**

A carefully constructed baseline scenario is an important component of a dynamic CGE analysis. To get most directly at the effects of a policy, simulation results should be compared to a baseline scenario which provides a business-as-usual projection, and results should be analysed as deviations from this baseline. Many studies conducted at the Centre of Policy Studies, such as Adams and Parmenter (2000), have shown that a realistic and defensible baseline is important because the nature of a baseline scenario can affect the deviation results of a policy scenario. Current global economic circumstances, where the global recession has accelerated a shift in the share of global economic output accounted-for by emerging countries, reinforce the argument for updating the global baseline of the dynamic GTAP model (GDyn).

Constructing a baseline for a dynamic global model is time and labour intensive, requiring the collection of up-to-date multi-country macroeconomic and sectoral forecasts. The previous GDyn baseline (Walmsley, 2006) was based on old forecasts for only a few key macroeconomic variables and did not go beyond 2020. The new GDyn baseline will use the GTAP 7 database and project the period 2004 to 2030, based in part on demographic (total population, labour force and labour productivity) and macroeconomic projections (GDP, consumption and investment). Furthermore, forecasts for imports and exports are introduced, and forecasts for various energy-related sectors (prices, supply and demand in the coal, oil and gas sectors) are utilized. Actual data for the period 2004 to 2010 is collected to inform the model as it "projects" through those years.

In this paper we present a projection of the world economy from 2004 to 2030 in the GDyn model using a 20-country 22-sector aggregation. One of our objectives is to enable users of the GDyn model to utilize these forecasts with an aggregation most suitable to any policy question examined. To enable this choice of aggregation, we have developed auxiliary programs to aid in baseline construction for any aggregation chosen among the 113 GTAP regions and the 57 GTAP sectors. Although this baseline is primarily intended to be used with the GDyn model, these forecasts may potentially also be useful with other models.

This paper, based mainly on updated and new projections data, is a first step to improve the baseline of the GDyn model. Further research will involve construction of historical and decomposition simulations that, in part, will allow us to project trends in sectoral productivity and consumer preferences into the baseline, based on the approach developed by Peter Dixon and Maureen Rimmer. The objective of this baseline project is to contribute to the empirical analysis of a wide range of global economic issues ranging from Doha Development Round negotiations to climate change policies.

**Suggested topic**

Economic growth, Dynamic Model, Other Data Bases and data issues, No Geographic Area

**Attachment**

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**Completion status**

Research commenced but not yet completed