

**Carnegie Endowment for International Peace  
Trade, Equity and Development Project**

**Modeling the Impact of Global Trade Scenarios on Developing Country Economies**

**Overview**

A model of the global economy was constructed as a “laboratory” for ex ante simulation of the effects of a range of possible changes to the global trading regime as part of the Doha Round of negotiations at the World Trade Organization. The model uses the newly-updated GTAP database (Version 6) and reflects important recent changes in the global trading system, such as the accession of China to the WTO, the expansion of the European Union, and the end of the apparel quota system.

The purpose of the policy experiment is to test the potential impact of different trade policy choices, with particular attention to the impacts on developing country economies.

**Description of the model**

The model is a multi-country, multi-sector applied general equilibrium (AGE) model. The model uses data from the GTAP 6 database to construct a baseline simulation of the global economy. This serves as a benchmark for comparison of the impact of counterfactual simulation of different trade scenarios.

The model is global in its scope, covering all countries, aggregated into 23 countries or regions. In line with the particular focus on developing countries, large developing countries are modeled separately, including China, India, Indonesia, Brazil, Bangladesh, Mexico, South Africa, Argentina and Vietnam. The model has 27 production sectors in each region to represent the world economy. The aggregated sectors include 12 composite agricultural and food sectors, 5 composite service sectors and 10 composite manufacturing and other sectors.

There are six primary factors of production: agricultural land, natural resources, capital, agricultural labor, unskilled labor, and skilled labor. Skilled and unskilled labor have basic education in common, with skilled labor also having more advanced training. Agricultural labor has little or no education. Land and agricultural labor are employed only in agricultural sectors. Natural resources are sector specific, while other primary factors are assumed to be mobile across sectors, but immobile across regions. All commodity and factor markets, except unskilled labor, are assumed to clear through market prices. For unskilled labor, the market equilibrium specification of Harris and Todaro is adopted for all developing countries in the model, in which the wage is assumed fixed to a price index. This reflects the abundant supply of unskilled labor and the presence of unemployment in most developing countries. The model includes endogenous unskilled labor unemployment in developing countries, which adjusts to clear the unskilled labor market.

**Simulation Design**

Comparative static counterfactual analysis was conducted to estimate the impact of trade liberalization based on possible scenarios in the Doha Round of WTO trade negotiations.

<b>Scenarios</b>	<b>1. Central Doha</b>	<b>2. Central Doha with special agricultural products</b>	<b>3. Limited Doha</b>	<b>4. Full Trade Liberalization</b>
<b>Border AVEs</b>				
<b>Agricultural products</b>				
Developed countries	reduce by 36%	reduce by 36%	reduce by 25%	eliminate to zero
Developing countries	reduce by 24%	no reduction	reduce by 15%	eliminate to zero
<b>Manufactured products</b>				
Developed countries	reduce by 50%	reduce by 50%	reduce by 50%	eliminate to zero
Developing countries	reduce by 33%	reduce by 33%	reduce by 33%	eliminate to zero
<b>Export subsidies</b>				
Developed countries	eliminate to zero	eliminate to zero	eliminate to zero	eliminate to zero
Developing countries	eliminate to zero	eliminate to zero	eliminate to zero	eliminate to zero
<b>Domestic support</b>				
Developed countries	reduce applied support by average of 1/3	reduce applied support by average of 1/3	reduce applied support by average of 25%	eliminate to zero
Developing countries	reduce applied support by average of 1/3	no reduction	reduce applied support by average of 15%	eliminate to zero
<b>Special treatment of least developed countries</b>				
	No tariff cuts or subsidy reductions	No tariff cuts or subsidy reductions	No tariff cuts or subsidy reductions	eliminate to zero

### **Timetable**

A full report of the model structure and results will be published in January 2006.