ERS 2001 EU Modeling Workshop
New Challenges in Modeling EU Agriculture and Agricultural Policy

Session 1—Modeling Agricultural Trade Liberalization in the EU
Thursday November 15
9:00 AM – 2:00 PM

The goal of this session was to evaluate alternative approaches to trade policy modeling. The first half of the session was devoted to educating participants about some of the models that are used by institutions and policymakers for policy analysis. How are policies represented in the models? What were some of the challenges encountered in developing the models? How were they met? What are areas for additional work? The second half of the session was devoted to the analysis of specific WTO instruments. Researchers discussed how they analyzed EU policies related to each of the "3 pillars" of the Uruguay Round Agreement on Agriculture (export subsidies and export credit guarantees, tariffs and tariff rate quotas, and domestic support). One goal was to determine what issues researchers should be looking at for the upcoming trade round.

Session 1a: Policy Models

The first presentation, by **Mary Burfisher** and **Agape Somwaru**, was on the ERS Dynamic Global CGE Model. In contrast to many of the models described later in the session, this model provides the "big picture" impacts of global agricultural policy reform. First, Mary Burfisher discussed the development of the global database that was used for the analysis. The database used the OECD's PSE (Producer Support Estimate) data base and mapped each country's domestic support into various distortions, according to how they are notified for the WTO's AMS, blue box, or green box. Agapi Somwaru then briefly described the structure of the CGE model and presented results from their analysis. They found that eliminating global agricultural policy distortions would raise world welfare by $56 billion annually and raise world prices on average by 12 percent. They decomposed the price effects of global agricultural liberalization and found tariffs to be the most price distorting, followed by domestic subsidies, and export subsidies. One of their interesting conclusions is that it makes little difference whether direct payments are coupled or decoupled because payments are a relatively small share of global distortions. They also found that the EU followed by the U.S. contributed the most to the price distortion.

Next **Silvia Weyerbrock** presented a static multiregion, multisector CGE model built to model agricultural trade liberalization. Unlike many CGE modelers, Weyerbrock modeled many policies explicitly, believing that most policies don't work as exogenous wedges and lump-sum transfers. As an example, she demonstrated why variable export subsidies couldn't be adequately modeled as a price wedge. Weyerbrock also addressed the flexibility of general equilibrium models in dealing with real-world trade liberalization scenarios, and highlighted the pros and cons of various approaches. She presented results of three simulations:

- Analysis of the 1992 CAP reforms: whether they meet the targets specified in the Uruguay Round Agreement;

- Analysis of the budgetary and trade effects of EU/EE integration under various agricultural policy & productivity growth scenarios; and
- Analysis of the impact of the accession of Eastern European countries to the EU on U.S. agriculture.

Weyerbrock closed by discussing the pros and cons of CGE analysis and presented some suggestions for future work.

Jim Stout presented an overview of the partial equilibrium commodity trade model developed jointly by ERS and Penn State (ERS/Penn State WTO model). The model is being developed for analysis of trade policy liberalization, and it models policy instruments explicitly, rather than as price wedges. The model includes tariffs, TRQs, domestic support policies, and export subsidies. Stout described the country and commodity coverage of the model, as well as the policies included in the model for the EU. He presented preliminary estimates of the impacts of trade liberalization on EU commodity supply, demand, and trade.

Discussants questioned the specification of the beef sector, where only the intervention price is included as an argument; this is a sector that will be further developed in the future. There was also discussion regarding the extent to which EU compensatory payments are coupled to production. The ERS/Penn State WTO model specification assumes that they are fully decoupled to current production. There was also discussion over the differential impact of production quotas versus intervention price on dairy production.

In the final presentation in this session, **Giovanni Anania** presented an overview of his spatial partial equilibrium model, CAMINIA. In its current form, this is a model of the wheat sector only, it features extensive country coverage, and it uses a 1994 base year. The model has detailed policy coverage, including tariffs, export subsidies, preferential trading, and TRQs. It also has a well-developed set of EU consumer and producer prices, and includes transport costs and stock changes. Anania's model incorporates the following assumptions:

- EU compensatory payments and U.S. deficiency payments are fully decoupled (In contrast to the ERS/Penn State WTO Model),
- EU export restitutions are endogenously determined, and
- The U.S. EEP exists, is paid in cash, and is unconstrained.

Anania presented a list of analyses that he had performed using CAMINIA, including Agenda 2000, the US' FAIR Act, and GATT reforms. He also presented a list of future improvements he intends to make to the model, including developing a multi-product version that will include all grains, meats, and dairy.

Session 1-b: Specific issues and applications

This session took a look at a number of models developed to analyze liberalization of specific WTO instruments. Presenters discussed how EU policies related to each of the "3 pillars" of the Uruguay Round Agreement on Agriculture are analyzed.

Aziz Elbehri presented analysis of export subsidy removal using the GTAP framework. He decomposed the welfare effects of export subsidies and other market distortions. Based on his analysis, Elbehri concluded that (1) the impacts of import barriers far outweighed those of export subsidies; (2) removing export subsidies alone may not be welfare-improving for net food-importing countries; and that (3) to be effective, trade liberalization requires both further reductions in import barriers and export subsidy reduction.

David Skully led a brief discussion about the analysis of export credit guarantees. The two issues addressed were (1) how to measure or represent export credits in models and (2) how to discipline them in trade negotiations. The issue for trade negotiations is how to develop rules for disciplining export credit guarantees. Trade negotiators need to determine whether trade facilitated by export subsidies is additional, or whether it is substituting for commercial trade. One possibility mentioned in the discussion was to limit guarantees to countries identified by the World Bank and/or the International Monetary Fund as least-developed and credit-constrained in the short to medium run. This might qualify as a form of special and differential treatment. Other suggestions included limiting the tenure of guarantees (the term of the credit), and capping and reducing the gross value of guarantees in a manner analogous to the treatment of export subsidies in the Uruguay Round. Trade negotiators might benefit from considering examples from the non-agricultural sector, such as the Export-Import Bank.

The discussion ended with an assessment of the OECD analysis of export credits. This analysis, which employed the price wedge representation, found that a very small portion of the value of guaranteed export credit (less than 6 percent) constituted a price subsidy.

Susan Leetmaa made a brief presentation on the ERS export subsidy elimination study. She first explained how the scenarios were developed: reducing internal EU prices until either the sum of domestic production and imports equaled domestic demand (so that there would be no exports), or until the internal price equaled the world price and exports wouldn't require subsidies. Both strong and weak euro scenarios were simulated. The results were briefly presented, but the remainder of the presentation concentrated on the strengths and weaknesses of ERS's ESIM modeling framework for this type of analysis. The strengths were:

- It explicitly models EU policies;
- It includes a very complete feed sector that takes into consideration many non-grain feeds; and
- Its ability to project EU production, consumption, and trade.

The weaknesses of the model are:

- It is a net trade model, so either exports or imports are fixed, limiting the analysis;
- Dairy is omitted from the model, as dairy products are extremely reliant on export subsidies.

Leetmaa pointed out that the ERS/Penn State WTO model under development will address these weaknesses.

Peter Liapis made a presentation on the OECD's methodology for incorporating Tariff Rate Quotas (TRQ's) into its AGLINK model, and presented some preliminary results of TRQ analysis. The model incorporates, for some commodities, TRQs, export subsidies, and domestic price support. The model determines the domestic price that prevails. Liapis presented 3 cases that can determine what the domestic price will be, each case representing a different mix of policies, and described the solution of consumption, production, and imports in each case. He then presented an application of the model, considering 4 scenarios of TRQ liberalization. His principal conclusions from this analysis were:

- Only one of the three instruments (in-quota tariff, quota, or over-quota tariff) is binding at a time;
- The binding instrument differs between countries, commodities and over time;
- Liberalization of all three instruments would have biggest impact on market access;
- For the commodities and countries examined, increased liberalization leads to minimal price change.

Mark Gehlhar described issues related to the mapping of the PSE data to GTAP categories. He compared the U.S. and EU consortium members' recommendations for policy mapping and showed how policy variables would differ under each approach. He then presented the compromise measures and compared them to his alternative support measures. He described the process of using the PSE data for AMS support reduction scenarios in ERS agricultural policy reform analysis (*Agricultural Policy Reform in the WTO: The Road Ahead*, ERS/USDA, 2001). Analysts working on this project developed a PSE-based AMS, distributing PSE outlays into amber, blue, and green boxes based on country WTO notifications. His concluded that one must scrutinize GTAP data prior to performing scenario analysis and reiterated that GTAP provides an accounting framework for the PSE but does not model specific policies.

Based on the presentations made at the workshop, it is clear that there are many excellent models of the EU agricultural sector. The presentations demonstrated how important it is to properly model policies, and most agreed that modeling policies explicitly makes the models more transparent and seemingly more accurate (or less controversial) than representing policies through price wedges. There has been much innovative analysis of the "3 Pillars" of the WTO. However, there needs to be more research devoted to domestic support issues. The one area where consensus could not be reached was on how to handle some of the domestic payments in the models—i.e. the extent to which they are "coupled" or "decoupled". Additional research is needed to determine what type of an impact direct payments have on production.