

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

Session 3: Supply Response in the EU in the post-CAP reform Agenda 2000 era
Friday, November 16, 2001
9:00 AM –12:30 PM

The third session in the EU modeling workshop covered three topics on the subject of studying supply response in the EU. The session covered not only changes in EU supply response directly as a result of CAP reform, but also the impact of price vs. technology on EU production and the production impacts of EU “green box” policies. Not only were the impacts of current policies and short-run variables on EU production discussed but ideas for future research were highlighted, identifying future policies or structural changes that might affect supply response in the EU.

Topic 1-Supply response as a result of CAP reform

This part of the session took was a general discussion on how we have captured MacSharry and Agenda 2000 policies in our models and the results we have achieved so far. Discussions on this topic centered on the following questions:

- What have been the main impacts of CAP reform (MacSharry or Agenda 2000) on supply/production in the EU?
- What reform policies have been “successfully” modeled and what policies have been more difficult to model (e.g. blue-box policies)?
- Have production or yield elasticities changed in our models as a result of MacSharry or Agenda 2000 reforms?
- Has CAP reform changed land allocation decisions in the EU?
- How has CAP reform changed supply response compared to other domestic or trade policies, eastward enlargement scenarios, and structural changes in EU agriculture?
- Can we make any predictions as to what the long-term effects of CAP reform to be on EU production?

Jason Bernstein and **Piero Conforti** each gave brief presentations on their work measuring supply response in the EU as a result of CAP reform. Bernstein discussed the supply response concerns when using the ERS-ESIM Model. He was concerned about changing supply or yield elasticities as a result of the ESIM model and how much of a supply response there would be away from oilseeds and towards grains as the intervention price falls below the world price for wheat and barley. Bernstein also questioned the probability that the EU might further lower the set-aside rate to encourage wheat and barley exports as the intervention price falls below the world price. There was also some concern about how beef production is modeled in ESIM. Presently, three-quarters of beef production is essentially fixed by headage payments and other constant factors and Bernstein questioned whether production should be more dependent on prices or on other factors.

Conforti discussed his recent research on measuring the effects of CAP reform on the supply of rice in Italy. He discussed the differences between using the AGLINK model and PMP (Positive Mathematical Programming) models to model supply response. Policy provisions that are not included in AGLINK can be taken into account with PMP models such as the national distribution of direct payments and of set-aside payments. In addition, PMP models are better used for some simulation exercises, especially those that concern the effects of policies on market prices.

There was also some discussion of the effect of the lowering of set-aside on EU production of grains and oilseeds. While most models predicted that both production of grains and oilseeds would increase due to lower set-asides in the CAP reforms, some models predicted that production would decline to the lower support prices. One paper predicted that production of all commodities would be lower as a result of Agenda 2000 reforms due to the migration of labor from rural to more urban sectors.

One participant summarized the discussion by saying that the questions that were raised were very important but difficult to answer. They were, however, deserving of further study. The participants all agreed to share more research results and data in the future to explore this topic further.

Topic 2-The impacts of price vs. technology on EU production

The purpose of this session was to discuss the extent to which price and non-price variables have affected supply response in the EU. A special emphasis was placed on the role of technology in affecting production and if/how we should specify technological change in our present models. **Carlos Arnade** and **David Kelch** gave a presentation on their research identifying the extent to which price and technology affect crop production in three EU countries: the U.K., France, and Germany. They compared the short-run effects of technology and prices on crop production, estimated price elasticities of areas and yields and technological change elasticities, and determined if growth in EU agricultural production would continue despite lower support prices.

Their main results were that in the U.K., technology was the dominant factor in increasing production but in France, the results were mixed with technology actually reducing output of some commodities. In Germany, technology was dominant in the production of fruits and vegetables and roots and tubers while price was the dominant factor for other commodities. In the U.K., yields were more important than area in affecting output while in France, area was more important. In Germany, the results were mixed. These results show that in the U.K., we would expect agricultural output to increase even if support prices are reduced while in France and Germany, the results would be more varied with lower support prices quickly reducing output for some commodities. Two results were consistent among all three EU countries, that technology has a significant positive impact on wheat production and on pesticide use.

Topic 3- Impacts of EU green and blue box programs on production

This session looked into the effects of so-called blue-box payments (e.g. compensation payments to arable crop producers and headage payments to livestock producers) and green-box payments (e.g. investment aids and environmental programs) on agricultural production in the EU.

EU blue-box payments, while not being based on output, still affect production because there is still a requirement to produce in order to receive them. Green-box payments, while they may be decoupled, can still influence agricultural production through three types of effects: through producers' wealth (wealth effects), through changes in market expectations, and changes through factor markets for land and labor.

James Rude from the University of Saskatchewan gave a presentation on the effects of EU blue and green box payments on production. His initial conclusion was that compensation payments are partially decoupled; they are decoupled with respect to area but not with respect to yield. Compensation payments should also be offset by the effects of reduction in other payments, especially for substitute crops. Rude reviewed a series of other studies that showed that the supply response with respect to EU compensation payments was small due to offsetting cross effects and total area. Rude further asked if compensation payments are still production neutral if the producer cannot affect the size of the pay-out. Wealth effects can reduce risk aversion and relax debt constraints while expectation effects can increase the base level of payout. This may affect long run entry and exit decisions on farming.

Rude also categorized EU green-box payments on the level of the impact they would have on production and trade. While green-box payments for such programs as general services, domestic food aid, and retirement programs would have a minimal impact on production and trade, payments for investment aids, environmental programs, and regional development might have a much greater impact. Since these programs represent 65 percent of total EU expenditures on green box programs, further research on measuring their effects on production and trade would be very worthwhile.