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Section Summary

Karl Meilke and Bruno Larne (Canada) were invited to present a discussion of the modellers' reports, comparing both the model specifications and the projections. Their very capable paper gives a good idea of the performance of the three groups of models. Briefly, they point out that the forecasts of real prices of foodstuffs from the FAPRI model are more optimistic and generally more sensitive to changes in the assumptions than the other two. The forecasts of prices and production from the SWOPSIM and World Bank models are fairly consistent, although the World Bank forecasts are characterized by higher and more sensitive production and trade volumes. Both the SWOPSIM and World Bank models project declining real prices for wheat, coarse grains and soybeans. The FAPRI model projects real prices for wheat and corn to increase slightly by 1995 relative to 1986/7 levels, while the soybean price is projected to remain about constant. SWOPSIM projects dairy products and meat prices to increase over time. FAPRI and the World Bank model agree on the expansion of industrial country net exports of wheat and coarse grains and the continued expansion of developing country grain imports–however, the World Bank model projects larger growth in both areas than FAPRI.

On the simulations of freer trade scenarios there is agreement between FAPRI and SWOPSIM that prices would rise under free trade. However FAPRI does not expect freer trade to change the global production of grains and oilseed as the production efficiency gains from trade are largely offset by the removal of production subsidies. SWOPSIM projects that supply from the industrial countries would decline.

Meilke and Larne make note of three general concerns about the specification of the models. First, all the models are partial and so ignore intersectoral effects. Importantly, there are no links to asset markets, particularly land. Second, agricultural policy is treated as exogenous. It was suggested that this may be overcome by incorporating interchangeable policy blocks in the models. Third, products are treated as homogenous. There should at least be some test of the importance of the assumption of non-differentiated products.

In the notes of the discussion sessions prepared by the Rapporteurs John Nash and David Bruns, the comments fall into the main groups which comments usually fall into by the very nature of models: (i) where to draw the arbitrary line between the endogenous and exogenous variables; (ii) the values to adopt for the exogenous variables; and (iii) the specification of the model, in particular the dynamics of the adjustment process and the price formation process. As Meilke and Larne point out, the decisions made by the modellers in respect of these

various decisions depend greatly on their constraints and, in particular, the function which the model is to perform.

In respect of the values of the exogenous variables Rabinowicz (Sweden) suggested that the high projected growth in import demand by the centrally planned economies was obviously based on the assumption that the reforms currently underway in these economies will not be successful in increasing farm production and in increasing the low feed-to-meat ratio. Mitchell (World Bank model) agreed that if CPE production performance improved significantly this would change their import projections significantly. Some commentators thought that the supply elasticities in the models were low. Johnson and Meyers (FAPRI) responded that their supply elasticities were high by comparison with others in use.

As well as suggesting that farm policy be made endogenous (or endogenous for countries other than the US), discussants (for example, Harvey, UK) suggested that technical change be made endogenous. Mitchell (World Bank) responded that the World Bank models at least incorporated yield as a function of varieties by area, notably the proportion of hybrid grains. As a result there was projected a noticeable slowdown in grain production in the developing countries as the capacity for further sowings of hybrids was becoming saturated. He also expressed concern about the slowdown in irrigation investment.

The question of future productivity increases leads into discussion of one of the invited companion papers to the commodity modelling session – the Anderson/Herdt paper on the prospects for new technology in grain production (ably presented by Tom Walker). These authors' forecasts can be summarized as 'cautious optimism' only. They feel that future gains from 'on the shelf' technology is 'largely illusory' while gains from technology 'in the pipeline' (mainly through conventional plant breeding) offers some prospects but that there is much basic research still to be done so that the prospective gains are some way off. Generally, they believe there is much less cause for optimism for rice and sorghum than for wheat, while their crystal ball was cloudy about maize. The prospective gains from productivity gains from gene technology research were summarized as 'only promising' as yet. Winkleman, in discussion, supported the ideas on the slowdown in gains from the Green Revolution by quoting data from Pakistan showing increases in the yield plateau since the mid-1970s of only 0.8 to 1 per cent per annum.

In the other companion paper to the commodity model simulations, Lord (US) presented trade forecasts for eight important agricultural commodity exports for the Latin American region. These results were simulated under the same set of assumptions as the global agricultural forecasts. Lord's model estimates Latin American exports to increase by 0.4 per cent for each 1 per cent per annum increase in global economic activity. On the basis of the macro-assumptions, Latin American trade is forecast at 3.9 per cent per annum to the year 2000, compared to 4.5 per cent per annum over the past two decades. It was estimated that there would be a 6.4 per cent increase in trade value as the result of a 50 per cent reduction in trade barriers in developed countries. Sugar exporters would be the main beneficiaries.

In his discussion of Lord's paper, Vyas noted the following general concerns: (i) the little attention paid to the instability of supply – a pervasive problem; (ii)

the problems arising from aggregating countries with different policies; and (iii) the treatment of the relaxation of each policy separately, rather than the analysis of specific policy packages. He referred to other studies to show support for Lord's conclusions in the following ways: (i) the rate of growth of agricultural trade will decline; (ii) food commodities will have the highest growth in trade among agricultural commodities; and (iii) the share of developing countries in total agricultural exports will decline.

Comments from the floor suggested the incorporation of population and technology changes and alternative specifications of the price formation process. The differences with the price and production forecasts from the World Bank (Akiyama) coffee model were clarified by Lord explaining that in his simulation the International Coffee Agreements' export quota scheme was assumed to be suspended.

In conclusion, I would thank all contributors to this Session for devoting a great deal of their time to making this complex exercise work so effectively.

Rapporteurs for the above sessions of the Conference were:

JOHN NASH
DAVID BRUNS

Participants in the discussions included:
C. Van der Meer, A. Siamwalla, G. Rausser, M. Rosegrant, E. Rabinowicz, H. Binswanger, J. P. Bertrand, I. J. Singh, T. Akijama, P. Dixit and G. T. Jones.