ECONOMETRIC MODELS AND ANALYSIS--DISCUSSION

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Five papers have been presented in this special session and every paper contained a mathematical model.

The various models were:

(a) a linear programming model in Philippines,
(b) an exponential model in Europe,
(c) linear programming model in Switzerland,
(d) a quadratic model in Uruguay, and
(e) a simulation model in U.S.A.

In this report each paper will be discussed separately from the others. The order is that in which the papers were presented.

1. David E. Kunkel, L.A. Gonzales and Mario H. Hiwatig "Application of Mathematical Programming Models Simulating Competitive Market Equilibrium for Agricultural Policy and Planning Analysis"

This paper is well written with the objectives stated very clearly. The limitations of the linear programming models have been pointed out for this analysis and so there is little room for criticism.

The general comment that I would like to make on the mathematical programming models is that they are too sophisticated for policymakers as well as for the farmers in the developing countries. They definitely require the use of computers, which are not available in most of the developing countries. Even if they were available, you might find difficulty in getting the qualified personnel and/or you might find the computer time too costly. Therefore, alternative simple techniques such as budgeting, or partial budgeting might prove operational, i.e. economically feasible in the developing countries.

The other specific comment is that the authors need to rationalize the proposed percentages for increase in labour supply, increase in demand for meat and other proposed percentages which have been mentioned in their second solution.

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2. T. Matsugi "On the Optimal Combination of Agricultural Price-
   and Structural Policies"

Mr. Matsugi started his paper by stating that it is generally agreed
in the developing countries that one of the most important objectives
of the agricultural policy should be the improvement of the level of
income in the agricultural sector. Then he presented an interesting
model related to this objective. However, when he applied it, it was for
some advanced countries such as Germany, France, Italy, Netherlands and
Belgium!

Thus, while this model may prove to be useful for the advanced
countries, it might face difficulties in the developing countries, where
data, especially about income, are really scarce.

3. Peter Rieder "Application of Linear Programming Models for
   National Agricultural Planning in Switzerland"

Mr. Rieder asserts that two big linear programming models were
constructed for dealing with the agricultural problem. The question is
how big is "big"? I think it would be better if the dimensions of the
matrix of the linear programming model were specified.

I quote "The results of these solutions are yearly discussed in a
common meeting between university and administration representatives.
This is an essential condition that our results are really used and have
important influence on the agricultural decisionmaking process." I am
not really clear on the term "essential condition." However, to say the
results have an important influence on agricultural decisionmaking
process gives too much faith to linear programming.

As with the first paper the proposed increase in the producers prices
by 5 percent and 10 percent needs to be rationalized.

Finally, there is a need to document the following strong statement:
I quote, "Analyses of price-output reactions in the last 15 years would
confirm these reactions to our model."

4. R. E. Vazquez, L. L. Jones and R. E. Whitson "Risk and
   Technological Advance in the Uruguayan Livestock Sector:
   A Quadratic Programming Approach"

Again, this paper is well written, and makes use of quadratic
programming in the Uruguayan livestock sector. The limitations of this
approach have been stated, so there is no room for quarrel. My appeal

again, is that we need relatively simple techniques which could be
operational in the developing countries. However, it would have been
very useful, if the authors had given some ideas as to how the
individual farmers risk preferences could be assessed.

    5. R. L. Walker and J. Sharples "An Economic Analysis of a
        U.S. Buffer Stock of Wheat Operating in a World Market"

    I think it would be useful if the authors explained how the
following equation was obtained:

$$P_{At} = 19.15 + .066 \, P_{t-1}$$

    where:

P_{At}: area planted in year t (mil. hectares)

P_{t-1}: Price of wheat in the previous year (in American dollars).

    It appears to be a typical acreage-response function derived by
the method of Least Squares. However, specifying the number of
observations used would be helpful in performing the testing of
hypothesis to assess the practicality of lagged prices as an influencing
factor on acreages of wheat in the U.S. economy.