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DISCUSSION: INTERNATIONAL DIMENSION OF AGRICULTURAL PRICES

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There has been much hypothetical speculation about the causes of the recent increases in U.S. farm prices. Among these causes, the sales to the USSR and China and the devaluations of the dollar that occurred in August 1971 and February 1973 have received the center of attention. Dr. Mackie has provided considerable light by his thorough empirical analysis of this matter. I shall comment only briefly on the prospects for a "Malthusian catastrophe" and then provide further theoretical clarification of recent price behavior. My final comments are related to the matters of returning to a free market and to market instability — the second and third aspects of the current world food situation as outlined by Mackie.

The energy situation, unless breaks occur in fusion, solar, or other sources, may make it more difficult to 'repeal' Malthus' law than had been anticipated earlier. In the absence of continuous growth in the use of inanimate energy, it is unlikely that larger numbers of people can be supported at higher income levels.

Mackie's conclusions, as I interpret them, are that the recent increases in U.S. grain prices are primarily a result of increases in exports and that the increase in the demand for U.S. exports was primarily a result of shortfalls in production in the importing countries — especially in the USSR and China. Here, I shall describe what I believe to be the nature of the demand, supply, and market relationships that underlie the observations presented by Mackie.

The U.S. demand and supply functions often are depicted as downward sloping and upward sloping, respectively, for the domestic market, and as perfectly elastic and upward sloping, respectively, for the export market. But these relationships do not appear to be appropriate. From about 1954 to 1971 there were three markets — the U.S. domestic market,

the commercial export market, and the export market in which some sort of subsidy or other special concession was involved, such as exports under P.L. 480. Domestic prices were held above export prices by means of government programs. With high levels of stocks, the domestic market was rather effectively insulated from the export markets. Thus, exports could fluctuate with little or no effect on domestic prices.

In the commercial export market, U.S. supply was highly elastic (if not perfectly elastic) as stocks were high. Thus, shifts in demand for exports brought changes in quantities while prices remained relatively stable. In the second export market, sales were negotiated at lower prices, and quantities tended to vary mainly in response to fluctuations in production in the importing countries and to conditions of U.S. government policies.

As quantity supplied approaches the limits of stocks, the supply function turns up and, in the short run at least, it becomes highly inelastic. Also, the supply functions for the domestic market and for the export market, previously independent of each other, merge into a single function. Thus, shifts in demand for exports have an effect on domestic price. The demand for U.S. exports depends upon output within the importing countries and the supplies from competing exporting countries.

In 1972-1974, the demand for U.S. grain exports shifted to the right and became very inelastic as a result of the production shortfalls in importing countries and the reduction in supplies from competing exporters, such as Canada and Australia. Thus, the market condition was one of a highly inelastic demand as well as supply. Under these circumstances we should not be surprised by Mackie's results which show that increases in price accounted

for 80 percent of the increase in value of U.S. agricultural exports in calendar year 1973; whereas, change in quantity was the major element in previous years. In the absence of adequate stocks, these are likely to be sudden and wide price fluctuations — especially so if the recent increases in demand were random shifts as a result of production shortfalls rather than long-run increases due to structural changes.

With respect to the devaluations, under the demand and supply condition described above, one would expect the effects to be relatively small — as indicated by Mackie. Also, in the longer run, reactions on the part of U.S. export competitors might be expected to reduce the devaluation effects. From the standpoint of the importing countries, with inelastic demands for food, the additional exchange generated by devaluation probably would be used to purchase other imports for which the price and income elasticities are greater than those for food.

If the conditions remain such that the U.S. domestic market is no longer isolated from the export

market and wide variations in price occur, it is doubtful that the U.S. will be willing to turn to a free market system without some sort of governmental management of stocks. Wide fluctuations in demand for exports could occur as a result of sudden and highly unpredictable political decisions. Many of the importing countries are engaged in state trading rather than private market trading, and private firms in others are large enough to influence the market. In many respects, the structure is more like bilateral monopoly or oligopoly than pure competition.

Finally, under the above conditions, I seriously doubt that we will move to a system of unrestrained private enterprise marketing. In view of the uncertainties, it appears that, as a minimum, some form of stock management at the national, if not the international, level will be required to keep price and quantities within bounds acceptable to U.S. consumers and farmers. Consumers may not accept the full burden of price increases and U.S. farmers may not be willing to bear the total burden of the decreases.