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THE DILEMMA OF WORLD AGRICULTURE: THE PROBLEM, CAUSES AND FUTURE

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THE DILEMMA OF WORLD AGRICULTURE:

THE PROBLEM, CAUSES AND FUTURE

J. Bruce Bullock*

My remarks this morning will be in three parts. First, I will comment on the general nature of the world-wide economic situation in agriculture. Second, I will provide a brief overview of the agricultural situation in the United States and the implications of the 1985 farm bill recently passed by Congress. Finally, I will make some comments regarding my perception of the causes of the current world situation in agriculture and some of the policy implications for developed economies such as South Africa and the United States.

Global Overview

We enter the last half of the 1980s with a much different perspective about the world agricultural situation than we had at the beginning of this decade. Throughout the 1970s we observed world trade in agricultural products increase by some 10 million metric tons per year. Farmers in both South Africa and the United States benefited from this expanded trade as members of an elite group of about eight countries that are consistently net exporters of food.

The expansion of world agricultural trade in the 1970s was initially stimulated by the abrupt and the large-scale entry of the Soviet Union into world markets. Adverse weather patterns around the world further reduced world grain stocks and strengthened prices of agricultural products.

Much of the growth in demand for agricultural trade during the 1970s was from developing countries. Unfortunately, most of the expanded demands for agricultural imports by these countries were funded by expanded debt. By the early 1980s, it became apparent that these countries could not repay their debt. Credit expansion to these

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countries was terminated, resulting in sharp reductions in their export demand. A world-wide economic downturn further accentuated the weakening demand for agricultural exports. As a result, world-wide grain trade has exhibited no growth since 1980.

In spite of the flat demand for agricultural exports since 1980, agricultural production capacity has continued to increase - both in exporting and importing countries. World production of coarse grains in 1984-85 exceeded 800 million tons for the first time in history. World-wide production is expected to increase 4.5 percent in 1985-86 and ending stocks are expected to reach record levels. Moreover, world stocks of wheat are projected to climb to record levels by the end of 1985-86, marking the fifth straight year of increase. World markets for rice and sugar are also under pressure from excess supplies.

Whether one views the current condition of world agricultural markets as a dilemma or as a blessing depends on who is looking at the situation. The world agricultural trade outlook for the last half of the 1980s is not encouraging for either South Africa or United States farmers who are dependent on world trade for a major part of their sales. The same is true for producers in the other major agricultural exporting countries. However, from the perspective of the world food consumer - particularly lower income consumers - the outlook is quite optimistic relative to the beginning of the decade.

Much of the optimism of farmers in the major agricultural exporting countries during the late 1970s was at the projected expense of consumers. The events of the 1970s were mistakenly interpreted as the reversal of the 40-year trend of world-wide supply outrunning world-wide demand. Many persons proclaimed that the predictions of Malthus were finally economic reality. They saw the era of surpluses giving way to a long term struggle against widespread hunger.

The bad news for farmers in the major agricultural exporting countries is that the global bad news of the 1970s is wrong. World agricultural output rose 25 percent between 1972 and 1982 to reach an all time high. Farm output in Less Developed Countries (LDCs) rose 33 percent compared to an increase of only 18 percent in developed countries where markets were already saturated. Equally important, the

annual rate of growth in farm output in LDCs has been rising - from 2.7 percent in the early 1970s to 3.3 percent in 1978-82.

The improved performance by farmers in LDCs is basically due to improved technology and stronger incentives to use it. Even Black Africa has the technology to double its crop yields and to reduce the vulnerability of their food supplies to drought. The fact that technology has not been more widely applied represents both a tragedy and an indictment of the farm and food policies followed by these nations themselves.

The farm and food policies of the Third World are improving, however, prodded by population growth and by the sharp declines in financing to Third World countries. For the first time, the Third World is focusing on productivity rather than spending. The LDCs are also learning from the experiences of such nations as China and Malaysia.

All this is good news for the hungry of the world. But, it does not ease the financial pressures on South African and United States farmers.

The LDCs of the world have one thing in common. They have all under invested in agricultural production. The developed economies of the world have just the opposite problem - we have over invested in agriculture and have over protected our agricultural sectors from the realities of world agricultural markets.

The dilemma of world agriculture is that although we live in a world economy, no country is willing to expose its agricultural sector to the rigors of truly free trade in agricultural products. Consequently, each country diligently protects its agricultural producers with a set of domestic farm programs and trade policies at the expense of domestic consumers. The result is an across the board over investment in agricultural productive capacity in the developed countries of the world. A second result is that world agricultural trade is dictated by the combined residual effects of domestic farm policies of the major exporting countries rather than by the economic forces of comparative advantage.

This is a reality we are going to have to live with at least in the foreseeable future. One of our tasks at an outlook conference such as this is to take those realities as given and try to provide insights

about possible future developments based upon what we observe going on around us. I will return to this over investment problem in the final section of the paper. We will now take a brief look at the United States agricultural situation.

United States Agricultural Situation and Outlook

The 1984-85 crop year in the United States was an almost perfect growing season in the corn belt. Consequently, per hectare yields of corn and soybeans established new records. The United States corn crop was 221.4 million metric tons, an all time record. Soybean production was 57.9 million metric tons, the second largest crop on record. The 65.8 million tons of wheat production was 10 million tons below record levels because of acreage reduction program participation by wheat farmers. New production records were established for barley and for grain sorghum.

Because of the nature of the domestic farm programs, the United States is a major holder of world grain stocks. Projected United States stocks of grain at the end of the 1985-86 marketing year are as follows: 47.4 million metric tons of wheat, 77.5 million tons of corn, 25.2 million tons of other feed grains and a record 16.7 million tons of soybeans. The United States holds about one-third of total world stocks of wheat, almost 70 percent of coarse grain stocks, and about one-half of oilseed stocks.

United States grain farmers have become increasingly dependent on world trade. Over 50 percent of United States wheat production, about 20 percent of corn production and 50 percent of soybean production are exported each year. The high value of the dollar and the soft export markets in general have resulted in substantial loss in United States market share of world grain trade from peak levels of 1979-80.

Much of the discussion leading to the 1985 farm bill recently approved by Congress centered around program changes that would make United States exports more competitive in world markets. As a result, the price support level which effectively sets the floor on United States grain prices was lowered substantially.

The floor price for corn was lowered 24 percent to $1.92 per bushel. The support price on wheat was lowered 27 percent to $2.66 per

bushel and the support price on soybeans was reduced 5 percent to $4.77 per bushel. We expect prices of these commodities to be about equal to the support price levels during the next year.

The effective price received by farmers will be higher than the support prices noted above. Farmers who participate in the farm program by setting aside (idling) from 15 to 30 percent of their base acreage will be eligible for deficiency payments (price subsidies) of $1.98 per bushel on wheat and $1.11 per bushel for corn. This payment applies to normal production on the idled acres and all production on acreage actually harvested.

The 1985 United States farm bill is by far the most expensive government farm program in the history of the United States in spite of huge budget deficits. We estimate that government expenditures under this program will be about $17 billion annually for the next three years. Direct government payments to wheat producers will amount to 25 percent of gross cash receipts from their 1985-86 crop. Cotton farmers will receive about 20 percent and corn farmers about 11 percent of gross cash receipts from direct government payments on 1985 crops. These proportions could exceed 50 percent in 1986 because of increases in deficiency payments.

The most innovative and constructive dimension of the 1985 farm bill is a conservation reserve program. Farmers will be provided an opportunity to lease production rights to the government (remove from production) on highly erosive lands for a period of at least 10 years but not more than 15 years. The objective is to place 40-45 million acres of highly erosive land in the conservation reserve over the next 4-5 years. The amount of the annual payments made on the land placed in the reserve will be determined by bids submitted by farmers. Land placed in the reserve must be placed under a soil conservation plan. The land cannot be grazed or harvested.

The conservation reserve program is a recognition that the United States has more land in agricultural production than is appropriate. The program should make a positive contribution toward removing highly erosive land from production and reducing surplus production. However, the least productive soil will be removed and the final impact on total production will likely be less than initially expected.

The bottom line is that the 1985 United States farm bill coupled with record levels of world grain stocks is going to put more downward pressure on world grain prices and intensify the competition among exporting countries in the shrinking market for exports.

The economic picture for United States farmers is not all rosy in spite of the overly generous 1985 farm bill. There is wide spread financial stress in United States agriculture. In fact, it is because of this financial stress that Congress passed such an expensive farm program. In the Midwest, farm land prices have fallen from 30 to 50 percent from their peak levels in 1981.

Agricultural lenders, as well as farmers, are in a severe financial squeeze. We estimate that about 50 milion dollars of the 215 billion dollars in farm debt cannot be repaid by the farmers who hold the debt. The excess debt problem arose because farm debt increased 228 percent during the 1970s while farm income increased only 50 percent. The debt was collateralized against inflated land values (land values increased over 200 percent during the 1970s) although repayment capacity in the form of higher income was never present. In many cases the debt was acquired by farmers to make up for income shortfalls caused by poor crops. In other cases the debt was used to make capital investments that could be expected to yield 5-6 percent rate of return even though interest rates on borrowed capital were 15-20 percent. Both borrowers and lenders looked only at debt/asset ratios rather than debt/income ratios which is a more appropriate indication of repayment capacity. The decline in land values that began to occur in 1980 burst the bubble of optimism. Loan foreclosures and farm bankruptcies are quite common throughout the grain farming regions of the United States. However, not all farmers are in financial stress. About 15-20 percent of the commercial farmers are having financial problems.

The financial stress is not confined to farmers. A number of rural banks have failed because of the financial problems of farmers. The Farm Credit System, a farmer owned cooperative which provides about one-third of the agricultural credit in the United States, will almost certainly require about a 10 billion dollar capital contribution from the government if it is to survive.

The current financial situation in United States agriculture will probably require two more years to move through the system. It could result in a 10-12 percent reduction in the number of farmers in United States agriculture. However, the financial situation will not reduce the amount of land in production or the productive capacity of United States agriculture. The land farmed by the existing farmers will be utilized by the remaining financially strong farmers. The long run impacts of the current financial stress in United States agriculture will simply be to reinforce the longer term trend toward fewer but larger, more efficient farmers.

Policy Implications of World Agricultural Dilemma

I now want to return to my earlier point that the developed countries have over invested in agriculture and examine the implications for domestic food and farm policies in those countries.

There are three primary reasons why developed economies have and will probably continue to over invest in agricultural production capacity.

1. The characteristics of modern agricultural production technology.
2. The special characteristics of the demand for food; and
3. The special place we have given the family farm in our societies.

Technology

Agricultural production technology has freed mankind from experiencing the horrible existence predicted by Malthus. Developed countries have created economic and political climates that encouraged the development and use of agricultural production technology. Under developed economies have, either by neglect or by design, created political and economic environments that have prevented the integration of new technology into their economies.

On a global basis, per capita food production grew significantly over the past 20 years in spite of a 46 percent increase in world population. Application of modern agricultural production technology accounted for 80 percent of the increase in world agricultural

production. Only 20 percent of the growth was derived from expansion of land under cultivation. Ruttan points out that by the end of this century we will have to rely on improved technology for all increases in agricultural production.

From the perspective of global food supplies, it is comforting to note that the biotechnology revolution is just around the corner. We live in the age of science fiction with respect to biological research. We are on the verge of increasing milk output 20-40 percent per cow with no additional feed input. Major developments in disease resistance, drought tolerance, nitrogen fixation and yields of grain crops will likely occur in the next 10-15 years.

There are four characteristics of modern agricultural technology that are quite important to the future development of agriculture in both developed and developing countries. New agricultural technology almost always is:

a) output increasing per unit of land and per unit of labor used - thus it reduces the amount of land and labor required to produce a given level of output;

b) management intensive - requires high quality management skills to use effectively - not every farmer qualifies;

c) capital intensive - requires increased amount of capital for implementation and use;

d) not scale neutral - generally more cost effective for large scale than for small scale operation.

The combination of these four characteristics of new agricultural production technology generates substantial economies of scale. Thus, large scale producers can produce at costs substantially below the cost of small scale producers - even at relatively high costs of high technology inputs and low wage rates. Therefore, fewer farmers, less labor, and more capital are required to expand agricultural production with new technology. Furthermore, unless the demand for food increases more rapidly than new technology expands supplies, we will need fewer farmers and less land in agricultural production in the future.

Demand For Food

The demand for food is limited. Food is essential to life. However, on a per capita basis it is needed in rather limited quantities. Once humans have enough food to become pleasingly plump additional quantities of food have almost zero value. Beyond limited levels of consumption, food adds little to the quality of life. Indeed we measure the extent to which an economy is developed by the small percentage of consumer income that individuals must spend on food. Consumers in developed economies spend less than 25 percent of their income on food products. Actually, in developed economies less than 10 percent of their income goes for purchase of agricultural commodities - the balance goes for marketing services to produce desired food products.

The process of economic development is to free society from the constraints of inadequate food production - to lower the price of food in terms of other goods and services in the economy. In a developed economy, growth in the demand for food is limited to the rate of increase in the population. Currently, the rate of growth in population in developed economies is about 1% - less than one-half the growth rate in productivity.

Family Farms

The combination of rapid growth in supplies because of new production technology and the limited growth in domestic demand in developed countries puts continual downward pressure on agricultural prices. This downward pressure is (1) a reflection of high levels of economic development, and (2) a clear signal to restructure the agricultural sector to reflect the new economic realities.

However, we in developed economies have uniformly ignored these messages. Farming is regarded as one of the most noble professions in our societies. Family farms are regarded as the backbone of our social structure. Thus, downward pressure on agricultural prices is interpreted as a threat to a revered way of life rather than as a clear signal to restructure the industry. As a result, we have developed agricultural programs and special institutions to protect the status quo of agricultural producers. The result is that developed economies have uniformly created environments for over investments in agricultural production.

Furthermore, these domestic policies have spilled over into agricultural trade policies that generate distorted international commodity prices and trade patterns. Foreign consumers are subsidized at the expense of domestic consumers in the name of protecting domestic food supplies.

Policy Implications

Domestic agricultural programs dictate agricultural trade policies of developed countries. Most of these programs have been designed to prevent the domestic agricultural markets from achieving equilibrium and thereby further reduce the number of farms. These policies either build up surpluses as in the United States, or provide for export sales below domestic prices as with the EC and South Africa. The continued development of agricultural production technology will make these programs increasingly expensive to operate and will even further distort world trade patterns and world commodity prices.

Unfortunately, the impacts of these domestic agricultural programs and non-competitive trade practices are not confined to the developed economies playing these games. The economic progress of emerging countries such as Brazil, Argentina, and Malaysia is particularly harmed by export subsidies of the developed economies.

Domestic farm policies in the developed economies that more effectively reflect the economic realities of modern agriculture would be an important step toward solving the dilemma of world agriculture. This will involve developing programs and/or modifying institutions in order to:

1. facilitate movement of human and physical capital out of agriculture;
2. remove artificial incentives for investment in agriculture, e.g.
   a) special tax breaks for agricultural investment;
   b) subsidized credit for agriculture; and
   c) prices that are both too high and too stable
3. provide institutions and mechanisms that help farmers deal with risk caused by weather and unstable world markets, e.g.
   a. effective disaster insurance programs;

b. future markets; and

c. long term assessments of world supply and demand conditions

4. clearly separate the costs of government programs and institutions necessary for effective operation of agricultural markets and programs necessary to maintain some unspecified but presumably desirable social structure. Only then will we know if the family farm is worth saving and whether or not we are actually saving it.

These types of domestic farm programs would make it less necessary for us to play the expensive and destructive games we play in world agricultural trade. It would also cause us to pause and more thoroughly evaluate the real costs and benefits of playing those games.

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