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UNITED STATES AGRICULTURAL POLICY:
NATIONAL AND INTERNATIONAL CONTEXTS¹

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The American farmer is at the center of a world food system. This is not a parochial statement but a factual one concerning the role American agriculture and the American farmers have had in the world food system for the past quarter-century. In the years between the two world wars, most of American agriculture lost the comparative advantage that it had possessed throughout the history of this nation. Our agricultural policies were primarily inward-looking and we imported more agricultural products in every year from 1922 until World War II, save one year.

The basic structure of our domestic farm programs was established during the period of the late 1920s and early 1930s when the competitiveness of agriculture in the American economy was at an all-time low when compared either to the entire history of our nation or to subsequent years. Programs that may have been effective in achieving their stated objectives during the 1930s have been found not only wanting but actually harmful in the very different economic climate that now prevails.

The striking change in the economic setting of agriculture has resulted from the turnaround in the competitiveness of agriculture in the U.S. economy. In the past two decades, agriculture has emerged as one of the most vital and dynamic sectors of the American economy; exports of farm products grew at a rapid rate, especially from 1972 through the rest of the decade of the 1970s. A large surplus of export over import value was generated.

The depression era farm programs relied upon price supports and output restrictions to improve income levels in agriculture. These programs were based upon the assumption that the price elasticities of demand for U.S. farm output

were low--very low, in fact. International trade was of little importance for the major farm products other than cotton and tobacco. Consequently the assumptions that a relatively small increase in supply would result in a sharp fall in prices received by farmers and that a relatively small reduction in supply would be adequate to create a substantial increase in farm prices were empirically valid.

To a considerable degree, the 1930s programs were carried over into the 1950s and were singularly ineffective in improving the income position of American farmers. The new twist added to the farm programs during the 1950s was the marriage of surplus disposal and foreign economic assistance. The year 1954 marked the beginning of large-scale food aid. However, even substantial foreign disposal of farm products failed to prevent the accumulation of large stocks of cotton, wheat and feed grains and levels of governmental expenditures that were at that time considered burdensomely large. Admittedly, annual costs of \$3 billion to \$4.5 billion as of the late 1950s (roughly \$10 billion to \$15 billion in 1984 dollars) were large even in comparison with the FY1983 costs of farm programs of \$21 billion (Cochrane and Ryan 1976, Chapter 8). As a percentage of federal expenditures, the farm program costs of the late 1950s were higher than during the last fiscal year. Thus it was not altogether surprising that there was agreement that such costs were not politically sustainable and other farm policy approaches were required.

With the policy modifications that were begun in the late 1950s and continued through the 1960s, price supports, by the mid-1960s, were set at levels that were generally at or below market-clearing levels. For this and other reasons, exports grew rapidly and by 1980 the surplus in agricultural trade reached \$20 billion.

For the next several pages, I shall dwell upon two main points. The first is the major factors for agriculture regaining the comparative advantage that it so clearly had before World War I. The second is how the world food system was created, an act of enormous significance to the poor people of the world which has gone largely unrecognized and unapplauded.

Regaining Agriculture's Comparative Advantage

The reemergence of U.S. agriculture as a modest net exporter in the early 1960s and a large one during the 1970s was due, in my opinion, to three important factors: (1) modification of our agricultural price and income and exchange rate policies, (2) significant resource adjustments occurring

in agriculture after World War II, and (3) the emergence of U.S. agriculture as a high-technology sector. In my opinion, each was important and there have been significant interrelationships among the three.

Policy modifications. During the 1950s, price supports for the major grains and cotton were established at levels significantly above market-clearing prices. Large stocks were accumulated by the government even though efforts were made to reduce production. Exports declined during the early 1950s; efforts to reduce the accumulation of stocks included the expansion of food aid and the payment of export subsidies on commercial sales. Starting in the late 1950s, price support levels were lowered and by 1966, price supports for most commodities were at or below international prices. When the price supports were above market-clearing levels, export subsidies were used to maintain an acceptable level of exports or the quantity of exports was adversely affected. When price supports significantly influenced the domestic price, exports were largely determined by the kind and extent of governmental intervention. When price supports were lowered, the market was permitted to function in allocating the available supply between domestic and export uses and there can be little doubt that exports increased significantly as a consequence.

Schuh (1974) has argued that the overvaluation of the U.S. dollar prior to the 1971 devaluation had imposed substantial costs upon agriculture, including restraining the growth of exports and adding to the resource adjustments required to obtain a satisfactory level of labor returns in agriculture. The overvaluation of the dollar resulted in a lower level of prices of farm products in the domestic market and in greater difficulty in competing for resources with all sectors of the economy except for the other export-oriented industries. There can be little doubt that the devaluation of the dollar in 1971 and the floating of the dollar in 1973 had the effect of encouraging agricultural exports and in improving the relative profitability of agricultural production in the United States. Consequently the change in exchange rate policy clearly contributed to the size of the net agricultural trade surplus in recent years, even though other factors were primarily responsible for the transition from a net import to a net export position.

Resource adjustments. Significant resource adjustments occurred in agriculture after World War II (Johnson 1977). These changes included a rapid reduction in the labor input per unit of farm output and an increase in the amount of capital per worker. Very importantly, agriculture became more fully integrated into the economy and the off-farm income of farm people increased significantly so that by the

mid-1960s, approximately half of the net income of farm operator families was derived from off-farm sources. While real farm prices declined by more than 20 percent from the early 1950s to 1970, the per capita disposable income of the farm population increased from about 60 percent of the level of nonfarm population in the early 1950s to about 75 percent by 1970.

A high-technology sector. As noted earlier, a high-technology sector has several characteristics. It requires new knowledge, rapid changes in its capital structure, and high ratio of capital, both material and human, to labor.

What we today describe as modern agriculture is a recent development. The first of the new high-yielding varieties--hybrid corn--became available only during the mid-1930s. It was not planted on half of the corn area until 1942. The second important new high-yielding variety--grain sorghums--did not become available until the mid-1950s. Grain yields in the United States as of 1930 were very little greater than they were six decades earlier. The benefits of agricultural research until the 1930s were relatively small and were confined primarily to labor-saving inventions. Output-increasing innovations did not occur until there were significant breakthroughs in plant breeding. Once the yield potentials of several major economic crops were increased significantly, numerous other innovations and adjustments occurred that resulted in substantial yield and output increases.

Productivity change in American agriculture occurred quite slowly from 1910-14 to the early 1950s, whether measured in terms of output per unit of land, per hour of farm work or of output per unit of total inputs. Crop production per acre increased by 25 percent for the four decades, output per hour of farm work by 181 percent, and output per unit of input at an annual rate of 1.0 percent. Productivity change occurred much more rapidly over the next two decades, with increases in crop production per acre and output per hour of farm work between 1950-54 and 1970-74 being 56 percent and 248 percent, respectively. Output per unit of input increased at 1.9 percent annually (USDA 1982).

Modern agriculture is highly dependent upon the services of many other sectors of the economy. It depends upon major continuing research efforts, in both the public and private sectors. It depends upon competitive and innovative input sectors that continuously introduce new and improved products and supplies them on a timely and assured basis. It depends upon an efficient marketing and transport sector that minimizes costs of delivering inputs to farms and in delivering the output of farms to processors and consumers. American

agriculture is favored on all of these scores. This is not to say that similar circumstances do not exist in any other part of the world, but there are only a limited number of countries that provide as effective a setting for agriculture as is available for U.S. agriculture.

There has been a dramatic increase in the amount of invested capital per farm worker since 1950. In constant 1978 dollars, the value of production assets per farm worker has increased from \$40,000 in 1950 to \$150,000 in 1978. If one excludes all land and buildings, the increase has been from approximately \$9,000 in 1950 to \$28,000 in 1978. A large part of the increase in capital per worker occurred after 1960. Production assets per worker in 1978 dollars as of 1960 was \$55,000 and other than land and buildings, \$14,000.

In 1979, the 500 largest industrial corporations had \$49,500 of assets per employee; production assets per farm worker were about \$150,000 at the beginning of 1979 (U.S. Dept. of Commerce 1981; USDA 1981).

Important as material capital may be in a high-technology sector, human capital is at least as important. One form of human capital is utilized in the development of new knowledge, primarily in the public and private research institutions. But the material capital and the new knowledge must be combined with other resources by the farm operator or entrepreneur.

Modern agriculture is highly complex. Change is rapid; adjustment to new conditions is continuous. There is a continuing flow of new knowledge and new inputs. Agriculture is subject to wider price variations than most other sectors of the economy and, in addition, is subject to numerous natural conditions over which it has no control. Efficient allocations of resources is both complicated and difficult, requiring a high level of skill. By comparisons with other sectors of the economy, farm firms are relatively small. This means that the increasing productivity of agriculture depends upon the capacities of hundreds of thousands of entrepreneurs.

There has been a significant increase in the years of school completed by farmers and farm managers during the past two decades. For male farmers and farm managers 25 years old or more, the median years of schooling completed in 1960 was 8.7 years; in 1970, 10.6 years. For all males in the labor force, the increase was from 11.0 to 12.3 years. By 1970, the years of school had exceeded twelve years for three age groups--25-29, 30-34, and 35-44. In 1960, the median years of schooling for the 35-44 age group was 9.9. Available

data indicate a continued increase in years of school completed through 1975, especially for the 45-64 age group-- from 9.0 years in 1970 to 10.9 years in 1975 (U.S. Dept. of Commerce 1960, 1970).

The increase in educational attainment for farm operators represents two factors. The first is that the gap between years of school completed by urban and rural residence has been largely eliminated over the past three decades. The second is the influence of mobility. If one follows the age cohorts from 1960 to 1970, the data indicate that for farm operators older than 45 years in 1970 the number of school years completed is larger than for the same cohort a decade earlier. For the 45-54 age group in 1970, the increase in years of schooling was 0.9 years. Quite obviously, the farm operators who remained in agriculture had more years of schooling than those who left for other economic activities.

A World Food System

I strongly emphasize the creation of a world food system, an act of enormous importance to the poor people of the world, that has gone largely unrecognized and little praised. The world food system has not been the result of conscious acts directed to its creation. Instead, it has come into existence as a result of the enormous productivity of agriculture in North America and the significant growth of world trade in food products that occurred over the past two decades. During the 1960s, world exports of grain increased at an annual rate of 4.23 percent, increasing to the remarkably high rate of 7.2 percent for the 1970s (FAO 1981). The volume of world exports of all food products increased at 5.1 percent annually during the 1970s, approximately double the rate of population growth.

The volume of world grain trade is now so large that it can absorb quantity changes of enormous size with little or no change in real prices. World trade in grain is a significant component of the world food system. This system now has the capacity, due to improvements in communication and transportation as well as the large volume of trade in food products, to make food available to almost every person in the world if all governments would permit their citizens access to world food supplies. The primary barriers to access to food today are incomes and governmental policies. Famines are now primarily the consequence of civil strife and revolution and the poverty associated with lack of domestic tranquility and misgovernment. But even with the prevailing degree of man's inhumanity to man, the incidence of famine today is but a small fraction of what it was as late as the beginning of this century. The twentieth century

could rather easily see the elimination of famine in the world, something that could not have been even dreamed of as recently as five decades ago. Such an outcome could be one of the greatest accomplishments of any century in man's recorded history. What will make this achievement possible has been the largely unguided and unplanned creation of a world food system.

What could be done to make the world food system function more effectively? One criticism that may be made about the functioning of the food system is that a country must be both willing and able to import food (or reduce its exports) when there is a domestic food production shortfall. This criticism has been largely muted, at least so far as ability to import is concerned, by the creation of the International Monetary Fund's cereal import facility. This is not the place to go into any detail concerning the cereal import facility; relevant sources are given by Adams (1983). It is enough to note that when the added cost of increased cereal imports due to a production shortfall is not offset by above-normal export earnings, a low income country can borrow from the IMF to acquire the desired quantities of cereals, the major source of calories for most low-income people in the world. It is surprising how little attention has been given to this institutional innovation.

Another criticism, related to the previous one, is that international market prices of food and other agricultural products are highly unstable. During the 1970s, the international market prices for the major traded farm products were far less stable than during the 1960s when Canada and the United States held enormous stocks of grains and cotton (Johnson 1981). Thus it is not too surprising that suggestions are made with some frequency that the appropriate answer for international market price stability is to establish reserve stocks of substantial size. There is a substantial body of research, whose results have not been contradicted by other research, that reserves are a costly way of handling price instability. In fact, one could perhaps say that achieving more than a minimal reduction in price instability through a reserve policy is probably the most expensive method of reducing such instability.

Research undertaken at The University of Chicago several years ago showed how costly were reserves held by individual countries to provide a modest degree of price stability (Valdes 1981, Chapter 12). Under reasonable assumptions about the short-run elasticity of demand for cereals, optimal carry-over levels were calculated for several developing countries as well as for Europe, North America, the U.S.S.R. and for the world as a whole, assuming that there were free trade among regions and the world. Optimal

reserves were defined according to a storage rule in which the expected gain from adding an amount to reserves equals the expected cost of holding that amount of grain until it is withdrawn. The cost of storage consisted of a real rate of interest of five percent and a cost of physical storage of \$7.50 per year (1967 dollars). There is no single optimal reserve for a country; the size of the optimal reserve depends upon the size of stocks at the beginning of the year and the size of the harvest. Thus what we estimated were the reserve stocks that one would expect with varying probabilities, such as 50 percent, 75 percent or 95 percent.

For example, it was estimated that there was one chance out of twenty that India would have an optimal carry-over of 13.5 million tons in 1975, assuming that trade in grains was not varied from year to year. If each country acted alone, the sum of the optimal carry-over levels that would be expected to occur one year out of twenty for India, Indonesia, Pakistan, Bangladesh and Thailand was 28 million tons. For the entire world, if there were free trade in grains, the one in twenty optimal carry-over would be but 18 million tons. Buffer stocks are a poor substitute for the use of international trade to achieve food security.

Reutlinger and Bigman (Valdes 1981, 203-204), following a somewhat different methodology, arrive at a similar conclusion:

Major international initiatives have been undertaken in recent years to induce massive investments in stocks sufficiently large to buffer shortfalls in production. These initiatives have borne little success....In our view, the stabilization of world grain supplies and prices (by buffer stocks) is neither a realistic or cost-effective undertaking in terms of achieving food security....Foodgrain supply and price stabilization on a worldwide scale is an expensive undertaking relative to the social gains likely to be perceived....Thus, we would cautiously conclude that most developing countries could achieve a modest reduction in the instability of their domestic food prices by operating a small buffer stock and by permitting nearly free trade. Such policies would benefit nearly all segments of their population.

The modest buffer stock referred to was one equal to about 5.5 percent of average annual foodgrain supply.

Buffer stocks as a solution to problems of stabilizing domestic consumption in response to production variability is one of many ideas that sound good and reasonable but

turn out to be inordinately expensive and significantly inferior to other alternatives of meeting the same objective. It is clearly true that it has been cheaper to hold foreign exchange which could be used to import grain and other foods than it is to hold stocks; all that was required was the will to accumulate such reserves rather than to spend them. But now it is not even necessary to the squirrel who puts aside food for the winter. The IMF can now provide access to the credit required to increase imports in the face of a domestic production shortfall. Thus the world market for food--the world food system--is available to those countries who wish to use it.

The failure of the developing countries and their representatives to urge the adoption of free or liberal trade as the most appropriate solution to food security problems in the low income countries, particularly now that the IMF cereal import facility exists, is no less surprising than the failure of the United States to adopt a universal liberal trade policy for agricultural products. Our failure to liberalize trade in a small number of farm products has had an adverse effect upon our ability to negotiate reductions in barriers to our farm exports. But the issues go well beyond this. Through the use of price supports at unrealistically high levels, we have adversely affected the volume of our agricultural exports. And through target payments, subsidies to storage of grain in the farmer-held reserves, and the high farm price supports, we have encouraged farmers to produce too much.

The rest of my remarks will be devoted to a discussion of recent farm policies and programs that have had such disastrous results for taxpayers and farmers, reasons why the disequilibrium has worsened rather than improved, and the interrelationships between trade liberalization and agricultural adjustment.

Farm Policy Innovations During the 1960s

The major features of the compromise farm policies that evolved after 1955 were included in the Food and Agricultural Act of 1965. This legislation has been modified in a number of ways by three succeeding farm acts, but most of the basic ideas remain unchanged. These basic concepts are price supports at levels that permit the market to allocate supplies among the various markets, income support to be achieved through direct payments, and voluntary methods of achieving supply management when deemed necessary. The farm legislation of 1970, 1973 and 1977 differed in detail from the 1965 legislation and from each other, but the basic concepts remained unchallenged (Cochrane and Ryan 1976, Chap. 6).

But in 1976, there started what appeared to be a subtle and seemingly small change in the real levels of price supports and target prices for the grains, cotton and soybeans compared to the levels of the early 1970s and not-so-small or subtle increases in the support prices for milk. Inflation had eroded the real value of the price support and target prices between 1972 and 1975. For example, in terms of 1967 dollars, the loan rate on corn fell from \$.87 per bushel in 1972 to \$.60 in 1975--the real value of the wheat loan rates fell from \$1.03 to \$.75. But in 1976, the wheat loan rate was returned to the same real level as in 1970, even though in 1970 that loan level was associated with large U.S. stocks of wheat and the need for a drastic reduction in wheat acreage in that year.

We should not be too surprised that a sharp reversal in the trend of real support and target prices occurred in 1976. Unfortunately, 1976 was a number divisible by four which means it was a year when national elections were held. As has happened before and will almost certainly happen again, politicians are all too often inclined to take short-run actions just prior to elections without much thought of long-run implications of those actions.

The warning signals, evident in 1976 and 1977, that U.S. agriculture might well be returning to a situation in which it had significant excess resources were largely ignored by policy makers and, I regret to admit, by most agricultural economists. Stocks of wheat and feed grains increased sharply between 1975 and 1978 and remained at high levels until reduced somewhat by a drought affecting the corn crop in 1980. Whatever euphoria may have been generated by the reduction of grain stocks during 1980-81 was soon shattered by stock increases in 1981-82 that carried wheat and feed grain stocks well beyond the absolute levels of any time in nearly two decades.

The 1981 Agriculture and Food Act

The 1981 Agriculture and Food Act can be described as a careless piece of legislation. It was careless for a number of reasons, but perhaps the most important source of the carelessness was that too many of the actors accepted a false picture of the future patterns of relative growth of supply and demand for agricultural products. A recent article about the 1981 act put the matter this way (Ray et al. 1982, p. 957):

Observing the explosion of agricultural exports and implosion of productivity in the 1970s, sages from government, industry, and academia predicted an

upward trend in real agricultural prices and incomes during the 1980s. Concurrently, farmers and politicians decried the Agriculture and Food Act of 1981 as being wholly inadequate and suggested it be renamed the "Farm Bankruptcy Act of 1981".

The faith that the 1980s was to see a more rapid growth of demand than supply for agricultural products was not universally held, though if one obtained his information solely from national TV, the national press and news magazines or from most politicians, you might have believed that the prospects of rising farm and food prices were quite certain. But the faith was based upon selective reading of the evidence and of the so-called experts.

In the fall of 1980, a conference was held by the American Enterprise Institute in Washington with the title "Food and Agricultural Policy for the 1980s" and the papers were published in a book of that title (Johnson 1981). Of the participants in that conference, several argued that the future growth of supply was likely to exceed the future growth of demand for farm products and that if there was to be a trend in real farm product prices, it would be a downward trend. This material was apparently entirely ignored by the members of the administration, by Congress and the staffs of the relevant committees. I must admit that I was shocked to have been recently informed by a key member of the staff of one of the most important committees of the U.S. Congress that a major reason for current agricultural problems was that price supports and target prices were set too high in the 1981 act because there was general acceptance of the view that agricultural prices were to increase during the 1980s. And this individual had attended the AEI conference. Apparently the three dissenters from the pessimistic outlook for farm prices were more persuasive than the rest of us were.

It is now all too clear that once again U.S. agriculture has excess resources--resources that are easily capable of producing a larger output than can be sold on the domestic and foreign markets at prices that are either politically acceptable or will provide a return to farm resources comparable to what those resources can obtain elsewhere in the economy. The short run response to this situation was payment-in-kind (PIK) and other programs designed to reduce the acreage devoted to major crops in 1983. The programs are proving to be enormously expensive, far beyond anything ever spent on supply management and price stabilization. It is more than a little ironic that an administration that campaigned for reducing the role of government in the economy has become the architect of a farm program that involves net governmental costs greater than the anticipated 1980 level of net farm operator income. Irony is not the only

thing involved. It raises the question of how we were able to manage such an enormous distortion in the use of the nation's financial and agricultural resources.

As one looks ahead, there are only two ways out of the present unsustainable situation. I say the present situation is unsustainable because I cannot believe that after 1984, regardless of who occupies the White House, the current farm programs can be continued. If these programs are continued, the costs may well be less than the estimated \$21 billion for FY1983, but only by a few billions and by not enough less to protect the programs from the inevitable (I hope) effort to bring the federal budget into balance.

The two ways out of the present situation are a major liberalization of trade in agricultural products by the industrial economies and the withdrawal of the excess resources from American agriculture. Of course, they are not in conflict, and I hope to make a convincing case that they are the only real alternatives. Significant trade liberalization in the world would reduce the magnitude of withdrawal of resources from agriculture in the United States required to achieve an appropriate level of returns for farm resources. But, of course, such trade liberalization would require major resources adjustments in other countries. Each of the alternatives requires that the prospective 1985 farm legislation be consistent with what is needed both to liberalize trade and to provide farm people with appropriate signals concerning their economic prospects in agriculture.

Even with the recent declines in the value and volume of agricultural exports, U.S. agriculture's prosperity remains dependent upon exports. Unless there is growth of agricultural exports, U.S. agriculture must shrink and must do so to a considerable degree. The recent decline in agricultural exports is generally attributed to the overvaluation of the U.S. dollar. The high value of the dollar relative to the currencies of other importing and exporting nations is important, but it is not the whole story. The whole story includes the incentives that have been provided for farmers to hold stocks of major farm export commodities and thus to hold farm prices at or above the price support levels. The United States has once again legislated and administered itself into being the residual supplier of grains and cotton in the world markets.

It is not solely that loan or price support levels have been established too high. The farmer-owned reserve has been mismanaged and distorted through high storage payments, forgiveness of interest, and the pattern of prices associated with the reserve. The loans for grain placed in the farmer-owned reserve were set higher than the loan or

price support levels. While not required by legislation, the administration set the reserve loan level for wheat for 1982 at \$4.00 per bushel instead of a figure closer to the 1982 loan level of \$3.55. The relatively high reserve release and call levels in effect from 1980 through 1982 had an effect upon the levels of stocks and thus upon market prices. The result of these various legislated and administrative actions was to inhibit the role of the market in responding to changes in the international market for our farm products. It is true that some major part of the change in the international market situation resulted from the change in the value of the dollar, but domestic price rigidity only added to the loss of exports.

Supply Management Is Not a Viable Alternative

Even if there were no budgetary problems with supply management as the approach to improving farm incomes, supply management is not a long-run solution to the difficulties posed by the existence of excess resources in U.S. agriculture. In 1980, I wrote a paper with the title "Agricultural Policy Alternatives for the 1980s"--I have already cribbed extensively from that paper in giving some of the history of agricultural programs (Johnson 1981). What I said then about the effectiveness of supply management holds today and for the indefinite future. After noting that the 1977 agricultural legislation did not provide for a "significant capacity for supply management, at least in terms of governmental costs that are politically acceptable," I went on to say,

I am not about to recommend that more effective supply management tools be devised and included in the new legislation. Even if it were possible to achieve more effective supply management, I would not favor it. In the present economic circumstances of U.S. farmers--their level of wealth and total family incomes--there is no rational basis for using output limitations as a means of increasing farm incomes. Even if effective supply management were possible, it would be quite ineffective in achieving a long run increase in the prices received by farmers. Our agriculture's dependence upon exports is now so large for the major crops that our ability to increase market prices through output limitation is very small, indeed. The economic viability of American agriculture depends upon further growth in our exports and not in restricting our exports by supply management that would result in quite small increases in prices but quite substantial reductions in the level of exports if such policies were pursued over an extended period of time (Johnson 1977).

Agricultural Adjustment

As noted earlier, U.S. agriculture underwent a lengthy period of adjustment that reduced the resources devoted to agriculture, especially labor, and that made possible a significant increase in the returns to labor engaged in agriculture. The adjustment which started in the mid-1950s was essentially completed by 1972. In that year, the per capita disposable income of farm families was in excess of 80 percent of the same figure for the nonfarm population. This was an increase from less than 50 percent at the beginning of the period. As the ratio of farm to nonfarm per capita disposable income increased above the mid-80 percent figure, the long-term reduction in employment in U.S. agriculture was halted. It was not until 1980 that farm employment and the farm population returned to the long-term pattern of slow but persistent decline.

There can be no doubt that during the 1970s some resources, such as machinery and equipment, were attracted into agriculture and other resources, especially land and labor, were held in agriculture. While there were many who argued that the growth of agricultural productivity was slowing down during the 1970s, it now seems clear that this conclusion resulted from a failure to recognize the relatively adverse weather that prevailed during the middle part of the decade. As an aside, one of the reasons for expecting farm prices to increase during the 1980s was the mistaken view that farm productivity had slackened and would continue to do so, thus slowing output growth. Acceptance of this view by so many of those involved in the 1981 farm act was one of the reasons why that legislation can be described as a careless piece of legislation.

Today, American agriculture is faced with a difficult adjustment process. Farm employment must once more decline at an annual rate of three to five percent. But other resources will also have to be withdrawn from agriculture or, in the case of some farm land, used far more extensively than growing wheat or cultivated crops. The current capital investment in agriculture may well be larger than the potential net income of agriculture can provide with a satisfactory return.

Because U.S. agriculture is so dependent upon exports as a source of demand, the modest output decline that would result from the reduction of resources devoted to U.S. agriculture would have no significant effect upon the level of farm prices. The price elasticity of demand for U.S. farm output is now very high, so high that an output reduction

of even ten percent accomplished over a period of years would increase real farm prices by less than five percent. Thus higher returns to farm labor must be achieved by increasing the productivity of that labor. Productivity of labor will increase as less labor is used per unit of output through a general increase in productivity and by combining more of other inputs with each unit of labor. This was how the large increase in the real returns to farm labor was achieved from the mid-1950s until the end of the 1970s. In fact, over that period, except for the very brief interlude in the mid-1970s, the prices of farm output fell relative to prices generally in the economy and compared to the prices farmers paid for their inputs. In fact, from 1955 to 1979 the price parity ratio declined by more than fifteen percent; yet in 1979 the per capita disposable income of the farm population equaled that of the nonfarm population.

Trade Liberalization

If the demand for the output of American farms is to increase in the years ahead almost all of that increase must come through exports. There is little prospect that domestic demand will increase at a rate much greater than our current slow population growth rate. The domestic demand for food is no longer significantly responsive to rising per capita incomes. A recent estimate indicates that the quantity of all meats consumed is no longer responsive to income growth. With higher incomes, average expenditure per pound of meat does increase but only by about a tenth as much as the increase in income (USDA 1983).

If the American farmer is to share in rising per capita incomes of our economy, we must seek to achieve liberal trade in the world. U.S. agriculture either is, or is capable of being, a low-cost producer of each of the major grains, soybeans, cotton, tobacco and certain fruits and vegetables. At the present time import barriers limit the demand for the grains and some of the fruits and vegetables. Our farm exports could be much higher than they are. But it makes a great deal of difference how the increase in exports is realized. The inappropriate way is to gain exports through some form of subsidy. One type of subsidy goes under the guise of food aid; concurrently our volume of food aid is rather modest and is probably appropriate for the purposes intended. But substantial growth in the amount of food aid can only mean that we are exporting our agricultural adjustment problems and imposing costs upon farm people in other countries who are much poorer than our farmers.

We are now making occasional but very costly use of export subsidies. One highly publicized case was the export of a million tons of flour to Egypt, taking a sale away from

the European Community. More recently, there has been a subsidized sale of dairy products to Egypt. While occasional use of export subsidies as a political gesture may be appropriate, though evidence of effectiveness is yet to be seen, as a general measure farmers should be wary of relying upon such a politically sensitive device for their prosperity.

Shuh (1983) raises an even more important defect of the use of export subsidies and subsidized credit as a means of increasing our exports. He argues: "Moreover, serious questions can be raised about their cost effectiveness in a regime of flexible exchange rates. Subsidizing exports will only make the dollar stronger, which will make us still less competitive. An important aspect of the flexible exchange rate system is that it is difficult to dump your domestic problems abroad. Many of our current export promotion strategies do not reflect recognition of that fact."

What is required to achieve trade liberalization? As I have argued for more years than I wish to remember, achieving trade liberalization is a two-way street. One side of that street is our side and we have several impediments to easy travel on our side. Perhaps we do not have as many impediments as others, such as the European Community or Japan. But given the enormous importance to us of reducing barriers to trade in farm products, it is almost incomprehensible that we have done so little to remove the barriers that we have against the importation of dairy products, sugar, peanuts, and long staple cotton, or that we still have among our federal laws legislation permitting import quotas on beef and lamb.

In the case of dairy products our current farm program is more protective than the program we had a decade or more ago. We have reduced sugar imports to about a third of our total use; a decade ago imports accounted for about half of our use. We still import no significant amounts of peanuts even though we are a relatively high-cost producer.

It is not obvious to me how we expect the European Community to take seriously our efforts to get them to reduce their support prices for grains when our price supports for dairy products are higher than theirs and we make no effort to control our dairy production. Under rules of the General Agreement on Tariffs and Trade (GATT), unless you have bullied through a waiver, you are not supposed to have import quotas unless you are taking steps to limit output or expand domestic demand.

Nor has the present administration or the two previous administrations done anything to assist the producers of sugar, peanuts, dairy products or long staple cotton to

adjust nor has anything been done to eliminate the need for the continuation of the meat import quotas.

Trade Liberalization and Agricultural Adjustment Policies

Fundamentally, what is required on the part of the United States to liberalize its trade in farm products and to aid the process of eliminating excess resources from agriculture are nearly the same. The price interventions that have a significant effect upon market prices and require controls over imports to minimize governmental costs are one reason we now have excess resources engaged in agriculture. Furthermore, the numerous subsidies that encourage output expansion, such as the deficiency payments associated with target prices, the relatively high loan rates and the extraordinary subsidies for storage of grain placed in the farmer-held reserves, and the heavily-subsidized crop insurance programs are responsible to some degree for holding resources in agriculture.

These same measures make it difficult for us to negotiate with the European Community and Japan for reductions in their barriers to imports of agricultural products. There may be a difference of degree in the amount of protection afforded to agriculture in the European Community and Japan, on the one hand, and the U.S., on the other hand, but there is no difference in kind. Until we create a difference in kind by practicing what we preach with respect to a liberal trade policy for agriculture, we stand little chance of achieving significant changes in the trade and agricultural policies of Western Europe and East Asia.

The most effective assistance for the agricultural adjustment process is an appropriate set of macroeconomic policies that includes measures to expand employment, maintain low inflation rates, balance the federal budget, and achieve real rates of interest near to their long-run levels. Except where trade liberalization by the United States for the limited number of farm products imposes severe special adjustment problems, as would certainly be true for manufactured dairy products, sugar and peanut producers, special adjustment programs to aid in the removal of the excess resources from agriculture would not be required.

International Context of U.S. Agriculture

The contribution that U.S. agriculture is making and will continue to make for the welfare of the world's people is to produce and make available large quantities of food and other farm products at relatively low and declining real prices. In addition, the U.S. economy should provide a large and growing market for those farm products that are

lower cost to acquire by trade rather than domestic production. Hopefully, by example we can help turn the world from increasing protection of agriculture to a more liberal trade regime.

Unfortunately U.S. agriculture does not speak with one voice. In spite of the enormous importance of a large export volume to the prosperity of U.S. agriculture, we continue to protect a limited number of sectors and engage in trade practices that we condemn in others.

The Limitations of Domestic Agricultural Policy

To a greater extent than at any time in recent history our agriculture is influenced by events beyond the purview of farm policy. This is true both from a domestic and international standpoint. Agricultural programs had almost nothing to do with the very substantial improvement in the relative and absolute incomes of farm people between the 1950s and the 1970s.

In a speech that Dale Hathaway, then Under Secretary of Agriculture in the United States, gave in June 1980, he traced the development of farm income during the 1950s, 1960s and 1970s. He went further and ascribed the substantial improvement, not at all to governmental policies, but to labor market adjustment:

In the last half of the 1950s, the per capita income of farm people was only one-half the per capita income by people living off the farm.

In the early 1960s, we could see the beginning of adjustment. By the end of the decade, the per capital income on farms averaged about \$2,000 compared with around \$3,000 for nonfarm people. For the five years 1965 through 1969, people living on farms averaged 71 percent of the per capita income of people living off the farm.

In more recent years, this percentage has risen to 85 or more--although this of course varies from year to year.

So--the labor market did adjust. But the adjustments were difficult for many. Despite government efforts to deal with these difficulties, it appears in retrospect that no government policy or program was significant in aiding the adjustment or softening the pain of adjustment for farm people.

Much of the adjustment involves a reduction in the number of farms and rural-to-urban migration in search of nonfarm employment.

What Hathaway did not mention was that the labor market adjusted not only through migration but by a sharp increase in the importance of off-farm income for farm people. At the end of the 1950s the off-farm income of U.S. farm people was about three-fifths of their farm income; during 1975-1979, the off-farm income exceeded their farm income. In 1982, a year of low income from agriculture, off-farm income was more than 1.6 times the farm income and, in spite of a decline in net farm income of nearly a fourth the per capita income of the farm population, fell by less than eight percent from the 1981 level. The available evidence indicates that the importance of off-farm incomes to farm families in the European Community has lagged significantly behind developments in Japan, Canada and the United States.

Hathaway's statement is consistent with a position that I have long held (Johnson 1973, Chap. 9), namely that governmental interventions that increase the level of farm prices have no long-run effects upon the returns to resources engaged in agriculture and make no significant contribution to increasing the incomes of the poorest segments of the farm population. In fact, the short-run gains from market price interventions--and there are gains in the short run--go primarily to farm families that have income substantially above the national average of family incomes.

The European Community has held farm prices significantly above the level that would have prevailed in the absence of market intervention for more than fifteen years. Yet the European Commission has reported numerous times that the policy of high prices has not been effective in reducing regional income disparities within the Community. One of the most forthright statements comes from page 52 of the 1980 report on the agricultural situation:

During the period from 1964-65 to 1976-77, regional disparities in agricultural incomes (as measured by gross value-added per agricultural worker) increased in the Community. The ratio between the regions with the highest agricultural incomes and those with the lowest rose from 5:1 to about 6:1.

Generally speaking, the regions with an above-average level of agricultural income are to be found in a favourable general economic context; the converse is true of regions with a low level of agricultural incomes (Commission of the European Community 1981, p. 52).

In the United States there has been a substantial narrowing of the differentials in family incomes by farm households classified by value of sales over the past quarter-

century. For example, in 1960 the farm families on the two-fifths of the farms in the lowest sales group had incomes from all sources equal to 27 percent of the income of 7.5 percent of the farms in the largest classes. By 1980 the incomes of the families on the smallest farms, again from all sources, was 47 percent of the income of the families on the largest farms.

Comparisons of the incomes of the families on the small farms with the national mean money income of all families also show a remarkable change between 1960 and 1980. In 1960 the farm families on the small farms had average incomes that were 57 percent of the national mean for all families; by 1970 the percentage had increased to 75 percent and by 1980 to 92 percent.²

A significant part of the recent economic difficulties of agriculture is the result of our national macroeconomic policies. Prior to 1982 and especially after 1973, farm export growth was enhanced because the dollar was undervalued in the foreign exchange markets. But during the past two years there has been a sharp turn-around in the value of the dollar and farm exports have declined in both value and volume as a result. This is not the place to ask why the dollar has become so strong, but it is perhaps the place to note that at least part of the adverse effects of the strong dollar on the value and volume of agricultural exports would have been contained if our price supports had not been set and kept at inappropriate levels. It is easy to blame the strong dollar for the decline in exports, but the price support levels bear a reasonable share of the blame. There is little that agricultural policy, per se, can do to mitigate the trade impacts of the strong dollar except by not making matters worse by causing the United States to be an expensive residual supplier in the world market.

The economic health of U.S. agriculture rests primarily upon how well factor markets function with special attention to the labor market. If there is full employment over an extended period of time, the experience of the past two decades indicates that even if the dollar remains at its current high value, agriculture will be able to adjust to that value with little or no long-run effect upon the returns to labor and capital engaged in agriculture. True, employment of capital and labor in agriculture will shrink more and land values will be lower than would be the case if the real foreign exchange value of the dollar fell by a fifth. But there is little or nothing that traditional agricultural measures such as price supports, target prices or supply management can do to mitigate the effects of the value of the dollar upon the size of our agricultural enterprise.

Concluding Comments

U.S. agriculture faces a difficult period in years ahead. It will be near the end of this decade before the resource adjustments will be completed and the relative economic health of agriculture will return to approximately what it was in the early 1970s. The only sensible role for the federal government is to assist the required adjustment process. That process is not assisted by subsidized credit, high price supports or income subsidies (deficiency payments) tied to output.

In addition to moving toward appropriate macroeconomic policies, the government must never, ever, mislead farmers concerning the need for continuing resource adjustment. We must not have a repetition of the misleading signals that came from Washington during the latter half of the 1970s and as late as 1981. The Global 2000 Report to the President was a terribly irresponsible document, unworthy of the enormous hype and attention that it received (Barney 1982). To argue that real food prices might increase at least 30 percent and perhaps more than 100 percent between 1970 and the year 2000³ is almost beyond credibility, showing a lack of historical perspective as well as a lack of understanding of and respect for the intelligence and abilities of the hundreds of millions of farmers throughout the world.

The farm legislation that comes forth in 1985 must be based upon a realistic evaluation of the prospective levels of real farm product prices and the amounts of resources that can be employed in agriculture with returns equal to what similar resources earn in the rest of the economy. The legislation must provide for price support levels that are low enough to permit the market to freely allocate the available supplies between domestic and international markets. Congress should recognize that its effort to establish the absolute levels of price supports for several years in advance resulted in a disaster. Substantial discretion must be given to the secretary of agriculture to adjust price supports to levels appropriate to the underlying supply and demand conditions. Equally important, the new act should either abolish target prices or permit them to be established at reasonable levels that will provide only minimal incentives for increasing production.

Have we learned anything from our recent agricultural policy disasters? Only time will tell.

NOTES

1. This paper draws heavily upon the work that I have done in recent years on the world food situation and U.S. farm and trade policy. In particular, three unpublished papers have been extensively utilized in the preparation: "International Capital Markets, Exchange Rates and Agricultural Trade," "Trade Liberalization and Resource Adjustments in American Agriculture," and "The Dilemma of Free Versus Regulated Markets." All are from the Office of Agricultural Economics Research, The University of Chicago. The paper numbers and dates are, respectively, 82:17, August 25, 1982; 83:19, August 24, 1980e and 83:29, October 31, 1983.
2. The national mean income is for money income while the farm family income includes nonmoney income, principally the rental value of farm housing. However, the sharp increase in the relative income of families on the smallest farms would be evident even if the income series were directly comparable.
3. If one remembers that 1984 is almost halfway between 1970 and 2000 and that between 1970 and today the real prices of food products in international trade have declined by more than 10 percent since 1970, the following sentence is quite astounding: "After decades of generally falling prices, the real price of food is projected to increase 95 percent over the 1970-2000 period, in significant part as a result of increased petroleum dependence. If energy prices in fact rise more rapidly than the projections anticipate, then the effect on food prices could be still more marked" (Barney 1982, p. 15-16). This sentence comes from the rather sensational summary of the report that was sent to the President. The statement that international market real food prices were projected to increase by from 30 percent to more than 100 percent comes from the main report (p. 96). How much were governmental decisions affected by these results? If the views that resulted in the Agricultural Act of 1981 were formulated on the basis of Global 2000, the report must have been one of the most expensive in the history of mankind.

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