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COMPETITIVENESS AND COMPARATIVE ADVANTAGE OF U.S. AGRICULTURE

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The U.S. farm sector is highly dependent on sales to foreign markets to fully utilize its productive capacity. In the early 1970s, the U.S. farm sector had 293 million acres in production, with substantial acres idled. That year 71 million acres, or 24 percent, were used for the production of exports. Foreign economic activity and the foreign demand for U.S. food and feedstuffs then began its phenomenal growth. By 1980, 352 million acres were in production, an increase of nearly 60 million acres, but an additional 65 million acres were needed to meet foreign (export) demand. In other words, the expanding export market was responsible for most of the additional resources that were drawn into U.S. agriculture in the 1970s, and, in fact, bid some resources away from production for domestic use. The United States exhibited a strong comparative advantage in agriculture and our farm sector had become "internationalized."

U.S. agriculture is going through a period of major adjustment—foreign import demand is down, land prices are falling, farm income has declined and farmers are continuing to leave the sector. From the peak of 1981, the volume of U.S. agricultural exports has declined more than one third and the value by nearly 40 percent. Agricultural exports in 1986 will be similar to the volume and values of the early to mid 1970s. Another trade landmark was reached in May when the United States ran an agricultural trade deficit for the first time in fifteen years. While first perceived as a one-month aberration, U.S. agricultural trade has continued to run deficit for three consecutive months.

The declines in export volume, value and market share and the agricultural trade deficit for the third quarter (fiscal 1986) have prompted many to argue that U.S. agriculture is no longer competitive in world markets—that the United States has lost its comparative advantage.

The intention of this paper is to provide some notion as to the similarities and distinctions between comparative advantage and

competitiveness; a discussion of measurements of the two concepts; an assessment of the factors most important in determining competitive and comparative advantage; and finally, a practical lesson we as public policy economists might heed.

Competitiveness and Comparative Advantage—A Definition

Before we can answer the questions concerning the status of our competitive position or our comparative advantage, it is first necessary to understand the distinction and similarities of comparative advantage and competitiveness. The distinctions between competitiveness and comparative advantage may seem trivial on the surface but the two concepts are fundamentally different. A country can experience a loss in competitiveness while maintaining its comparative advantage. Further, a country can be competitive without having a comparative advantage. However, despite fundamental conceptual differences, competitiveness and comparative advantage are inextricably linked in the real world conduct of international trade.

The principle of *comparative advantage* is at the heart of trade theory. It is an economic theory soundly based on the concepts of opportunity costs and relative efficiencies with respect to resource use. The concept of comparative advantage, as put forward by Ricardo, deals with whether an economic unit (person, region or nation) has an advantage in producing a particular good compared to the other goods that can be produced and compared to the trading opportunities that may be available. To illustrate this notion of comparative or relative efficiencies I borrowed an example from Paarlberg, et al. Consider the simple case of job specialization for two people performing two tasks—gardening and surgery. Assume that the first person is a doctor and an award winning gardener. The second person is a mediocre gardener and has no medical training. In this example, the first person has an absolute advantage in both tasks since that person is a better doctor and a better gardener.

It may be useful here to also emphasize that Ricardo's major contribution to trade theory was that comparative advantage and not *absolute advantage* was the basis for trade. Absolute advantage is simply the concept of being the low cost producer. Debate on U.S. competitiveness and comparative advantage in world markets is often phrased in terms of whether the United States has lost its position as low cost producer. While absolute advantage can be an important component of trade pattern determination, being the low-cost producer, by itself, is not the necessary nor sufficient condition for determination of the pattern of trade. I'll come back to the cost of production issue later in the paper.

The contribution of the theory of comparative advantage is that it shows that there is a benefit for each person to specialize in one task and then trade their services, despite the fact that the first person is

better at both tasks. Because of the medical training, the first person is relatively more efficient at being a doctor than a gardener. The opportunity cost (social welfare foregone) of the first person utilizing his or her time as a gardener rather than a doctor would be quite high. Consequently, the first person specializes in being a doctor. The second person, despite a deficiency (absolute disadvantage) in both tasks, is relatively more efficient at gardening and specializes in that task. Since the doctor needs a gardener and the gardener needs a doctor they trade services to the benefit of both individuals. Such examples of comparative advantage and job specialization abound and are the basis for much of the economic activity of modern society. People tend to specialize in jobs in which they have a relative or comparative advantage and hire the services of other people.

This example can be expanded to regions within a country such that, given a set of factor (resource) endowments, a region may prove to have a comparative advantage (lower opportunity costs or higher comparative factor productivity) in the production of a certain good relative to other goods. The region then specializes in producing those goods in which it has a comparative advantage and trading with other regions for goods in which it has a comparative disadvantage.

Extending this notion to the national level, comparative advantage is a statement about international specialization and the trade patterns which would arise in an undistorted world based on differences in relative efficiencies (opportunity costs) between countries in the absence of trade. Two points are relevant here. First, the concept of comparative advantage refers to the comparative cost situation before any trade has occurred. Having determined relative or comparative resource costs to produce a mix of goods, a country, when open to trade, will produce and export those goods which it produces relatively efficiently and import those goods in which it has a comparative disadvantage. Secondly, and perhaps most importantly, comparative advantage must always be defined using prices that are not distorted by government policies and thus reflect "true" social opportunity costs. Comparative advantage, then, is a statement about what trade patterns "ought to be" in an undistorted world. Unfortunately, the world is not free of distortions. Governments' policies—both domestic and trade—tend to alter relative prices. Markets do not always operate efficiently and there are rigidities that inhibit adjustments to world market conditions.

The concept of *competitiveness* is still evolving and there is little professional consensus on a precise definition. Competitiveness is difficult to define because it is a less theoretically pure concept than comparative advantage.

Webster defines competition as, "the effort of two or more parties acting independently to secure the business of a third party by offer-

ing the most favorable terms.” Competitiveness, in this sense, is a statement about differences in market prices. While relative prices among competitors determine the level of exports and market share, it is what makes goods cheaper in one country versus another that is at the crux of the competitiveness issue.

The types of products produced and the patterns of exchange on world markets are determined by the joint effects of policies (market distortions) and economic efficiency—economic efficiency being strongly related to the endowment of factors such as land, labor and capital, the basis for comparative advantage.

In the short-term, relative prices and competitiveness are influenced by policies, exchange rates, and stochastic events such as weather and production levels. Factors which determine comparative advantage or economic efficiency—technology, infrastructure, and basic resource endowments—are relatively fixed.

Short-run movements in a country’s competitiveness is highly dependent on the dynamic factors related to policy changes. In a sense, competitiveness is a policy strategy chosen by a country to achieve a particular goal. Policies become the crucial determinant of the “terms offered” to a third party in competing for markets in the short term. For example, an export subsidy can turn a country, which according to comparative advantage should be an importer, into an exporter. On the other hand, domestic policies can affect the domestic/world price relationship thereby reducing exports of relatively efficient countries. Thus, concepts of comparative advantage and competitiveness differ because of the distortions in markets brought about by government policies. While comparative advantage is a statement about what trade patterns “ought to be,” competitiveness is a statement about what trade patterns “are.”

A different set of effects come into play over the longer run. Domestic policies (distortions) can lead to shifts in input/output price relationships. Also, production and marketing techniques can be altered by investment in the sector, such as land-clearing and irrigation. Relative economic efficiencies and the comparative advantage of the country can be altered. Competitiveness becomes a function of trade policies plus the development strategies (policies) that influence the dynamics of comparative advantage.

Over the longer term, the distortions introduced by a particular nation influence the rate of technological adoption, investment and rates of growth in productivity and productive capacity. A statement by Krueger is particularly relevant here: “Trade policy affects the course of economic development far more profoundly than our naive interpretation of the theory of comparative advantage would suggest.” Thus, while the theoretical concepts of competitiveness and comparative advantage are not linked because of distortions, it is in

understanding how and why countries implement distorting policies as well as the ability to measure their dynamic effects on production and trade, that links competitiveness and comparative advantage in the dynamic “real world” of international trade.

In summary, *comparative advantage* is an economically pure concept that must assume the world is free of distortions. That economically pure concept relates factor endowments and factor prices to the output mix and trade patterns of a particular country on a basis of opportunity costs and relative efficiencies. *Competitiveness*, however, is the “real world” or the relaxation of the assumption that “the world is free of distortion” which is associated with comparative advantage. Competitiveness is, in a sense, a strategy initiated by a nation to achieve some particular goal—a strategy or distortion employed to offset some natural or pure comparative disadvantage. Over time the use of certain domestic policies or strategies may serve to alter factor endowments and factor prices and, therefore, the comparative advantage of a particular country. Thus, the longer run dynamic aspects of comparative advantage and competitiveness are highly similar.

Measuring Competitiveness and Comparative Advantage

Comparative Advantage

The recent declines in export value, volume and market share are sometimes cited as evidence of a loss of U.S. agriculture’s comparative advantage. While those measures may serve as indicators of competitiveness—trade patterns “as they are”—they provide little insight into comparative advantage.

A theoretically pure definition of comparative advantage is readily provided in any economic text. But, perhaps because it is so theoretically pure, comparative advantage is difficult to measure in a real world context.

Relative Cost of Production. One reason given for the loss in U.S. agricultural comparative advantage is that costs of production for agricultural commodities in the United States are higher than costs overseas. Chenery indicates that a country has a comparative advantage in exporting a commodity if the value of all factors used—in their best alternative employment—in producing the commodity is less than the commodity’s export price. The Domestic Resource Cost (DRC) approach allows measures of comparative advantage (relative economic efficiency) among economic activities within a country and between different countries. International domestic resource cost-of-production data comparisons are especially difficult, however. For many countries, data are generally unavailable, and what data do

exist are frequently too weak to be used for an analysis of comparative advantage since social costs must somehow be derived from accounting costs. Even when the data are available and reliable, tremendous problems remain before meaningful analysis can be obtained (Pearson and Meyer).

Because of the difficulty with the DRC approach, analysts quickly fall back to direct comparisons of accounting costs. Using cost-of-production data to analyze the comparative advantage of a particular commodity across countries has several problems. First, the methods of calculating cost data must be comparable. That is, if real interest rates and salvage values are used in one country, any comparison to other countries should use the same method.

Secondly, comparisons of cost data for an agricultural commodity only show absolute advantage, not comparative advantage. Consideration of the alternative uses for the resources in each country is required for comparative advantage. Third, there is considerable difference between the factors that determine national production and comparative advantage and those that determine output of an individual farm. The former include technology and infrastructure associated with research, education and transportation. In this respect a comparison of cost of production and marketing is probably more relevant. Efficiency of marketing infrastructure is an important component of comparative efficiencies defined at the port of export. Fourth, and perhaps most important, it is a mistake to talk about a single cost of production for a commodity. Data on costs show the average cost to get a unit of output, not marginal costs. We know how the average ton was produced but we do not know the cost components of the marginal ton. It is the marginal ton that adjusts to changing prices. Fifth, exchange-rate changes affect the international cost comparisons. A falling dollar improves the U.S. position while a rising dollar lowers it, even though actual costs and relative efficiencies in each country are little changed.

Given all the caveats with regard to use of cost of production data as a gauge of comparative advantage/absolute advantage, a comparison for wheat and corn is provided in Table 1 for the 1980–82 period. For wheat, the United States, on average, ranks as a high-cost producer. However, a major wheat producing area such as the North Plains would be able to compete with the low-cost producers—Canada and France. Most revealing about the wheat cost-of-production data is that French producers would appear to be capable of competing in world wheat markets—even at world prices. For corn, Argentina proves a very steady and consistent low-cost producer. France, unlike the case for wheat, is a relatively high-cost producer.

Relative Efficiency. One way for a nation to lose agricultural comparative advantage is to become less efficient, raising the “true” relative social cost of producing agricultural goods (Pearson and Meyer).

Table 1. Average Variable Costs, Selected Countries/Commodities

Commodity/Country	1980	1981	1982	Average
dollars/bushel				
Wheat:				
U.S. Average	1.52	1.61	1.63	1.59
North Plains	1.06	1.54	1.22	1.27
Canada (Saskatchewan)	1.29	1.31	1.24	1.28
Australia	1.47	2.45	2.25	2.06
France (Seine-et-Marne)	1.23	1.29	1.07	1.20
United Kingdom	1.65	NA	1.53	1.59
Corn:				
U.S. Average	1.29	1.20	1.16	1.22
Corn Belt/Lake	1.18	1.12	1.09	1.13
Argentina (Pegamino)	0.63	0.96	1.01	0.87
France (Seine-et-Marne)	2.84	2.37	1.65	2.28

Sources: Pearson and Meyer; Stanton; U.S. Department of Agriculture 1986b.

Examining changes in average product for major types of agricultural inputs provides a better understanding of changes in efficiency. The data in Table 2 indicate that the United States about held its own with respect to productivity per unit of cropped area in the rest of the world (ROW). The average product for land in the United States increased 11 percent between 1977 and 1984—peaked at 17 percent in 1982—compared with 15 percent for the ROW (world less United States). Substantial productivity gains were seen in Europe and, in more recent years, in India and other Asian countries.

The average product of U.S. agricultural labor over the same time period (Table 3) increased 39 percent compared with 17 percent in the ROW, but 44 percent in the other developed countries. While U.S. relative efficiency with respect to labor improved vis-a-vis developing regions, the United Kingdom and France experienced unprecedented gains in agricultural labor productivity.

Table 2. Indices of Average Crop Product per Unit of Cropped Area

Country/ Region	1977	1978	1979	1980	1981	1982	1983	1984
(1977 = 100)								
United States	100	105	113	100	114	117	100	111
World less U.S.	100	104	105	105	106	109	111	115
Developed less U.S.	100	104	107	107	107	110	109	115
Africa	100	102	105	107	106	109	104	108
Latin America	100	102	106	109	109	109	109	113
Asia	100	102	100	103	108	108	113	115
United Kingdom	100	103	103	110	107	121	113	139
France	100	108	120	128	121	120	110	128
India	100	103	95	98	106	104	115	117

Sources: U.S. Department of Agriculture 1986a and 1986c.

Table 3. Indices of Average Agricultural Product per Unit of Agricultural Labor

Country/ Region	1977	1978	1979	1980	1981	1982	1983	1984
	(1977 = 100)							
United States	100	108	119	112	131	133	120	139
World less U.S.	100	105	105	106	108	111	113	117
Developed less U.S.	100	108	113	118	122	130	132	144
Africa	100	102	102	103	103	105	98	101
Latin America	100	103	105	110	114	114	111	117
Asia	100	104	102	104	111	111	120	122
United Kingdom	100	107	112	122	126	137	142	163
France	100	108	122	136	138	144	142	163
India	100	106	98	100	108	105	118	120

Sources: U.S. Department of Agriculture 1986a and 1986c.

Comparative advantage at any point in time is determined by the production technique involved and prices for inputs and products. The data presented in Tables 2 and 3 suggest that the technology component of U.S. agricultural unit costs probably fell at a faster rate than its foreign counterpart over the 1977-84 period, with the exception of certain European countries.

Table 4. Indices of Average Product for Labor, Agricultural and Nonagricultural

Year	Agricultural	Nonagricultural
	(1977 = 100)	
1973	81	93
1974	79	91
1975	89	93
1976	94	97
1977	100	100
1978	108	102
1979	119	101
1980	112	101
1981	131	104
1982	133	106
1983	120	113
1984	139	119

Source: U.S. Department of Agriculture, 1986a.

Data on the average products of various inputs in the nonfarm sector in aggregate are not readily available, except for labor productivity. Table 4 compares indices of average product for labor in the U.S. farm and nonfarm sectors. The use of only labor productivity limits the robustness of any conclusions, but the average product for U.S. agricultural labor rose 39 percent from 1977 while nonagricultural labor productivity rose only 19 percent. Agriculture would appear to maintain an advantage in relative efficiency (labor) compared to the nonagricultural sector.

Nonfarm labor productivity data are available for most industrialized countries, but not for all countries. Among selected industrialized countries, the United States showed the least growth in aggregate labor productivity between 1970 and 1982 (Table 5). Productivity growth in Japan and Europe was well above that experienced by the United States, while Canadian productivity growth was only slightly higher.

Table 5. National Productivity Indices, Selected Countries

Year	United States	Canada	Japan	OECD Europe
(GDP per employed person, 1970 = 100)				
1970	100	100	100	100
1971	103	105	104	104
1972	106	108	113	107
1973	108	111	120	112
1974	105	111	119	114
1975	105	110	122	114
1976	107	115	128	120
1977	109	115	133	122
1978	110	116	138	125
1979	109	115	143	129
1980	109	113	148	130
1981	110	114	153	131
1982	109	112	156	133
1983	111	115	159	135
1984	114	118	167	139

Source: Organization for Economic Cooperation and Development.

These productivity observations suggest that the relative efficiency of U.S. agriculture grew compared to the relative efficiency of ROW agriculture. The changes in productivity observed in the '70s suggest declining relative unit costs for agriculture in the United States compared to those overseas. In the aggregate, these data suggest that the U.S. agricultural comparative advantage may be intact and that we remain a low cost, although not the lowest cost, producer for wheat and corn.

Competitiveness

While competitiveness is difficult to define in terms of economic concepts, it is perhaps more easily measured than comparative advantage. There are numerous measures that can be used to get some feel for a nation's position in a given market such as total trade volume, market shares and relative trade shares. The method I think most interesting is that developed by a colleague, Tom Vollrath, with the Economic Research Service. The method is an extension of the Balassa method and is simply a comparison of how well a country has done in exporting some particular set of goods, let's say food,

compared to how well it has done in exporting the total of all its goods. If, for example, a country has a 15 percent share of the world food market but only a 10 percent share of the world market for trade of all goods, then it is assigned a coefficient of 1.5 as its competitive advantage in food.

An update of Vollrath's results (Table 6) indicates that in agricultural goods, the United States increased its competitive advantage through 1980. While U.S. competitive advantage declined from 1980 to 1984 it remains a relatively strong advantage. Developing countries' competitive position, however, has been on the decline. Other developed countries, as a group, experienced an improvement in their competitive position. In manufacturing, however, the opposite is true; the United States having gone from a coefficient of .86 in the 1950s to .74 during the mid 1980s during which time the developing countries went from .35 to .59 in the manufacturing area. The other developed countries also experienced a decline in competitive position. These coefficients, looked at over time, provide some notion of the dynamics of long-run competitiveness.

Table 6. Revealed Competitive Advantage, 1955-84

Export Commodity/ Region	1955	1960	1965	1970	1975	1980	1984
<u>Coefficients</u>							
Food:							
United States:	1.04	1.38	1.65	1.09	1.49	1.64	1.50
Developed less U.S.	.68	.55	.61	.73	.60	.88	.84
Developing	2.31	2.48	2.49	1.81	1.20	1.06	1.25
Raw Materials:							
United States	.48	.82	.70	.84	1.07	1.36	1.23
Developed less U.S.	.85	.70	.88	.83	.63	.87	.93
Developing	1.59	1.69	1.49	1.71	1.03	1.00	1.05
Basic Manufacturers:							
United States	.86	.78	.73	.65	.71	.74	NC
Developed less U.S.	1.44	1.37	1.25	1.22	.89	1.29	NC
Developing	.35	.39	.46	.60	.55	.59	NC

NC—not calculated for 1984

Source: Vollrath, Thomas

Factors Influencing Competitiveness and Comparative Advantage

Competitiveness is a complex issue. Measuring comparative advantage and competitiveness, ex post, tells us little about what causes a country to become more or less competitive. To understand if a nation will become more or less competitive one has to understand how the United States and other countries adjust to changing market conditions—how governments intervene in the market to compensate for some comparative disadvantage.

Government policies are more important and pervasive than natural endowments in determining competitiveness and comparative advantage. The critical component in the short run is the policy factors which often completely outweigh any comparative disadvantage on the basis of relative economic efficiencies. Policy factors are important in the longer term as well. They become the source of the "dynamics" of comparative advantage.

There are a number of policy factors that influence competitiveness and future comparative advantage for U.S. agriculture. The three most important policy areas are: domestic macroeconomic policies; domestic farm policies; and foreign trade and agricultural policies.

U.S. Macroeconomic Policies

Fiscal and monetary policies affect both the short-run competitive position of U.S. agriculture and its long-run comparative advantage. The effects of monetary and fiscal policies on the agricultural sector are numerous. Two major macroeconomic linkage variables to the sector—interest rates and exchange rates—were chosen to highlight the differing effects on competitiveness and comparative advantage.

Exchange Rates. Movement of the exchange rate can affect the competitive position of U.S. agriculture in three different dimensions (Dunmore). First, because agricultural products are generally denominated and traded in dollars, an appreciation of the dollar causes prices in an importer's currency to increase and therefore causes import demand to fall. There is a short lag time associated with this impact and it basically affects the U.S. competitive position vis-a-vis importing countries.

Secondly, there is a more immediate substitution effect dimension to an exchange rate change. Again, because goods are traded in dollars, an appreciation of the dollar causes prices (returns) to competitors to increase in terms of their currencies. This "windfall" gain allows competitors to underbid U.S. dollar prices and yet increase export revenues in terms of their national currencies. These two dimensions of an exchange rate change tend to affect the competitive position of the United States in the short term by (1) altering relative market prices faced by importers and (2) altering relative market prices between the United States and competitors. But, resources and technology are relatively fixed so comparative advantage on the basis of existing resource endowments has not been altered.

The third dimension of the exchange rate effect is longer term and more dynamic in nature. Continued appreciation of the dollar in the early 1980s, for example, provided a stimulus—either directly or through government programs—for competitors to alter the level and rate of investment in their agricultural sectors thus changing future technology, productivity and productive capacity. Once productive ca-

capacity has been added and technology upgraded, it is, to some extent, a “sunk cost” and capacity will not leave the sector at the same speed at which it was added. This third dimension effect of an exchange rate movement has the potential to alter long-run competitiveness and comparative advantage of the United States vis-a-vis competitors.

Interest Rates. Another macroeconomic policy influence stems from movements in interest rates. While interest rates may not have a very direct short-term impact on the competitive position of U.S. agriculture versus the agricultural sector of other countries, they do have a longer-term effect on competitiveness and comparative advantage. The interest rate effect over the longer term is similar to the third dimension exchange rate effect. Interest rates affect the cost of capital for replacement or expansion. A sustained change in interest rates could influence the rate of growth in investment and productive capacity leading to an altered factor endowment and comparative advantage over the longer term.

Tax Policy. Fiscal policies such as tax policy can influence the short-term competitive position of a sector—through the budget deficit/exchange rate linkage. However, the tax policy can also influence agricultural investment and alter the mix of resource use. Tax policy has caused agriculture to be more capital intensive than it would otherwise be. Recent work in the Economic Research Service estimated that up to 20 percent of net investment in agricultural equipment during the 1960s and 1970s can be attributed to tax policy (Hrubovcak and Le Blanc). Tax induced investment led to expansion of productive capacity and productivity which altered (enhanced) the U.S. long-term comparative advantage—the comparative advantage we apparently still maintain vis-a-vis other countries.

U.S. Domestic (Farm) Policies

Much like macroeconomic policies, U.S. farm programs—price support and deficiency payment programs—have short- and longer-run impacts on competitiveness and comparative advantage. In the short run, inflexible domestic farm programs (loan and target prices) make it impossible for U.S. prices to adjust to world market conditions and the United States becomes less competitive. When prices cannot adjust, quantities will. The adjustment in export quantities over the 1980s led to a substantial deterioration in our market share and competitive position in those commodity markets.

When stocks became excessive in the early 1980s, acreage reduction programs were implemented unilaterally by the United States. Thus, the United States reduced the risk of downward movement in world prices and bore the burden of stock/production adjustment at no cost to producers or taxpayers in other countries. These high

world price floors provided an added incentive for other exporters and importing countries to expand productivity and productive capacity.

Our system of deficiency payments, while seen as an income supplement allowing many producers to remain on the farm, may have longer-term implications for competitiveness and comparative advantage of U.S. agriculture. Substantial income transfers to producers via the deficiency payment and other farm programs—\$20 to \$25 billion in 1986—augers to keep land values and land rents artificially high. That begs the question—to what extent might our longer-term comparative advantage be eroded if the price of a major input (land) is kept from adjusting to its true economic value?

The Impact of Foreign Trade Policies

The policies of other countries and their conduct of trade has also affected our competitive stance in world markets. Competitors use pricing and export marketing policies that affect their competitive positions and to offset some comparative disadvantage relative to the United States. The United States, however, has implemented new export marketing policies designed to offset a competitive disadvantage.

Among competitors, the policies of the European Community (EC) have had a significant impact on U.S. competitiveness and, perhaps, comparative advantage. High price supports and export subsidies have greatly enhanced the competitive position of the EC, changing it from an importer to an exporter.

The high price supports provided strong incentives for investing in the agricultural sector and for adoption of new, yield-enhancing technologies. Some would argue that these policies have now provided France and perhaps the United Kingdom with a comparative advantage in the production and marketing of wheat. While a great deal of our handwringing over EC policy centers on the more immediate impact of subsidies on the competitive position of the United States in world markets, those same policies, over time, have altered the comparative advantage of the EC.

There are other examples of foreign domestic and trade policies that distort free market conditions and alter both short-term competitiveness and longer-run comparative advantage in the production and marketing of agricultural products. Saudi Arabia—this year likely to be the largest Middle East exporter of wheat—is a glaring example. Government policies influence its short-run competitiveness (Saudi Arabia is marketing wheat to other North Africa/Middle East countries at subsidies of up to \$400 per ton) and its longer-term comparative advantage (substantial government investment in land reclamation and irrigation has improved relative economic efficiencies).

Conclusion

In closing, there are a few general observations and one practical lesson that I think are important to take away from this discussion. First, has the United States lost its comparative advantage in agriculture? No, but it does not have as strong an advantage as it had in the late 1970s. Second, is the United States competitive in world agricultural markets? Yes, but not as competitive as it was in the early 1980s. Third, policy factors are more important than basic resource endowments in determining comparative and competitive advantage.

Numerous research studies have identified the factors responsible for the loss of our competitive position. This list of factors includes: foreign production, global economic activity, third world debt, high value of the U.S. dollar, foreign agricultural policies and U.S. farm policies. The many studies have contributed to an increased understanding of the importance of these factors on our short-run competitive position. Too few studies, however, have considered the longer-run dynamic influences on comparative advantage and long-term competitiveness. As public policy educators we need to increase the level of general understanding of the long-run consequences of foreign and domestic policies on the allocation of resources and the dynamics of comparative advantage.

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