Economic Setting Overall and by Commodity

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Introduction

The Food and Agricultural Policy Research Institute (FAPRI) and the Agricultural and Food Policy Center (AFPC) briefed the Senate and House Agricultural Committees in February 2001 on the expected status of U.S. agriculture in the coming decade. These projections are based on a continuation of the Federal Agriculture Improvement and Reform (FAIR) Act, policies adopted in the World Trade Organization (WTO), average weather, trend technology growth, and economic conditions as projected by Standard and Poor's DRI.

This combination of factors suggests farm liquidity pressure will continue through the middle of this decade. It is anticipated that net farm income for U.S. agriculture will decline from an average of $47.4 billion (1996-2000) to $40.1 billion (2001-2005). In real terms, this would be equivalent to income levels experienced during the financial crises of the early 1980s. The projected financial conditions will certainly be of considerable interest as the debate for the 2002 Farm Bill continues.

Our discussion deals with, first, the global economic situation as projected by DRI; second, global food demand with likely implications for U.S. trade of grains, fibers, and livestock; third, the supply situation with special attention paid to technology growth and the potential for area expansion in South America; fourth, price implications; and fifth, policy considerations. All are contributors to the expected supply and demand situation over the 2001-2010 period.

The Macro Economy: Implications for Global Demand and Trade for Agricultural Products

Over the 25-year period from 1965-1991, global economies grew at an annual real income (GDP) rate of 3.5 percent. Projections by Standard and Poor's DRI suggest growth at 3.6 percent over the next 5 years — slightly outpacing the previous 5 years of 3.2 percent. This reflection of economic activity implies continued strength from the demand side. Average total tonnage of agricultural crops exported from the United States during 1996-2000 was 144 million metric tons — roughly the same level achieved from 1982-1985. Projections for the next 5 years improve modestly to 161.7 million metric tons. During the 1990s, animals and animal products reflect a much stronger growth rate, with exports more than doubling over the decade. Growth is expected to continue over the coming decade, although at a slower pace.

While global income growth has been positive and is projected at a fairly strong pace, several factors have hampered U.S. exports. Developed economies represented the major growth area from 1996-2000 — in many cases, expanding at 50 to 80 percent more than the pace achieved in the previous five years. Unfortunately, this was not the case for developing countries in the Pacific Rim, which are major markets for U.S. commodities. Their economies contracted substantially and are only expected to recover to 1991-1995 levels by the middle of this decade. Further complicating the trade situation are exchange rates. On a trade-weighted basis, U.S. currency has appreciated 25 percent relative to 1995-2000. For the same period, the U.S. dollar has appreciated about 42 percent relative to our competitors.

The second half of the coming decade suggests continued opportunities to expand global trade with global real income growth projected at 3.3 percent. Many of the developing economies are projected to move back into the growth ranges experienced in the late 1980s and early 1990s. A major concern still rests with projected exchange rates. Although not expected to sustain previous rates of depreciation against the dollar, the rates do reflect a considerable disadvantage for a strong U.S. recovery in world markets.

Additional concern is associated with the more recent rise in energy prices. DRI projections suggest crude oil prices averaging about $25 per barrel over the next decade, adding about 20-25 percent to the energy bill in contrast to the last decade.

The outlook reflects a recovery in U.S. trade, but with a declining trade share. Total world trade of crops is projected to increase from 250 million metric tons in 2000-2001 to about 325 million metric tons by 2010-2011. For the same period, the U.S. share of this projected 75 million metric ton growth is only 20 million metric tons, about 27 percent of the overall projected growth.

Feed grains from the United States are expected to continue at around 80 percent of world trade. Stronger competition from European wheat, and expansion of Brazilian and Argentine soybean production results in a gradual decline in the U.S. share of total crop trade.

The picture is much different from the value added point of view. Bulk commodities will likely average $21.2 billion for the 2001-2005 period, which is slightly below the $21.8 billion average for 1996-2000. A modest increase is projected for 2006-2010 at $25.7 billion. Value added products, however, almost triple — moving from an average of $16.0 billion in 1982-1985 to a projected average of $42.3 billion for the 2006-2010 period. Even with the continued exchange rate disadvantage, the U.S. clearly benefits from the expansion of global income growth. Total world trade of meats in 2000 (at about

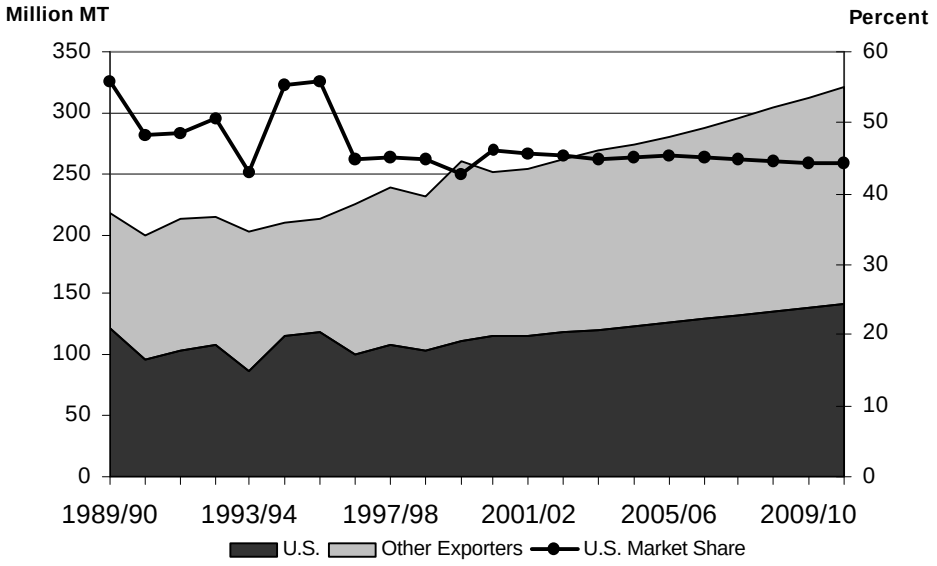

Figure 1: World Crop Trade and U.S. Market Share

9.3 million metric tons) is projected to increase to 12.0 million metric tons by 2010. The U.S. share is projected to increase from 25 to 30 percent. Low projected feed costs will keep the United States in a very competitive position in world markets for livestock products.

World Supply, Stocks to Use and Yield Growth

The global crop production pattern suggests a gradual but persistent shift in land area across commodities. The area devoted to wheat and rice is projected to remain stable at 370 million hectors throughout the decade. Cotton area ranges between 34 and 35 million hectares. The persistent global income increase over the last 25 years contributes to a rebalance in favor of meats relative to food grains. As a result, global acreage and allocation of land area reflect this pattern. Since 1991-1995, global land area for the 5 major crops listed has increased about 30 million hectares. Over half this area is associated with soybean expansion (16 million hectares). Corn accounts for 8 million hectares of the total increase. Food grains and cotton make up the difference of an additional 6 million hectares.

Accompanying the shift towards relatively more feed grain and high protein area is the potential for expansion of land area and development in South America. Of the approximate 6 million hector increase in land area over the coming decade, about 3.1 million can be attributed to soybean area expansion in South America. As farmers respond to projected increases in global soybean prices, the expansion is expected to be stronger in the latter half of the decade.

Global yield growth has slowed over the last 10 years in contrast to the 1980s. While optimism exists with regard to the technological potential associated with genetically modified research, consumer attitude in significant importing regions poses a serious constraint on the acceptance of these products. Until this barrier is successfully penetrated, our expectation is that yield growth for the next 10 years will reflect the most recent past. For this reason, we are perhaps more on the lower side of expected growth than many researchers in the industry.

Obviously, this is an area of serious debate and contention. Since our projected rate of yield growth only marginally exceeds the last 10 years, this leads to land expansion as prices begin to increase in the latter part of our baseline projection period.

With demand marginally outpacing production, global stocks are expected to decline moderately over the next decade. With the exception of soybeans, global stocks-to-use relationships are projected to be at historically low levels in the later part of the decade. However, it is important to remember that the high global stock of the 1980s was largely due to

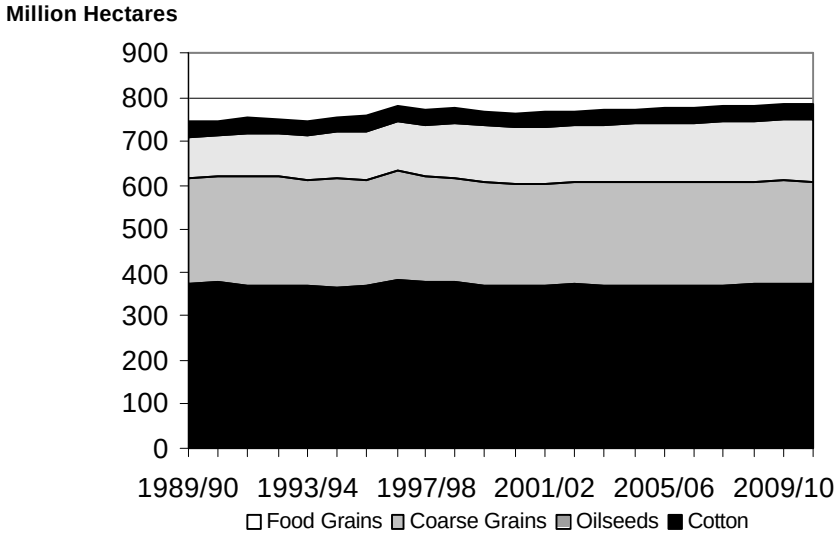

Figure 2: World Crop Area

stocks held in U.S. government programs. In the current environment, the majority of the stocks are privately held. This perhaps helps explain the current stocks/price relationship. Longer term demand outpaces production, and global stocks show a moderate decline. This implies the potential for great price variability with significant upside potential in the latter part of the decade should poor weather, additional demand strength, or a combination of the two, enter global markets.

Price and Farm Income Implications

Crop prices projected for the 2001-2005 period are at, or near, lows experienced over the previous 20 years. The first, and one of the more significant, contributors to the low prices is the rather positive global weather pattern that has been experienced recently. While some regions around the world have experienced drought over the last four years, this has not been the case for primary production areas like the Midwest Corn Belt, South America, and Europe. The second factor is an unfavorable trade situation for U.S. products, reflecting considerable economic pressure plus exchange rate disadvantages in major trading markets. This situation has turned more positive, but current expectations suggest that it may be near the middle of the decade before the full export potential is achieved. Further complicating the situation is the European Union, which due to the weakening of the Euro against the U.S. dollar, is now in a position to sell wheat on the world market without the use of subsidies. For the next several years, they are likely to capture most of the growth in global trade, leaving the United States on a fairly stagnant export path.

Additional pressure on U.S. exports is expected to come from South America. The possibility that a considerable amount of new land can be brought into production (with proper price incentives as well as improvements that are being made in transportation and infrastructure) suggests that South America will play a stronger role in export markets for soybeans and soybean products in the coming decade. Finally, by design, a change in the U.S. farm program to a marketing loan structure allows markets to clear without government intervention. As a result, price support mechanisms no longer apply. This results in prices below previous government-supported levels.

Many factors that tend to soften prices have occurred at the same time, and have lingered longer than most of us thought they would. This implies crop prices over the next five years will be somewhat below previous expected longer run averages. Over the next 5 years, wheat is projected to average at or near $3.00 per bushel, corn at $2.15, and soybeans at $4.75. Rice is projected to average $6.82 per hundredweight, and cotton at around $0.56 per pound.

The latter half of the decade paints a more optimistic picture for U.S. producers. The demand side of the equation shows continued domestic strength, with the export market showing signs of recovery for feed grains and cotton. However, as indicated earlier, soybeans and soybean products, wheat, and rice will continue to face strong competition from overseas.

Net farm income is projected to average $40 billion per year over the 2001-2005 period without additional emergency spending by the government. This represents a $7 billion decline relative to what was experienced over the past 5 years. In real 1997 dollars, this suggests an income level comparable to the financial crises that U.S. agriculture experienced in the 1981-1985 period. Further complicating this situation is the increase in energy and fertilizer prices.

This combination of factors suggests that many of our traditional commercial farms will experience negative cash flows. AFPC analysis of its representative farms concludes that 40 of the 42 crop farms modeled are under substantial liquidity pressure over the 2001-2005 period. The livestock sector is expected to experience positive gains in prices in this year and next (2001 and 2002). The cattle cycle has reached the bottom with projected price strength through most of the next five years. However, our models do suggest that the cattle cycle is alive and kicking, which implies stronger production in the latter part of the decade with corresponding price declines. For 2001-2005 fed steers should average $75 but decline to about $68 for 2006-2010.

AFPC representative livestock analysis supports these aggregate findings. Three of the cow-calf operations appear in good shape for 2001-2005, while 3 of the 6 hog farms made it through the period with little equity pressure.

The pork cycle will continue to be very active in the coming years. Price strength in 2000 and most of 2001, in conjunction with low input prices, sets the stage for low prices by the fall of 2002 with prices expected to average about $35.00 per hundredweight for barrows and gilts. A recovery to around $45 per hundredweight is expected by 2004. Longer term prices average in the low $40s.

Milk prices are also a concern. As mandated in the FAIR Act, the milk support price program ends in 2001. That results in all-milk prices falling in 2002. A gradual increase is expected afterward, although the average for all milk prices over the next 5 years will be at $12.40 per hundredweight.

AFPC representative dairy analysis suggests that dairy farms are in moderate to poor shape over the 2001-2005 period. Of the 25 diary farms analyzed only, 9 appear to make it through the period in good financial condition.

Broiler production growth is expected to slow over the next 10 years relative to the 1990s. Although demand, both domestically and internationally, is expected to remain firm, the rate of growth is projected to soften over much of the next decade, keeping broiler prices below $60 per cwt.

Policy Implications

A starting point for the analysis of the 2002 Farm Bill is a valid baseline that reflects likely consequences for U.S. agriculture if the FAIR Act is maintained without additional government support. Our discussion has focused on expected results from the FAPRI/AFPC 2001 Baseline presented to the Senate and House Agricultural Committees in February 2001. Our results support the serious nature of the financial stress, and certainly lend support for modifications that would address periods of sustained low prices.

What are possible directions for farm policy from here? Based on the various farm program options that the FAPRI consortium has been asked to evaluate, most would likely maintain the basic structure of the FAIR Act. However, many alternatives add a counter cyclical strategy that provides greater protection in low price/income years. The options may be counter-cyclical to either price or revenue and trigger based on some reference value.

Policy options under consideration are evaluated with the baseline as a point of reference. In cases evaluated thus far, an implied — and yet unresolved — question is the amount of government support necessary to sustain agriculture over the longer term with an adequate safety net in financially stressful periods. This makes the baseline projections and corresponding analyses even more critical since a starting point in reaching this conclusion is the expected level of support implied if the FAIR Act is continued.

FAPRI expects that more options will follow as we go through the remainder of 2001. The options will be evaluated at the sector-level, as well as the farm level. At the sector level, options will be evaluated in a stochastic framework. This will provide the ability to assess the performance of alternative policies across a range of price and production outcomes.

The national set of representative farms maintained by AFPC will be utilized for all options under consideration. Analysis will reflect the risk and implied probability distribution for key financial indicators such as net farm income, liquidity, and solvency.

An obvious challenge of the stochastic analysis is conveying the results to a broad audience. The staff at FAPRI/AFPC expects to be extremely busy in the coming months with briefings and presentations to Congressional staff, as well as to farm organizations.

References and Suggested Readings

Adams, Gary. "The 1-2-3 Scenario: An Analysis of Safety Net Alternatives." Testimony to the House Agricultural Committee, Washington D.C. July 2000.

Food and Agricultural Policy Research Institute. "FAPRI 2001 U.S. Baseline Briefing Book." Technical Data Report 01-01, FAPRI Missouri, University of Missouri-Columbia, February 2001.

Food and Agricultural Policy Research Institute. World Agricultural Outlook, February 2001, Center for Agricultural and Rural Development, Iowa State University Ames, Iowa.

Food and Agricultural Policy Research Institute. "FAPRI 2001 U.S. World Agricultural Outlook." Staff Report 01-01, FAPRI Missouri, University of Missouri-Columbia, January 2001.

Richardson, James W., David P. Anderson, Edward G. Smith, Abner W. Womack, Paul Feldman, Keith Schumann, Joe L. Outlaw, Steven L. Klose, Robert B. Schwart, Jr., Rene Ochoa, and Jennifer Kristinek. "Representative Farms Economic Outlook for the January 2001 FAPRI/AFPC Baseline." Texas Agricultural Experiment Station, Texas Agricultural Extension Service, Texas A&M University, Department of Agricultural Economics, Agricultural and Food Policy Center Working Paper 01-1, January 2001.

Stallman, Bob. Statement of the American Farm Bureau Federation to the House Agricultural Committee Regarding the Next Farm Bill. House Agricultural Committee Hearings, Washington D.C. February 28, 2001.