Implications of the 2002 U.S. Farm Act for World Agriculture

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Implications of the 2002 U.S. Farm Act for World Agriculture

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Introduction

The purpose of this paper is to discuss the implications of the Farm Security and Rural Investment Act of 2002 for U.S. agriculture and its subsequent impact on world agricultural prices and world trade. In order to effectively illustrate the implications of the 2002 Act it is important to consider it in the context of the changes already made in previous farm acts. As the paper develops, many of the changes in U.S. cropping patterns were already captured by the policy changes occurring under the 1996 Federal Agricultural Improvement and Reform (FAIR) Act. The estimated impact of the 2002 Act on commodity production is minimal and therefore estimated price changes are relatively small. In the conclusions is a discussion on how trends in U.S. farm policy tend to reflect international agricultural policy, an important observation as WTO negotiations are anticipated.

Policy changes in the 2002 Act are discussed in detail followed by a description of how the policy instruments are incorporated in the Food and Agricultural Policy Research Institute's (FAPRI) U.S. Crops model. Implications of the policy changes for the 2002 Act are discussed relative to a continuation of the FAIR Act. A brief review of the possible implications for longer term trade, production, consumption and prices are also included. Finally, some observations are included that trace the evolution of U.S. farm programs, especially the trend toward designs in the European Union.

Policy Development Process

The U.S. farm policy environment is shaped as much or more by current events as the goals portrayed to be accomplished. To see this we have but to look at the FAIR Act. In 1995, with high commodity prices driven by record levels of imports, many analysts began discussing new "price plateaus" and "demand driven" agriculture. Bolstered by rising per capita incomes and emerging middle classes, many of the Asian markets appeared to be strongly growing markets for U.S. agricultural exports. The high levels of optimism for agricultural exports and relatively high agricultural prices, led policy makers to formulate a 1996 farm bill that clearly marked a path for reduced U.S. agricultural subsidies. Target price and counter cyclical deficiency payments were replaced with declining fixed transition payments based on historical acreage and yields. Set asides and other annual forms of supply control were eliminated although the long-term conservation reserve program was maintained and expanded. Loan rates continued, but many analysts considered them to be irrelevant because there were set at such low levels relative to current price levels. The relevant subsidies appeared to be fully decoupled and very WTO friendly.

Unfortunately, it was only a few years into the 1996 farm bill, when export growth stagnated and agricultural commodity prices began plummeting. The farm sector immediately called for "safety net" protection from low prices and the U.S. congress passed four years of sequential disaster assistance legislation to supplement the declining transition payments. When the 2002 farm bill debate began in early 2001, the emphasis switched from phasing out subsidies to once again providing a safety net to U.S. farmers. It is also important to note that this debate began in a period of U.S. budget surpluses. Interestingly, the debate began with how much additional money would be spent on agriculture over and above what would be spent under a continuation of the FAIR Act. $73.5 billion in additional agricultural spending to be allocated over the 2002 to 2011 period emerged as a target for the new policy proposals. Subsequently, the House and Senate policy proposals were designed to spend as close to this spending limit as possible.

The 2002 farm bill proposals from the House and Senate Agricultural committees were a hybrid of the 1990 and 1996 Acts. As in the 1990 farm bill, both proposed bills included the reestablishment of target prices and quasi-deficiency payments referred to as "countercyclical payments". However like the FAIR Act, both proposals carried the flavor of de-coupled payments by using a historical production base rather than current production for establishing countercyclical payments and fixed payments similar to transition payments. In addition, neither of the bills contained any restrictions on which crop could be planted, nor any annual set aside nor annual supply controls. New to the 2002 farm bill proposals was the inclusion of soybeans and peanuts as program crops, the option to update historical cropping bases, and, in the Senate proposal, the option to update program yields. Loan rates were increased for many of the crops with the major exception of soybeans. The resulting Farm Security and Rural Investment Act (FSRIA) of 2002, reflected all of these ideas with all but the loan rate changes decoupled from production.

Changes in the 2002 Farm Bill

In May 2002, FSRIA became law. As discussed above, FSRIA brought back a number of old policy provisions from the two previous farm bills while introducing a few new concepts. The discussion of these changes focuses on those policies which "couple" subsidies directly with current production and those that are "de-coupled" from current production. In addition a brief description of the U.S. National Dairy Program has been included.

Coupled Subsidies

As a carryover from the two previous farm acts, loan deficiency payments are the only remaining U.S. policy mechanism tied directly to current production. There are actually two ways for producers to profit from the marketing loan program. This occurs because of the way the program is administered. The straight forward way, is the standard loan deficiency payment that is calculated as the difference between the local market price on the day the farm chooses to get his loan deficiency payment and the loan rate. Of course this payment applies to every bushel produced. Note that the producer does not have to sell his crop on that day. The second indirect way to make money is to then hold the crop until the post-harvest season and sell it for a higher price. This indirect profit is called a marketing loan gain. In the past 3 years, marketing loan gains for corn have averaged $0.20 per bushel. Table 1 illustrates the new loan rates effective under FSRI relative to the loan rates under the 1996 FAIR Act. With the exception of soybeans, all other loans are either higher or at least at the same level. As this paper discusses later, it is primarily the lowering of the soybean loan rate that causes the greatest shift in acres from soybeans to other crops under FSRIA.

Table 1. Comparison of Loan Rates (U.S. $/Bushel)

	FAIR Act	2002 Farm Bill	
	Maximums	2002-03	2004-07
Corn	$1.89	$1.98	$1.95
Wheat	$2.58	$2.80	$2.75
Soybeans	$5.26	$5.00	$5.00
Sorghum	Rel. to corn	$1.98	$1.95
Cotton	$0.5192	$0.52	$0.52
Rice	$6.50	$6.50	$6.50

De-Coupled Subsidies

Under the 1996 FAIR Act, one fixed de-coupled subsidy was paid to producers based on historical production. Different terms have been used to reflect these payments including production flexibility contract payments (PFC payments), transition payments (AMTA payments), and/or direct payments. The fixed payment rates declined over the course of the 1996 FAIR Act ultimately falling to the levels presented in Table 2. Under FSRIA these fixed payments were increased slightly for all crops and a payment was added for soybeans. While these payment rates may appear to provide production incentives, they are paid based on 85 percent of the producer's historical base acres and historical program yields. Regardless of the mix of crops a producer plants or doesn't plant, they received the fixed payment rate base on their historical base acres and program yields. For the purposes of calculating total fixed payments under FSRIA producers have been given the option to update their base acres from those under the FAIR Act to the average of the acres planted

Table 2. Comparison of Fixed Payment Rates (U.S. $/Bushel)

	1996 Fair Act	2002 Farm Bill
Corn	$0.26	$0.28
Wheat	$0.46	$0.52
Soybeans	$0.00	$0.44
Sorghum	$0.31	$0.35
Cotton	$0.0572	$0.0667
Rice	$2.05	$2.35

and considered planted over the 1998 to 2001 period. Depending the crop mix and historical crop base, updating crop bases may or may not be attractive to all producers. Fixed payment yields remained frozen at the same levels as previous farm bills. Since soybeans were not previously a program crop, 78 percent of the 1998-2001 average farm soybean yields is used as the program yield.

The new payment introduced under FSRIA is the countercyclical payment (CCP). CCPs are similar to the old deficiency payment system with two important differences. First, CCPs are based on 85 percent of a farm's historical crop base instead of current production. Second CCPs are also reduced by the amount of the fixed payment discussed above. The CCPs required the reestablishment of target prices that were abolished in the 1996 FAIR act. Table 3 presents a comparison of the new target prices with those from the 1990 Farm Act. The countercyclical payment rate is calculated as the target price less the fixed payment less the maximum of the loan rate or the season average farm price. Despite which crop the producer grows, CCPs are paid on historical production instead of current production. As in the case of fixed payments, producers have the option to update their historical crop base to the 1998 to 2001 period average of planted and consider planted area. If they updated their base acreage, they also have the option of updating their program yields to the 1998 to 2001 period average.

Table 3. Comparison of Target Prices
(U.S. $/Bushel)

	1990 Farm Bill	2002 Farm Bill	
		2002-03	2004-07
Corn	$2.75	$2.60	$2.63
Wheat	$4.00	$3.86	$3.92
Soybeans	N/A	$5.80	$5.80
Sorghum	2.61	$2.54	$2.57
Cotton	$0.729	$0.724	$0.724
Rice	$10.71	$10.50	$10.50

Figure 1 brings these concepts together in an illustration for the wheat market in 2002. The amount of payments the wheat producer receives depends upon where season average farm price falls. For example, suppose the season average wheat price is $2.70 per bushel. The loan rate for wheat in the 2002/03 marketing year is $2.80 per bushel ($102.88 per metric ton). The producer will receive a loan deficiency payment equal to the difference between the loan rate and the season average farm price, or $0.10 per bush in this example. In addition, the producer will get the maximum counter-cyclical payment, $0.54 per bushel, as well as the direct payment of $0.52 per bushel. But remember that the direct and the counter-

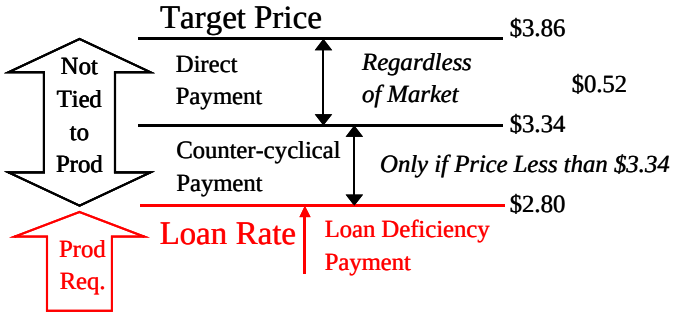

Figure 1. Structure of Wheat Payments

cyclical payments are based on a portion of the historical production base as determined by the producer's base area, program yields, and countercyclical yield selection.

The CRP Program

Another important change in the 2002 Farm Act was the expansion of the Conservation Reserve Program (CRP). The 2002 Farm Act expands the CRP cap from 36.4 million to 39.2 million acres.

The National Dairy Program

The 2002 FSRI Act also added a short-term subsidy to the U.S. dairy industry. The Act establishes a three and half year National Dairy Program to subsidize milk production. Milk subsides are based on 45 percent of the difference between $16.94 and the Boston Class I price. Milk producers can receive payments on up to 2.4 million pounds of production for an operation annually. The National Dairy Program ends in September 2005.

FAPRI Policy Modeling Framework

Analysis of the U.S. farm policy is now broken into two distinct but interdependent processes. In the traditional manner, a ten-year deterministic baseline forecast is developed incorporating the various agricultural policies, specific macro economic assumptions supplied by Global Insight, Inc., and assuming average weather. The second process, stochastic analysis, involves the simulation of the baseline under 500 alternative forecasts of the random supply and demand factors. Each of the forecasts represents a random draw from the distributions of the random supply and demand factors. Variance-covariance matrices are used to make a draw consistent within the random supply and demand factors. Implications of the stochastic analysis are particularly important for calculation of government cost. While loan deficiency payments are made during low price simulations, government payments are not made during periods of high prices. Therefore government payments are much higher on average from the stochastic runs.

The FAPRI system of econometric models is a simultaneous, non-spatial, partial equilibrium system designed for the purpose of policy analysis. The intricate details of the entire model are beyond the scope of this paper, but a brief discussion of the macro view of the model and the specifics relating to U.S. policy are discussed in the paragraphs that follow. The broad framework of the FAPRI global agricultural modeling system is depicted by Figures 2 and 3. Figure 2 conceptualizes the basic structural model for the United States that can be extended to any country with a few small adjustments. The top half of Figure 1 is simplified representation of the livestock sector, while the bottom half reflects the crops sector. The left half of Figure 2 represents demand variables and the right side of the diagram contains the supply variables. The macroeconomic variables driving this system include population, income growth, and input costs as well as technology and policy. For example, suppose an increase in income occurs. Positive income elasticities in the meat sector imply increased the demand for meat, which increases meat prices and provides additional production incentives. Increased meat

production increases feed demand in the crops sector. Depending on the income elasticity for the crop in question, food demand may also increase in the crops sector. Strong demand for crop inputs increases crop prices and provides incentives to expand crop production.

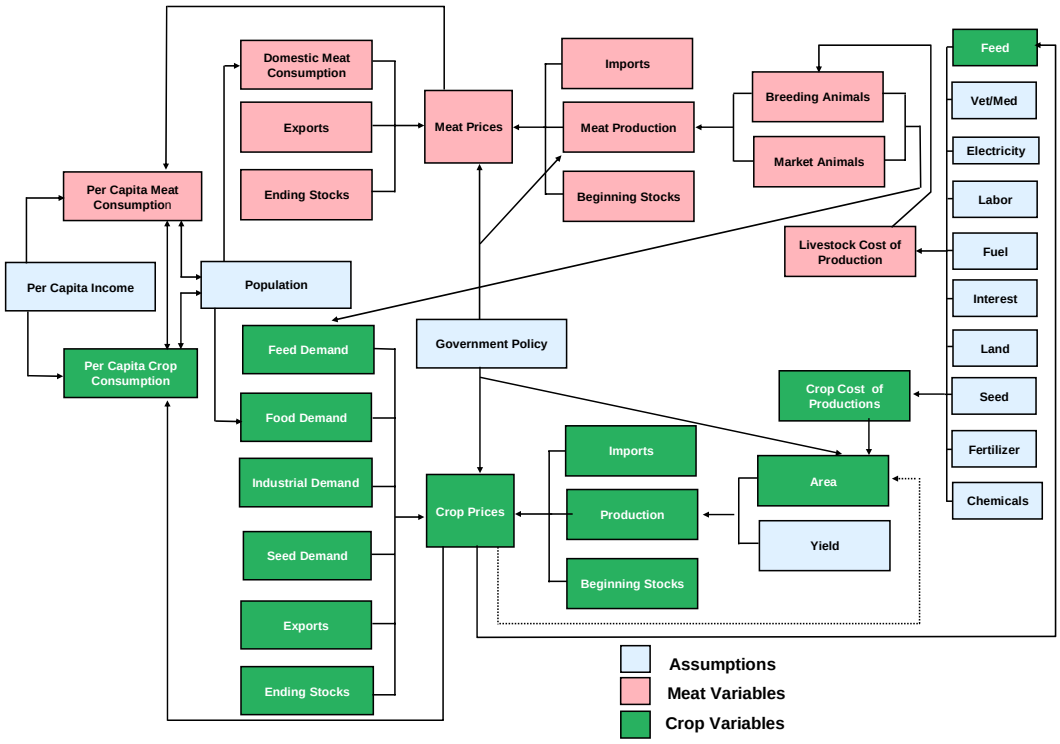

Figure 2 U.S. Country Model Flow Diagram

Figure 3 illustrates the simultaneous process within and across the country models that determines the net trade position within each country and the level of "world" prices. Typically, a large exporting country with minimal trade barriers is chosen as the residual supplier of a particular commodity. In the case of corn, the residual supplier is the United States, while Thailand serves as the residual supplier for rice. The iterative process to find a simultaneous solution begins with an assumed net export path within the residual supplier. This assumption generates a set of prices within the exporting country that is limited by transportation costs, trade barriers, and exchange rates to form a representative import price for a given country. In some countries, import tariffs are high enough that the world prices have no impact on domestic prices. In this situation, the effective import quota is used as the net trade path and the internal prices are simultaneously determined within the country's own supply and demand framework. India has traditionally been a good example of a country where internal prices are fairly insulated from world prices due to trade restrictions. For other countries with some degree of price transmission, the respective import price is used to determine the local supply and demand within the

country and the market clearing identity determines net trade. This process is repeated across all of the countries in the model system until a new net export position is derived for the residual supplier. Several iterations occur to determined prices that balance world trade.

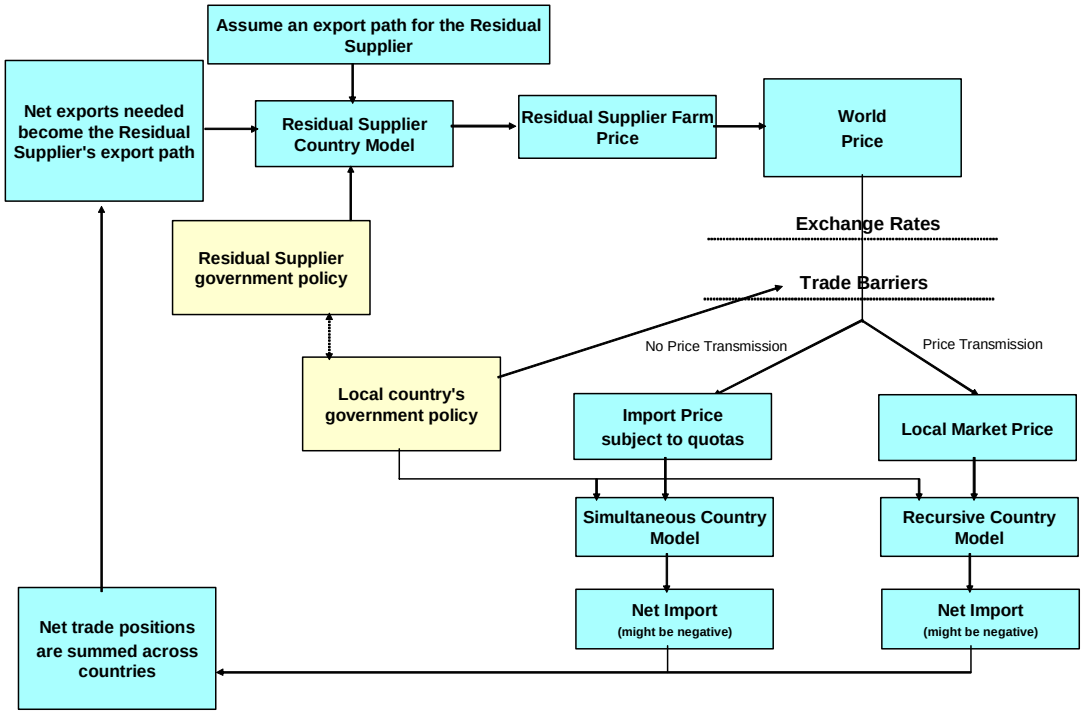

Figure 3 Iterative Process to Determine Global Equilibrium

Keeping in mind the big picture, the intricacies of modeling the 2002 U.S. farm policy changes can now be discussed. The coupled payments, loan deficiency payments in the U.S. case, are directly included in the crop specific U.S. acreage equations. In the FAPRI U.S. agricultural model, individual crop acreage equations are specified as a function of the expected net returns for the crop and expected net returns of competing crops. Expected net returns are calculated using naive price expectations. More formally, these equations are specified as:

$$\text{Area Planted}_i = f\left(\frac{\text{E(Net Returns}_i)}{\text{Deflator}}, \frac{\text{E(Net Returns}_c)}{\text{Deflator}}, \frac{\text{E(Net Returns}_{c+1})}{\text{Deflator}}, \ldots, \frac{\text{E(Net Returns}_{c+j})}{\text{Deflator}}, \frac{\text{De-Coupled Payments}}{\text{Deflator}}\right)$$

where

$$\text{E(Net Returns}_k) = \frac{(\text{Max(Farm Price}_{k,(t-1)}, \text{Loan Rate}_{k,t}) * \text{Trend Yield}_k - \text{Variable Cost of Production}_k))}{\text{Deflator}}$$

The 2002 Act includes several program options that complicated the analysis. One of these program options was the sequence of first, updating base acreage and, given that decision, the option to update program yields. While it might seem that all producers would take advantage of higher yields, some producers with large historical bases in crops such as cotton and/or rice may not wish to update their bases because their recent plantings of cotton and rice are considerably lower. Subsequently, the gain from higher countercyclical program yields is more than offset by the loss in government payments due to a reduction in base acres. Since the decision would be unique to each producer, FAPRI ultimately evaluated the decision to update base area and subsequently update CCP yields at the county level and then reconstructed state and regional base acres and CCP yields based on those decisions. Not surprisingly, counties with large historical bases of cotton and rice, generally tended to maintain base area as defined under the 1996 FAIR Act.

As the specification above suggests, the inclusion of the decoupled payments in the FAPRI models is an ad-hoc process. Other researchers (Miranda, et al. 1994) have incorporated decoupled payments by specifying a total acreage equation for all crops as function of expected revenues including decoupled payments and then estimating share equations for each crop. However, the timing and relatively few observations prevented FAPRI from attempting this approach directly.

The initial ad hoc approach developed at FAPRI to include de-coupled payments was created by looking at how acreage responded to higher net returns historically. Table 4 presents a matrix of deflated expected net return coefficients used in the model. By summing all of the coefficients in the model on can calculate an acreage expansion coefficient. In the case of the of the 2002 Farm Act analysis as measured off the 2001

Table 4. Matrix of Coefficients on Deflated Expected Net Returns

	Barley	Corn	Cotton	Oats	Rice	Soybeans (Sgl)	Soybeans (Dbl)	Sorghum	Sunflowers	Wheat (Sgl)	Total
Barley	2.800	-0.287	-0.028	-0.084	-0.018	-0.250	-0.009	-0.014	-0.073	-1.000	1.037
Corn	-0.573	11.577	-0.303	-0.693	-0.063	-5.877	-0.422	-0.609	-0.263	-2.700	0.075
Cotton	-0.037	-0.577	2.505	-0.028	-0.070	-0.776	-0.235	-0.355	0.000	-0.397	0.030
Oats	-0.056	-0.257	-0.008	2.100	-0.002	-0.152	-0.011	-0.014	-0.019	-0.700	0.879
Rice	-0.014	-0.058	-0.054	-0.002	0.400	-0.051	-0.059	-0.037	0.000	-0.120	0.004
Soybeans(Sgl)	-0.503	-5.804	-0.331	-0.544	-0.118	11.596	-0.412	-0.420	-0.224	-3.020	0.218
Soybeans(Dbl)	-0.011	-0.425	-0.103	-0.018	-0.045	-0.468	1.405	-0.025	0.000	-0.144	0.166
Sorghum	-0.014	-0.502	-0.107	-0.043	-0.022	-0.231	-0.016	3.742	-0.035	-1.294	1.478
Sunflowers	-0.148	-0.166	0.000	-0.059	0.000	-0.100	0.000	-0.022	1.455	-0.512	0.448
Wheat (Sgl)	-1.289	-3.147	-0.420	-0.600	-0.053	-1.629	-0.057	-1.051	-0.522	19.212	10.443
										Total	14.778

FAPRI stochastic baseline, the acreage expansion coefficient was 14.778. This coefficient, multiplied by the so-called "De-coupled Scaling Factor" and the average real decoupled payment per acre produced the total acreage effect. The total acreage effect was allocated to the relevant crops in the region using the crop's 1999-2000 historical acreage share. This process may be better understood with an example. Utilizing the coefficients from FAPRI's acreage equations in Table 4, the acreage expansion coefficient was 14.778. Simply based on judgment, FAPRI chose a de-coupled scaling

factor of 0.4 in the for the FSRI stochastic policy scenarios. Since 500 different scenarios were run for the stochastic process, there are 500 different observations of total de-coupled payments. Choosing one of the scenarios, the de-coupled payments were projected to average $20.68 per acre in 2002 while the deflator in 2002 to was projected to be 117.95. Subsequently the total expansion in acreage is expected to be 1.037 million acres in 2002 due to the de-coupled payments. This acreage is then allocated to the crops using their historical shares as a guide.

Clearly, the impacts of the de-coupled payments are conditional upon the coefficient matrix of deflated expected net returns and the de-coupled scaling factor. The fixed payments from the 1996 farm bill provide some guidance for setting these factors, however clearly they may need to be adjusted as producer's responsiveness unfolds in years to come. With FAPRI's January 2003 stochastic baseline, both the matrix of coefficients on deflated expected net returns and the de-coupled scaling factor were adjusted. Using pooled data over the 1996 to 2001 period, better estimates of the regional acreage expansion coefficients were derived and a greater degree of symmetry was imposed on the matrix of coefficients. The de-coupled scaling factors were also changed. Instead of using a de-coupled scaling factor of 0.40 for all decoupled payments, in the March 2003 stochastic baseline, FAPRI now imposes a 0.25 scaling factor for the countercyclical payments and an additional scaling factor of 0.25 for all decoupled payments. This effectively makes the effect of countercyclical payments double that of a fixed (direct) payment. The adjustments appear to be more consistent with recent acreage responses including the March 31, 2003, "Planting Intentions" report released by USDA.

CRP Adjustments

The additional acreage assumed to be bid into the CRP does take some acreage out of production although the relationship is not assumed to be 1 for 1. The slippage factor used in the 2002 Farm Act analysis was 80 percent, meaning the for every acre put into CRP, 0.2 acres were take out of total arable area. In addition, FAPRI projects that the CRP program will only rise from 33.5 million acres in 2001 to 38.5 million acres in 2011, 0.7 million acres short of the cap. However, the additional acres bid into the program slightly reduce the acreage expansion that would have otherwise occurred under the FSRI Act.

Implications of the FSRI Act for World Agriculture

The FAPRI March 2001, baseline was the last baseline forecast that included a straight extension of the 1996 farm bill with no continuation of ad hoc emergency, "double AMTA", payments. The stochastic means from the March 2001 baseline were compared with the stochastic means resulting from then implementation of the FSRI Act and these results are presented in Tables 5 through 8. As Table 5 suggests, the acreage and price implications are minimal. All crops with the exception of soybeans, experience a slight increase in area. The reduction in soybean loan rates is the driver behind the decline in soybean area planted. On average total area planted to the nine major crops increases by only 1.03 million acres. Subsequently, U.S. crop prices fall very slightly averaging 3 to 5 cents lower per bushel across the commodities in Table 5 with the exception of

soybeans. Note that most of the fall in prices occurs early in the decade because the current low world prices generate greater payments in the early period. Soybean prices increase slightly do to a reduction in area planted, but the price grains are short lived as South America compensates. Crop gross returns do appear to be significantly higher in Table 5, but they do include the decoupled payments as well.

Table 5. Impacts of the Farm Security and Rural Investment Act of 2002 on the U.S. Crop Sector

	Units	2002	2003	2004	2005	2006	2007	2008	2009	2010	02-10 avg.
Planted area		(Changes on a crop-year basis relative to a March 2001 baseline)									
9 major crops*	mil. acres	2.09	1.96	1.46	1.14	0.90	0.66	0.47	0.35	0.23	1.03
Wheat	mil. acres	1.19	1.10	0.69	0.55	0.36	0.27	0.15	0.10	0.06	0.50
Corn	mil. acres	1.31	1.15	0.80	0.63	0.53	0.43	0.31	0.26	0.20	0.62
Soybeans	mil. acres	-1.33	-1.17	-0.82	-0.76	-0.67	-0.60	-0.48	-0.42	-0.38	-0.74
Upland cotton	mil. acres	0.11	0.10	0.12	0.10	0.08	0.07	0.06	0.05	0.04	0.08
Rice	mil. acres	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sorghum	mil. acres	0.47	0.46	0.39	0.34	0.30	0.23	0.19	0.16	0.12	0.30
Barley	mil. acres	0.12	0.08	0.07	0.08	0.09	0.08	0.08	0.06	0.05	0.08
Oats	mil. acres	0.17	0.19	0.18	0.18	0.17	0.14	0.14	0.12	0.11	0.16
Sunflowers	mil. acres	0.03	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Crop prices											
Wheat	$/bu.	-0.04	-0.05	-0.04	-0.03	-0.03	-0.02	-0.01	-0.01	-0.01	-0.03
Corn	$/bu.	-0.04	-0.06	-0.06	-0.05	-0.04	-0.03	-0.02	-0.02	-0.01	-0.04
Soybeans	$/bu.	0.09	0.08	0.06	0.05	0.04	0.04	0.03	0.03	0.03	0.05
Upland cotton	$/lb.	-0.002	-0.003	-0.003	-0.003	-0.002	-0.002	-0.002	-0.002	-0.001	-0.002
Rice	$/cwt	-0.05	-0.05	-0.06	-0.05	-0.05	-0.05	-0.04	-0.03	-0.03	-0.05
Sorghum	$/bu.	-0.06	-0.08	-0.07	-0.06	-0.05	-0.04	-0.03	-0.02	-0.02	-0.05
Barley	$/bu.	-0.05	-0.06	-0.05	-0.05	-0.04	-0.04	-0.03	-0.02	-0.02	-0.04
Crop gross returns**											
Wheat	$/bu.	0.48	0.38	0.35	0.29	0.23	0.18	0.15	0.13	0.11	0.26
Corn	$/bu.	0.22	0.20	0.19	0.16	0.13	0.11	0.09	0.07	0.06	0.14
Soybeans	$/bu.	0.30	0.30	0.28	0.28	0.27	0.27	0.26	0.26	0.26	0.28
Upland cotton	$/lb.	0.089	0.086	0.083	0.079	0.074	0.067	0.063	0.058	0.053	0.07
Rice	$/cwt	1.13	0.93	0.90	0.78	0.71	0.59	0.56	0.51	0.45	0.73
Sorghum	$/bu.	0.35	0.33	0.30	0.27	0.22	0.20	0.17	0.14	0.12	0.23
Barley	$/bu.	0.18	0.15	0.12	0.14	0.12	0.11	0.10	0.09	0.08	0.12

* Wheat, corn, soybeans, upland cotton, rice, sorghum, barley, oats, and sunflowers
** Gross returns include program payments

The impacts of FSRI on milk production can be found in Table 6. Milk production is 1.2 billion pounds higher over the 2003 to 2005 during the operation of the National Milk Program. As a result milk prices are lower by about $0.33 per gallon, but producer's gross returns are higher by $0.21 per cwt over the 2003 to 2005 period. As the program expires in 2005, milk prices continue to be lower resulting in an average increase of just $0.02 in milk gross returns over 2002 to 2011 period.

As reported in Table 7, the U.S. government does spend a total of 62.8 billion dollars more in the 2000 Act, over 70 percent of which shows in net farm income. In Table 8, net farm income averages $4.5 billion per year higher over the 2002 to 2011 period, than under the 1996 FAIR Act.

Table 6. Impacts of the Farm Security and Rural Investment Act of 2002 on the U.S. Dairy Sector

	Units	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	02-11 avg.
		(Changes on a calendar-year basis relative to a December 2001 baseline)										
Milk production	bil. lbs.	0.8	1.1	1.2	1.2	0.8	0.5	0.3	0.2	0.1	0.1	0.6
All-milk price	$/cwt	-0.12	-0.22	-0.33	-0.41	-0.16	-0.16	-0.17	-0.13	-0.09	-0.06	-0.18
Gross returns*	$/cwt	0.38	0.31	0.21	0.11	-0.16	-0.16	-0.17	-0.13	-0.09	-0.06	0.02

* Gross returns include total program payments divided by total milk production

Table 7. Impacts of the Farm Security and Rural Investment Act of 2002 on CCC Net Outlays

	Units	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	02-11 total
		(Changes on a fiscal-year basis relative to a March 2001 baseline)										
Title I (Commodities)	$ bil.	3.62	4.61	7.67	7.43	6.05	5.15	4.01	4.19	3.71	3.23	49.66
Title II (Conservation)	$ bil.	0.34	0.45	0.83	1.20	1.52	1.64	1.64	1.74	1.86	1.98	13.21
Titles I and II	$ bil.	3.97	5.06	8.50	8.63	7.56	6.80	5.65	5.93	5.57	5.21	62.87

Table 8. Impacts of the Farm Security and Rural Investment Act of 2002 on Net Farm Income

	Units	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	02-11 avg.
		(Changes on a calendar-year basis relative to a March 2001 baseline)										
Title I (Commodities)	$ bil.	4.57	6.11	5.47	5.08	3.99	2.61	2.95	2.72	2.41	2.12	3.80
Title II (Conservation)	$ bil.	0.09	0.28	0.50	0.71	0.89	0.92	0.86	0.87	0.90	0.93	0.70
Titles I and II	$ bil.	4.66	6.39	5.97	5.79	4.88	3.53	3.81	3.59	3.31	3.05	4.50

In Table 9, the impacts on U.S. exports are presented for the major commodities the U.S. exports. In general, the table reflects very small changes in U.S. export levels. As with acreage, exports increase slightly for all crops with the exception of soybeans and soybean products.

Table 9. Impacts of the Farm Security and Rural Investment Act of 2002 on the U.S. Crop Sector

	Units	2002	2003	2004	2005	2006	2007	2008	2009	2010	02-10 avg.
US Exports		(Changes on a crop-year basis relative to a March 2001 baseline)									
Wheat	Million MT	0.48	0.85	0.86	0.73	0.56	0.42	0.29	0.20	0.14	0.50
	% Chg	1.7%	2.9%	2.9%	2.4%	1.8%	1.4%	0.9%	0.6%	0.4%	
Corn	Million MT	0.53	1.11	1.45	1.50	1.40	1.22	0.99	0.77	0.60	1.06
	% Chg	1.0%	2.0%	2.4%	2.4%	2.2%	1.9%	1.5%	1.1%	0.8%	
Soybeans	Million MT	-0.44	-0.92	-0.88	-0.76	-0.63	-0.54	-0.47	-0.41	-0.36	-0.60
	% Chg	-1.5%	-3.1%	-2.9%	-2.5%	-2.0%	-1.7%	-1.5%	-1.3%	-1.1%	
Soybean Meal	1000 MT	-126.1	-74.6	-19.1	-12.1	-27.5	-38.4	-33.7	-31.4	-29.8	-43.62
	% Chg	-1.8%	-1.1%	-0.3%	-0.2%	-0.4%	-0.6%	-0.5%	-0.5%	-0.4%	
Soybean Oil	1000 MT	-35.52	-33.26	-20.05	-15.07	-14.97	-14.94	-12.13	-10.32	-9.33	-18.40
	% Chg	-5.0%	-4.4%	-2.5%	-1.8%	-1.7%	-1.7%	-1.3%	-1.1%	-1.0%	
Upland cotton	1000 MT	12.08	17.07	20.84	20.69	18.89	16.47	13.86	11.67	10.11	15.742
	% Chg	0.7%	0.9%	1.1%	1.1%	0.9%	0.8%	0.7%	0.6%	0.5%	
Rice	Million MT	0.03	0.03	0.04	0.04	0.03	0.03	0.03	0.02	0.02	0.03
	% Chg	0.8%	0.8%	1.0%	0.9%	0.9%	0.8%	0.7%	0.6%	0.6%	
Sorghum	Million MT	0.11	0.16	0.15	0.14	0.13	0.11	0.09	0.08	0.06	0.11
	% Chg	2.2%	2.9%	2.8%	2.5%	2.2%	1.8%	1.5%	1.2%	0.9%	

So why doesn't the projected $62.8 billion have more of an effect on U.S. agricultural production? In large part, it is because most of the payments are de-coupled from current levels of production. To a lesser extent, the supply controls that were removed in the 1996 FAIR Act already allowed U.S. farmers to expand crop area to their productive limits given current commodity price levels. Finally, as Table 10 illustrates, the ad hoc disaster assistance offered in the last four years of the 1996 FAIR Act was roughly at the same level of the direct and CCP payment offered under the 2002 Act.

The 2002 FSRI Act And The WTO

With at least $62.8 billion more in additional spending on U.S. agricultural policy, the burning question is whether the United States likely to exceed its WTO commitments.

Table 10. Comparison of Crop Payments: Historical, Projected FAIR Act and FSRIA

(Annual Averages, Thousand Dollars)

	History 98-00 Crops	FAIR Act 2002 Crop	FSRIA 2002 Crop	Change from FAIR	FAIR Act 02-07 Crops	FSRIA 02-07 Crops	Change from FAIR
AL	110,376	46,925	95,472	48,547	42,307	85,825	43,518
AK	263	83	135	52	83	142	59
AZ	117,953	50,010	139,669	89,659	46,219	128,240	82,021
AR	811,370	567,921	811,113	243,192	484,659	684,582	199,922
CA	530,775	319,844	565,830	245,987	287,852	500,509	212,657
CO	248,966	117,188	234,430	117,242	100,848	192,179	91,331
CT	2,831	1,531	2,781	1,250	1,287	2,321	1,034
DE	19,024	13,747	25,072	11,325	10,718	20,498	9,780
FL	21,604	10,150	20,916	10,766	9,375	19,049	9,674
GA	237,443	99,784	221,223	121,439	90,148	200,098	109,950
ID	181,147	85,956	176,734	90,778	75,553	142,965	67,412
IL	1,548,884	1,055,133	1,610,541	555,408	843,969	1,330,734	486,765
IN	748,542	510,114	786,568	276,454	408,925	652,038	243,113
IA	1,718,027	1,154,812	1,704,048	549,236	929,615	1,415,614	485,999
KS	1,052,347	524,289	1,039,564	515,275	441,884	844,016	402,132
KY	175,524	104,458	172,247	67,788	85,170	141,883	56,713
LA	364,270	206,223	347,058	140,836	182,456	304,144	121,688
ME	3,902	2,475	4,584	2,108	1,944	3,778	1,834
MD	59,484	40,540	70,040	29,500	31,808	56,796	24,988
MA	1,758	934	1,697	763	790	1,424	634
MI	296,223	187,163	285,925	98,762	151,732	236,338	84,606
MN	1,135,303	766,073	1,160,867	394,794	607,441	942,567	335,126
MS	397,293	211,101	368,476	157,375	183,386	323,602	140,216
MO	572,962	381,413	574,267	192,854	308,704	475,416	166,712
MT	297,660	129,238	266,327	137,088	116,237	218,262	102,025
NE	1,158,488	674,634	1,124,702	450,068	557,807	938,043	380,236
NV	1,994	1,021	2,063	1,042	954	1,803	848
NH	1,476	806	1,440	634	658	1,172	514
NJ	8,675	5,725	10,616	4,891	4,555	8,891	4,336
NM	51,366	22,795	45,406	22,611	20,246	39,051	18,804
NY	73,269	35,925	71,504	35,579	31,359	61,989	30,630
NC	216,734	114,441	216,635	102,194	95,716	185,788	90,072
ND	731,210	403,415	676,488	273,073	334,934	536,269	201,336
OH	534,530	369,324	567,561	198,237	292,408	463,077	170,670
OK	333,039	136,121	294,900	158,779	123,627	246,081	122,454
OR	84,030	35,389	74,660	39,271	31,803	60,705	28,902
PA	62,103	35,066	97,524	62,457	29,564	86,651	57,088
RI	92	49	89	40	41	75	34
SC	81,037	39,153	73,697	34,544	34,275	64,788	30,513
SD	582,180	391,814	605,878	214,064	310,215	487,005	176,790
TN	182,878	96,431	172,497	76,066	80,649	147,042	66,393
TX	1,261,042	569,687	1,151,864	582,177	512,215	1,011,791	499,577
UT	18,361	8,363	16,917	8,554	7,391	14,060	6,669
VT	4,936	2,721	4,831	2,110	2,232	3,956	1,723
VA	70,673	40,902	72,040	31,138	33,615	60,094	26,479
WA	222,744	92,240	199,026	106,786	81,362	158,729	77,367
WV	5,259	2,707	4,503	1,796	2,356	3,894	1,538
WI	350,957	206,865	338,486	131,620	171,967	286,521	114,554
WY	20,973	10,518	20,579	10,061	9,400	17,418	8,017
US	16,711,976	9,883,218	16,529,488	6,646,270	8,212,457	13,807,912	5,595,455

Using the box terminology from the previous WTO negotiation, the amber box is designation for policies that are considered to be trade distorting and have an aggregate spending limit attached to them.

However, there are a couple of loopholes in the amber box. The *de minimis* rule exempts spending on amber box programs in the spending is below the agreed upon percentage of the value of production. In the case of the United States the agreed to percentage is 5 percent. If the spending is below 5 percent of the value of production, then it is not counted against the amber box limit. However, if the spending exceeds 5 percent of the value of production then all of the spend counts against the limit.

Within the amber box, trade-distorting subsidies are divided into two types, product-specific and non-product-specific. The *de minimis* rule applies differently to the two types of subsidies. For product specific subsidies, the 5 percent limit applies directly to the value of the specific crops getting subsidized. For non-production specific subsidies, the 5 percent limit applies to the entire value of all U.S. agricultural production.

Clearly the loan deficiency payments are product-specific and fall within the trade distorting amber box. Since decoupled direct payments are not are not tied to current production that are classified as minimally trade distorting or "green box" in the box terminology. Now the big question is which box the CCPs belong in. The CCPs are not tied to current production, but they are tied to current prices. Thus, while they are not product-specific, they appear to be non-product-specific payments. Certainly other interpretations are possible, but for the calculation of WTO commitments, FAPRI has placed CCPs in the amber box.

In the Uruguay Round of WTO negotiations, the United States agreed to limit its amber box spending to $19.1 billion per year. In the May 2002, baseline, FAPRI estimated that there was a 19.3 percent chance that the U.S. would exceed its WTO limit on amber box farm subsidies.

Emerging Trends In Agricultural Policy

While it may seem that U.S. policy took a step backwards toward the policies in the 1990 Farm Bill, three important trends have emerged. The first of these trends appears to be motivated in part by the desire to stay within WTO commitments. Throughout the 2002 FSRI Act, a partial attempt at de-coupling payments from current production was made in order to stay within WTO commitments. Other countries such as the EU's CAP Reform have made policy revisions that attempt to de-couple subsidies from current production. The EU continues to ease down intervention prices while partially offsetting price declines with de-coupled compensatory payments.

The second significant trend is the continued movement away from supply control as a means of supporting prices. Some of the EU's current proposals include a reduction and possibly elimination of set aside programs. In the 2002 farm bill debate, there appeared

to be very little discussion of supply controls. Part of the motivation for dropping supply controls appears to be that as countries reduce their barriers to imports and grant greater market access, they have realized they can no longer effectively support domestic prices with supply controls.

The third important trend is that a number of countries have developed policies that include a countercyclical mechanism especially to help with periods of low prices. Countercyclical payments in the 2002 U.S. Farm Act and Ontario, Canada's Grain and Oilseed Payment scheme are two recent examples.

Conclusions

The 2002 FSRI Act has relatively minor impacts on current U.S. commodity production, agricultural prices and world trade because most of the additional spending is de-coupled from current levels of production. About 66 percent of the additional payments are from the newly added CCPs. In many ways, the FSRI Act formalized the add hoc payments AMTA payments made the last four years of the 1996 FAIR Act. The single biggest crop implication from the 2002 FSRI Act is the reduction in the soybean loan rate which lowers soybean are planted and increases soybean prices, Even this impact is small, averaging less than 0.75 million acres over the 2002 – 2010 period. The addition of a National Dairy Program does bolster milk returns in the short run, but as the program expires the positive effects are nearly offset by lower longer-term milk prices.

The continuing trend of de-coupled subsidies with no supply controls is engrained in the FSRI Act. The CCPs help reduce the downside price risk for U.S. agriculture, while the market loan rate provides protection for exceptionally low prices. If world production continues to be large, keeping world prices low, U.S. producers will continue to produce because of loan rate protection. There is potential for competitors to feel greater price pressure, and countries with the deepest pockets will be best protected. Given the program parameters, perhaps of greater importance long term is the small chance that the U.S. could be in a position to violate the WTO spending limits.

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