Impacts of 1996 Farm Bill Policies on Rural Economies and Farmers of the Texas High Plains

Keith Schumann University Undergraduate Research Fellow, 1995-96 Texas A&M University Department of Agricultural Economics

APPROVED m Undergraduate Advisor ron and eerb Exec. Dir., Honors Program yler Ce

ABSTRACT

Impacts of 1996 Farm Bill Policies on Rural Economies and Farmers of the Texas High Plains. Keith D. Schumann (Dr. Lonnie Jones), Agricultural Economics, Texas A&M University.

The 1996 Farm Bill, signed into law on April 4, is a significant departure from the focus of modern and historical domestic farm policy. As a provision of the proposed Federal balanced budget, it will deregulate income support programs for commodity farmers over the period from 1996 to 2002. Income support programs have been key to annual planting decisions, and they have been a reliable sources of income for farmers. The transition from government deficiency payments to decoupled fixed payments will cause major adjustments to occur in the agricultural industry. It will especially impact several counties in the Northern Plains of Texas, which rely heavily on food and feed grain production. The overall grain income per county stands to loose a significant share due to the policy changes, depending on annual prevailing prices. The new policy, compared to the 1990 Farm Bill, will cause reorganization in the composition of grain production for the area.

Impacts of 1996 Farm Bill Policies on Rural Economies and Farmers of the Texas High Plains

Introduction

The general purpose of U.S. government farm programs has been to stabilize the market price for commodity producers while at the same time provide a cheap, abundant supply of food to the public. Over time, these programs have come to include not only production support and control, but also national food assistance, rural development, environmental policies, research and several other policy supervision (Knutson 1995). Farm legislation passed by the Congress and signed by the president is then executed and enforced by the United States Department of Agriculture (USDA). The broad authority of farm legislation and the USDA, combined with recent events in the agricultural sector, has brought the original purposes of farm programs under scrutiny.

Permanent farm legislation has been in place since 1949 to provide price and income supports to farmers in the form of entitlements, or programs which authorize benefits to those who qualify. In order to receive these entitlements, farmers have to meet certain criteria explained in the prevailing farm bill. Some of these criteria have included planting restrictions and imposed conservation practices. The farm legislation requires amending every four or five years due to time jurisdiction and changes in the economic environment. Separate legislation is passed for the policies to be enacted and their budget requirements and implementation (Tweeten).

The 1990 Farm Bill

The last major amendment to the 1949 permanent farm legislation was the Food, Agriculture, Conservation and Trade Act of 1990 which, combined with the Omnibus Budget Reconciliation Act of 1990, formed the 1990 Farm Bill. These provisions set forth broad farm policy decisions, but there were some principal items which dealt with the entitlement programs:

Nonrecourse loans. The nonrecourse loan is a loan based on the harvested commodity of the farmer¹. The farmer receives a warehouse receipt after the commodity is put into storage and then goes to a USDA Farm Services Agency to receive a loan at a predetermined loan rate in exchange for the receipt. The farmer has the option of selling the commodity for the prevailing market price and paying off the storage and interest for the loan. Or, the farmer can forfeit the commodity to the Commodity Credit Corporation (CCC) for the predetermined loan rate. Under the latter option, no interest or storage is paid, and the commodity becomes part of the government's CCC stocks. These stocks are distributed to schools, held and marketed to stabilize prices, used as foreign aid or exported on the world market. According to the 1990 Farm Bill, the predetermined loan rate is set at 85% of the previous five year average annual market price for the average, to make what is called an Olympic average (Knutson 1996). The loan rate acts as a domestic market price floor for each commodity, and it is considered a price support.

¹ For the remainder of the discussion, the term *farmer* will be used to describe those producers participating in the government farm program. Since the program is voluntary, not all farmers take part.

Target price and Deficiency payments. The target price is an estimated price that would yield the desired level of returns to farmers as determined by the Congress. This item is analogous to a labor minimum wage because it guarantees farmers a minimum price per unit for their specific commodities. This price does not directly enter into market conditions like the nonrecourse loan does, but it does influence farmers' production decisions. In anticipation of a high target price, farmers tend to produce the maximum amount of commodity subject to their resources and restrictions. Barring abnormal market situations, this generally causes market prices to be below the target price. After the individual commodity's harvesting season is over, the farmer is given a government check in the form of a deficiency payment. This amount is determined by the per unit difference between the target price and the annual market price or the loan rate, whichever is higher. The difference is called the deficiency payment rate, which is then multiplied by the amount of commodity the farmer produced. Because of the nature of determination and payment, the target price and deficiency payments are considered income supports for farmers.

ARP. The payments and price supports farmers receive are calculated on the base acres that the farmer is using for production. The base acres are determined by the farmer and the county Farm Services Agency. In order to curb over-production which stifles market prices, Congress enacted the Acreage Reduction Program, or Set Aside Program. The goal of this program was to limit supply by restricting the amount of acres a farmer could plant in a year. The program also had conservation principles associated with it because it slowed soil erosion on the farm land that was taken out of production. The amount of land was established as a percent of base acreage and it

varied from year to year. Participation in this program was mandatory in order to receive entitlements.

Flexibility. In order to receive entitlements, farmers had to plant the commodity specified by the program for which they were signed up . To reduce program spending, a provision of the 1990 Farm Bill allowed farmers to participate in the program and use a portion of their land to plant alternative crops. This option, called flexing, let farmers plant other crops of choice. The flexibility set by the 1990 Farm Bill was 15% of the farmers' base acreage. The farmers did not receive deficiency payments for these acres, but they could plant more independently profitable crops.

There are several other provisions of the 1990 Farm Bill which have only minor applications to this study, yet they should be touched on to receive a broader picture of the context under which the farm program operates. The Conservation Reserve Program (CRP) is a program that takes land out of production and maintains it for conservation purposes. Forty million acres have been authorized under this program for the 1990 legislation. Marketing loans are extended to producers if the world market price falls below the loan rate. These loans allow farmers to market their commodities or take a loan deficiency payment. There are also several mechanisms for payment limits for entitlements to farmers.

The 1996 Farm Bill

The farm bill proposals offered by Congressmen early in 1995 showed efforts to adjust the entitlement legislation. The new ideas were structured by Pat Roberts, chairman of the House of Representatives Agriculture Committee, and Senator Richard Lugar, chairman of the Senate Agriculture Committee, to be part of the Republican Balanced Budget and budget reconciliation package. The original goal of the `Freedom To Farm Act' was to cut \$13.4 billion from the budget through the effective elimination of farm income supports. Over the period from 1996 to 2002, the Freedom to Farm Act, or Agricultural Market Transition Act, would act to gradually eliminate target prices (Frederick no. 19).

Although the passage of the 1995 bill did not occur before the expiration of the 1990 Farm Bill, it was passed by Congress and signed by President Clinton on April 4, 1996. Farmers and commodity programs were in a temporary state with no guiding farm bill, but Congress did not enact the provisions of the permanent 1949 legislation to compensate. The 1949 legislation would have put in place high support prices which would have been costly to implement. The new law has been transiently titled the 1996 Farm Bill, and its time jurisdiction will be until the year 2002. Although it has been passed, the USDA implementation provisions are still in the formative stages and are subject to change (Knutson 1996). The 1996 Farm Bill will significantly change the nature of farm programs and production decisions through a few fundamental changes in the historical farm program.

The main difference between the 1990 and 1996 bills is the elimination of target prices and deficiency payments. Under the 1996 version, no target prices will be set to influence production

decisions. For the period of this law's time jurisdiction, the deficiency payments will be eliminated and replaced with what is called decoupled or transition payments. Farmers will receive payments from a pool of \$35.7 billion allotted for the seven years. The size of the individual farmer's payment does not depend on the amount of crop sold or the prevailing market price, but rather the farmer's historical acreage base. The payment rate will be paid on 85% of the enrolled acres and will vary for each commodity year to year. Another significant change in farm legislation will be the initiation of virtual full flexibility. Except for a few commodity restrictions, farmers will be allowed to plant virtually any commodity and still receive payments for their base acres. Farmers who have planted corn under the past farm program can now plant other crops as long as the land is use for agricultural purposes. The farmers will still receive payments for their corn base acres, but they can plant a crop which might yield a better expected profit under the new program.

The ARP Authority will be eliminated under the new law along with other changes. Farmers can plant their full base acreage and bring new land into production without penalty. The stipulation is that payments will be given on only 85% of the historical base acreage. The CRP will reduce its authorized 40 million acres to 36.4 million acres as well. The individual payment limit will be reduced from \$50,000 to \$40,000 per year. Small adjustments have also been made to the nonrecourse and marketing loans.

There are broad implications for the changes specified in the 1996 Farm Bill. First, farmers will be able to plant based on their own decisions, which will allow more responsiveness to demand and price fluctuations. Compared to the current 1990 Farm Bill, the transition payment system of the 1996 Farm Bill allows immediate subjectivity to market variability. This means that production decisions and prices will depend less on government programs and more

on world market conditions. Depending on the relative annual price, the decoupled payment can act to boost net income, or in the case of low market prices, cause a definitive and sustained drop in net income relative to the current bill. Another factor will be the large amount of land coming into production due to elimination of the ARP and reduction of CRP reserves.

Much of the concern over the new farm bill is that after the end of its time jurisdiction, there will be little or no farm legislation guiding food and feed production. This is a legitimate concern which will divulge itself more fully over the seven years of transition. Despite the early proposals, the 1996 Farm Bill will not permanently end the 1949 legislation once it has expired. The seven year period will be a time of study to examine the U.S. agricultural sector under more market-based conditions. This period will determine the course of farm legislation after 2002.

The purpose of this study is to estimate the relative economic impacts of the 1996 Farm Bill on a cash grain producing region in Texas. The principal means of evaluating the economic impacts will result from the comparison between the 1990 Farm Bill and the early 1996 Farm Bill. The primary determinant factors will be revenue and net cash returns per planted acre for the two provisions. Changes will be ascertained by manipulating government payments and, to a lesser degree, market prices. The goal is to determine if the 1996 bill makes farmers in this region financially better off during the study period, or if they might be better off under a continuation of the 1990 Farm Bill.

Study Region

The research area for this analysis is Moore County, located in the Northern High Plains of Texas. The primary products of Moore County are livestock and cash grain commodities.

Historically, the primary crops produced, in order of planted acres, are wheat, corn and sorghum. The other historical crops, although significantly less in production and consecutive annual planting, are barley, hay, soybeans, oats and sunflowers. For the purposes of this analysis, the comparisons will be restricted to the three primary crops.

According to the 1992 Census of Agriculture, Moore County is made up of farm land primarily. The total land area is 575,825 acres, nearly all of which is farm and cropland. There are approximately 292 farms and the average farm size is 2011 acres. The largest 64 farms comprise about 70% of the county's land area. Approximately 27,000 acres in the county is in the Conservation Reserve Program or the Wetland Reserve, and the area of land diverted under annual commodity programs is variable.

The majority of the county's land is in irrigated cropland. Approximately 53% of the land is irrigated cropland, 10% is in dryland, 18% is pastureland and the rest of the land is comprised of woodlands, house lots, ponds, etc. In 1992, harvested acreage was 28% of the total land area. Of this harvested acreage, half was planted in wheat, one-third was corn, approximately onetenth was sorghum and the rest was a variety of crops. The largest 64 farms were responsible for nearly half of the harvested acreage.

The County Extension Program Council estimated that from 1991 to 1994, county commodity receipts averaged roughly \$137 million not including government payments. Of this average, 66.33% was from livestock, 23.07% was from corn and feed crops and 10.3% was from wheat (Anderson). Because of the high feed production in this county, there are many cattle feedlots which have caused high livestock sales relative to other agricultural production. During this period, the statewide fraction of government payments in total commodity cash receipts was

6.4%. Government payments totaled \$5.6 million in Moore County in 1992, which amounts to \$27,813 per farm on 202 farms receiving payments.

Methodology

In order for this analysis to be carried out, a forecasting model is utilized. It is an arduous undertaking to attempt to predict the production decisions for an entire county, so a sample representation technique has been used. The Agriculture and Food Policy Center (AFPC) at Texas A & M maintains a panel of 72 representative farms located across the United States. These model farms were developed in cooperation with House and Senate Committee staffers and producer panels in an effort to have the proper information available to analyze macroeconomic policy effects. The producer panels are given pro-forma financial statements for their representative farms and are asked to make confirmations on a four to five year production forecast.

The representative farm modeling procedure uses price baselines from the Food and Agriculture Policy Research Institute (FAPRI) at Missouri-Columbia and Iowa State University. These baselines include forecasts for annual crop prices, loan rates, target price, input prices and interest rates. The 72 panel farms are composed of two farms from various regions across the United States that are chosen to represent moderate and large size commodity operations (Richardson). Two of the farms representing feed grains are located in Moore County in the Northern Plains region of Texas.

The two irrigated grain farms are a moderate sized operation of 1600 acres and a large operation of 4500 acres. Neither farm used the acreage flexibility option under the 1990 Farm

Bill, nor will they choose to exercise the flex option in the 1996 bill. The farms did not use the flexibility option due to constraints on water use. In 1995 both farms planted a crop mix of corn, sorghum and wheat. The 1600 acre farm grossed \$372,400 from 1387.6 planted acres and the 4500 acre farm grossed \$911,300 from 4621.4 total planted acres². Table 1 contains a list of financial characteristics for the two Moore County farms projected for 1995 from pro-forma financial statements.

 Table 1. 1995 Pro-Forma Financial Characteristics for Representative Farms in Moore County

	Moderate Farm	Large Farm	
Total Revenue	\$351,452	\$861,762	
Cash Receipts for Crops	334,182	817,723	
Deficiency & Diversion Payments	17,269	44,039	
Total Expenses	271,088	647,267	
Net Cash Farm Income	80,364	214,495	
Total Assets	658,816	1,496,860	
Liabilities	169,701	467,621	
Nominal Net Worth	489,115	1,029,239	
Debt/ Asset Ratio	0.258	0.312	
Long Run Debt/ Asset	0.150	0.190	
Rate of Return on Assets	0.083	0.103	
Government Payments/ Cash Receipts	0.064	0.068	

Source: APFC Data on Representative Farms

² The acres planted is greater than the base acreage due to double planting within the year.

For this analysis, these two farms take on a new representative responsibility. They are used to divide Moore County into groupings of moderate farms and large farms. The moderate sized farm represents the 30% of Moore County that is comprised of farms less than 2000 acres in size; the large farm represents the over 2000 acre farms comprising the remaining 70%. Within these groups, it is assumed that the farms have homogeneous operation characteristics with respect to planting decisions, input costs, irrigation and chemical application, harvested acres, production yield results and market price subjectivity.

To estimate the impacts of the two scenarios provided by the 1990 and 1996 Farm Bills, the two model farms are analyzed using a computer program called FLIPSIM. FLIPSIM, an acronym for Farm Level Income and Policy Simulation Model, is a computer software tool developed by the AFPC (Smith). It is a spreadsheet model which incorporates multiple economic factors to provide outputs relating financial information for the representative farms. The scenarios incorporated by new farm policies and various macroeconomic conditions are programmed into the model to create new paradigms for analysis. The FLIPSIM model is used to compare the financial impacts of the 1990 and 1996 Farm Bills on the two model farms in Moore County.

Using the data provided by FLIPSIM, the annual revenue and net income of the model farms is correlated to the county groupings for the study period. Total county production is based on historical planting levels. The study period is from 1996 to 2002, the time jurisdiction of the 1996 Farm Bill. From this farm level impact analysis, county level impacts are inferred.

The modeling of the panel farms to actual county activity is called the inductive correlation analysis. The result from this estimation shows the approximate changes in gross

receipts and net income per planted acre for the county. To achieve these results, some key assumptions are made. First, total crop production is held at the 1994 level of 14.0 million bushels of corn, 3.9 million bushels of wheat and 1.7 million bushels of sorghum. Along with production, total county planted base acreage is held at 227,600 acres. This is comprised of 81,700 acres of corn, 124,400 acres of wheat and 21,500 acres of sorghum.

Moore County is subjected to the same circumstances as the model farms in the FLIPSIM scenarios. Some of the factors included in the scenarios include commodities sold at the average annual market prices and similar government payment rates, along with analogous cost inputs. The crop mixes are approximately the same for the overall county as they are for the model farms. The annual trends show that the majority of acreage in the county is planted in wheat, followed by corn and sorghum. The county crop mixes depend on the yearly crop mixes of the model farms within the analysis.

The county is divided into two farm size categories, less than 2000 acres and greater than 2000 acres. The moderate model farm represents the 228 smaller farms which comprise 176,835 acres of farmland in the county. The large model farm represents the 410,429 acres made up of 64 farms which are over 2000 acres in size. It is assumed that the planted acreage is proportional to the acreage in each category³. This results in 68,530 acres planted by the smaller farms and 159,070 acres planted by the larger farms.

³ Total farmland includes all acreage owned or rented by farmers, including housing, pastureland, waterways, etc. From year to year, not all farms are producing cash grains on all of the available cropland.

Economic Impact Analysis

Results of the inductive correlation analysis between the 1996 and 1990 Farm Bills are shown in Tables A1 and A2 respectively. The planted acres and production levels are held constant at the 1994 values for the projection period. County revenue is determined by applying the FAPRI projected annual market prices to the county production levels. For the 1996 Farm Bill Scenario, government payments are calculated using the projected transition payment rates per bushel illustrated in Table B3. The government payments given under the 1990 Farm Bill Scenario are determined by using the transition payment rates, which are the net difference between the target price and the prevailing market price. The revenues and payments per planted acre are calculated by dividing the given return by the fixed total acres planted per year. County net income is determined by applying the net income as a percent of sales for the model farms. The net income percentage for the moderate farm is applied to the farms that are less than 2000 acres in size, and the net income percentage for the large farm is applied to the farms that are larger than 2000 acres in size. Total net income per planted acre is the sum of the two values.

As Appendix Tables B4 and B5 illustrate, the FLIPSIM comparison between the 1990 and 1996 Farm Bills reveals that the 1996 bill scenario results in marginally higher average returns for both model farms during the study period. Under the 1996 bill, the average cash receipts from 1996 to 2002 increase approximately 0.3% for both farms. Net income increases 4.23% for the moderate farm and 2.57% for the large farm. The decoupled government payments are over 3% higher for the farms than the 1990 deficiency payments would have been. The model shows that in some years, the change in cash receipts and government payments between the two bills is zero, but the 1990 bill never surpasses the 1996 bill in general returns under the model's parameters.

Using the inductive correlation analysis calculations in Appendix Tables A1 and A2, the 1996 Farm Bill results in an average decrease in receipts, net income and government payments compared to the 1990 bill for both categories of farms in Moore County. In general, most all of the farms in the county will receive lower returns as a direct result of the new farm policy according to the analysis. This is caused by the difference in costs for the small and large farms in the county in respect to the fixed production assumption. Larger farms generally have greater production efficiencies due to economies of scale. A fixed yearly county production level will lower production returns to the smaller farms, and subsequently, returns to the smaller farms will lower as well. Table 2 exhibits the changes which occur.

Table 2. Summary of Changes in Government Payments, Cash Receipts and Net Income per Acre for Moor
County Caused by Changes in Farm Bill Policies

	1996	1997	1998	1999	2000	2001	2002
Government Payments/ Planted Acre							
1990 Farm Bill Scenario	29.71	42.05	48.42	44.12	46.76	43.64	45.23
1996 Farm Bill Scenario	33.10	40.14	42.94	41.28	37.66	30.30	29.39
Change	3.39	(1.91)	(5.48)	(2.84)	(9.10)	(13.34)	(15.84)
Revenue/ Planted Acre							
1990 Farm Bill Scenario	258.13	258.13	258.13	258.13	258.13	258.13	258.13
1996 Farm Bill Scenario	261.52	258.21	252.65	255.29	249.00	244.80	242.20
Change	3.39	0.08	(5.48)	(2.84)	(9.13)	(13.33)	(15.93)
Net Income/ Planted Acre							
1990 Farm Bill Scenario	19.56	116.23	106.18	112.44	89.54	68.02	68.14
1996 Farm Bill Scenario	121.13	115.36	103.92	111.20	86.36	64.51	63.96
Change	1.57	(0.87)	(2.26)	(1.24)	(3.18)	(3.51)	(4.18)

The former results are given under the conditions of the forecasted price levels given by FAPRI. A third scenario is introduced using lower forecasted price levels for the 1996 Farm Bill Scenario. The price levels are determined by subtracting one standard deviation of the average annual price levels of 1983 to 1995 from the forecasted prices (Table B3). The results of the new inductive correlation analysis are shown in Table A3. This scenario uses model farm cost projections to relate county income levels instead of using net income as a percent of sales. This is done to emphasize fixed annual costs in light of lower prices and returns. Compared to the other scenarios, this model shows significantly lower annual revenues and net incomes after the first year. In year 2002, the acreage planted by the smaller farms of the county will yield a negative net income.

Implications and Conclusions

There are several components which will determine the most likely comparative forecasted estimates for the next seven years. The main factor which will impact the analysis significantly is unforeseen weather conditions. The economic model assumes only slight variations in yearly weather patterns. The regional inclement weather conditions of the past few planting seasons have contributed to the generally higher market prices for cash commodities. These higher prices represent the background in which the 1996 Farm Bill was debated and passed. Either extremely favorable or extremely unseasonable weather, both in the U.S. and abroad, will alter the market price baseline used in this analysis. The increased influence of market conditions caused by full acreage flexibility options under the 1996 Farm Bill may cause lower annual prices similar to those given in the third scenario. Regional competitive forces may act to drive down the domestic prices for commodities.

The decreased county returns from the enactment of the 1996 Farm Bill are due to general price fluctuations for cash grains caused by the regional weather conditions and, to a lesser extent, production controls under the 1990 Farm Bill. The yearly fixed transition payments offered by the 1996 bill can supply greater government income support for some years due to high prices. In the case of deficiency payments, high market prices cause a lower deficiency payment between the target price and the market price. If the market price approaches the fixed yearly target price, the government payment rate will decrease. The fixed decoupled payments of the 1996 bill are irrespective of market prices and do provide comparable county returns over the study period.

The decoupled payments provided to farmers over the period from 1996 to 2002 are a means of gradually withdrawing farmers from expectations of government assistance. The goal of this program may not be reached if conditions develop to cause higher relative annual returns compared to the 1990 program. If no income support program is renewed or introduced for the next farm bill, the high level of market prices expected over the next few years will distort the transition payment targets. The general transition from high cash receipts supplemented with fixed government payments to unforeseeable market conditions with no income support will cause serious adjustments in the farm sector.

The results of this analysis, especially comparisons of variable annual market prices, support the perceived trend that there are progressive increases in the size and efficiencies of production farms due to domestic and international market subjectivity. To be a viable

competitor in the world commodity market, minimized production costs need to be obtained. The ability of larger farms to gain economies of scale comes at the expense of smaller, more inefficient operations. Small, inefficient farms cannot compete because of high sunk costs and low capital expandability. Those that achieve negative profits will inevitably be forced out of production. The land from these farms is then developed for other uses or is absorbed by more efficient operations.

The provisions of the 1996 Farm Bill will provide a period of uncertainty for domestic commodity producers. Increased market related adjustments will be made over the next seven year period. Many producers will likely maintain production over the period to take advantage of fixed government payments. The long term environment of domestic commodity production will hinge on policies which will be established by the next farm bill. If no income support mechanism is put in place by the enactment of the next bill, many producers will anticipate that returns have peaked caused by the declining fixed income payments of the 1996 Farm Bill. Many farmers will divest their businesses soon after the year 2002 in light of these circumstances. Because of these changes in governing factors, the years under the jurisdiction of the 1996 Farm Bill can truly be called a period of transition for commodity producers of the United States.

Appendix A:

Inductive Correlation Analysis Calculations

1994 County Production Level	S						
Corn		Sorghum			Wheat		
81,700 plant	ed acres	21,500	planted acres		124,400	planted acres	
14,027,000 bushe	els produced	1,747,100	bushels produ	ced	3,904,000	bushels produce	ced
Total Acres Planted:	227,600						
Acres Planted by Small Farms	68,530						
Acres Planted by Large Farms	159,070						
	1996	1997	1998	1999	2000	2001	2002
Average Cash Receipts (\$)							
Corn	38,150,635	38,195,521	36,623,094	37,121,053	36,653,954	36,529,113	35,847,401
Sorghum	5,142,414	5,269,428	5,129,835	5,186,092	5,077,771	4,896,597	4,831,081
Wheat	16,229,318	14,848,864	15,749,907	15,797,146	14,940,998	14,289,811	14,466,662
Total	59,522,367	58,313,813	57,502,837	58,104,290	56,672,724	55,715,522	55,145,145
Average Transition Payments ((\$)						
Corn	3,784,485	5,232,071	5,623,424	5,420,033	4,952,934	3,986,473	3,865,841
Sorghum	1,106,613	1,390,866	1,478,396	1,412,356	1,286,564	1,035,506	1,004,932
Wheat	2,643,398	2,512,224	2,671,507	2,562,586	2,331,078	1,875,091	1,817,702
Total	7,534,496	9,135,161	9,773,328	9,394,974	8,570,577	6,897,071	6,688,476
Revenue/ Planted Acre (\$)	261.52	256.21	252.65	255.29	249.00	244.80	242.29
Payments/ Planted Acre (\$)	33.10	40.14	42.94	41.28	37.66	30.30	29.39
Net Cash Income Calculations'	*						
Net Income/ Planted Acre							
Received by Small Farms	53.61	50.25	42.49	43.97	32.40	19.22	16.83
Net Income/ Planted Acre							
Received by Large Farms	67.52	65.12	61.43	67.23	53.98	45.29	47.13
Net Income/ Planted Acre (\$)	121.13	115.36	103.92	111.20	86.38	64.51	63.96

Table A1. Inductive Correlation Analysis Results for Moore County Under the 1996 Farm Bill Scenerio, 1996 to 2002 Projections

* Average net income for each farm category is calculated as a percent of yearly total sales for each model farm in tables B4 and B5.

1994 County Production Levels	;						
Corn		Sorghum			Wheat		
81,700 planted	d acres	21,500	planted acres		124,400	planted acres	
14,027,000 bushel	s produced	1,747,100	bushels produ	iced	3,904,000	bushels produ	ced
Total Acres Planted:	227,600						
Acres Planted by Small Farms:	68,530						
Acres Planted by Large Farms:	159,070						
	1996	1997	1998	1999	2000	2001	2002
Average Cash Receipts (\$)							
Corn	38,574,250	38,574,250	38,574,250	38,574,250	38,574,250	38,574,250	38,574,250
Sorghum	4,559,931	4,559,931	4,559,931	4,559,931	4,559,931	4,559,931	4,559,931
Wheat	15,616,000	15,616,000	15,616,000	15,616,000	15,616,000	15,616,000	15,616,000
Total	58,750,181	58,750,181	58,750,181	58,750,181	58,750,181	58,750,181	58,750,181
Average Deficiency Payments ((\$)						
Corn	4,208,100	5,610,800	7,574,580	6,873,230	6,873,230	6,031,610	6,592,690
Sorghum	524,130	681,369	908,492	786,195	768,724	698,840	733,782
Wheat	2.030.080	3,279,360	2.537.600	2.381.440	3.006.080	3.201.280	2.967.040
Total	6,762,310	9,571,529	11,020,672	10,040,865	10,648,034	9,931,730	10,293,512
Revenue/ Planted Acre (\$)	258.13	258.13	258.13	258.13	258.13	258.13	258.13
Payments/ Planted Acre (\$)	29.71	42.05	48.42	44.12	46.78	43 64	45 23
raymonts, rhantoù riere (\$)	27.11	72.05	+0.+2		40.70	+5.04	73.23
Net Cash Income Calculations*	•						
Net Income/ Planted Acre							
Received by Small Farms	52.91	50.62	43.42	44.46	33.58	20.27	17.93
Net Income/ Planted Acre							
Received by Large Farms	66.64	65.60	62.76	67.98	55.96	47.75	50.22
Net Income/ Planted Acre (\$)	119.56	116.23	106.18	112.44	89.54	68.02	68.14

Table A2. Inductive Correlation Analysis Results for Moore CountyUnder the 1990 Farm Bill Scenerio, 1996 to 2002 Projections

* Average net income for each farm category is calculated as a percent of yearly total sales for each model farm in tables B4 and B5.

1994 County Production Levels							
Corn		Sorghum			Wheat		
81,700 plante	d acres	21,500	planted acres		124,400	planted acres	
14,027,000 bushel	s produced	1,747,100	bushels produ	ced	3,904,000	bushels produc	ced
Total Acres Planted:	227,600						
Acres Planted by Small Farms:	68,530						
Acres Planted by Large Farms:	159,070						
	1996	1997	1998	1999	2000	2001	2002
Average Cash Receipts (\$)							
Corn	32,374,130	32,419,017	30,846,590	31,344,548	30,877,449	30,752,609	30,070,897
Sorghum	4,537,134	4,664,148	4,524,555	4,580,812	4,472,491	4,291,317	4,225,801
Wheat	14,510,151	13,129,696	14,030,740	14,077,978	13,221,831	12,570,644	12,747,495
Total	51,421,415	50,212,861	49,401,884	50,003,338	48,571,771	47,614,570	47,044,192
Average Transition Payments (S	5)						
Corn	3,784,485	5,232,071	5,623,424	5,420,033	4,952,934	3,986,473	3,865,841
Sorghum	1,106,613	1,390,866	1,478,396	1,412,356	1,286,564	1,035,506	1,004,932
Wheat	2,643,398	2,512,224	2,671,507	2,562,586	2,331,078	1,875,091	1,817,702
Total	7,534,496	9,135,161	9,773,328	9,394,974	8,570,577	6,897,071	6,688,476
Revenue/ Planted Acre (\$)	225.93	220.62	217.06	219.70	213.41	209.20	206.70
Payments/ Planted Acre (\$)	33.10	40.14	42.94	41.28	37.66	30.30	29.39
Net Cash Income Calculations*							
Pageined by Small Former	15 07	20.00	20.44	04.00	1 <i>4 66</i>	0.47	(0 E0)
Not Income / Diented Acre	45.57	39.00	29.44	24.20	14.33	0.47	(8.58)
Dessived by Lange Farmer	70.20	74.00	60.00	20 10	57 (0	40.11	45 10
Net Income (Diante d A car (th)	19.32	14.29	08.33	08.10	57.09	49.11	45.10
Net income/ Planted Acre (\$)	124.69	113.35	97.76	92.36	12.23	49.59	36.52

Ļ

Table A3. Inductive Correlation Analysis Results for Moore County Under the 1996 Farm Bill ScenerioUsing Lower Price Estimates, 1996 to 2002

* Average net income for each farm category is calculated as the difference between revenue per planted acre and average yearly costs per acre calculated from figures in Tables B4 and B5. Appendix B:

Supplementary Data

÷

Number of Farms	292
Average Size of Farms (acres)	2,011
Total Land in Farms (acres)	587,264
CRP or wetland reserves (acres)	27,007
Market Value of Land & Buildings (\$)	196,981
Range of Farm Sizes (acres)	Number of Farms per Range
1 to 9	9
10 to 49	15
50 to 69	1
70 to 99	6
100 to 139	4
140 to 179	8
180 to 219	4
220 to 259	2
260 to 499	25
500 to 999	76
1000 to 1999	78
2000 acres or greater	64

Tale B1. Summary of Moore County Agricultural Statistics, 1992 Census

Source: 1992 Census of Texas Agriculture

Table B2. Summary of Moore County Cror	Characteristics for Corn. Sorghum & Wheat, 1989 to 1994
Tuble Dat Summary of Moore County Crop	Characteristics for Corny Sorghum & What 1909 to 1994

A second a second s	1989	1990	1991	1992	1993	1994
Corn						
Planted (1000 acres)	46.60	54.10	64.70	65.80	74.50	81.70
Harvested (1000 acres)	45.50	49.40	62.20	61.80	69.00	79.50
Yield per harvested acre (bushels	163.60	154.80	162.00	194.20	130.00	176.40
Production (1000 bushels)	7,443.50	7,649.20	10,079.40	12,000.00	8,969.00	14,027.00
Sorghum						
Planted (1000 acres)	53.00	34.00	31.80	27.20	21.10	21.50
Harvested (1000 acres)	52.40	31.90	30.10	27.00	20.70	20.70
Yield per harvested acre (bushels	84.30	102.80	94.20	100.30	97.20	84.40
Production (1000 bushels)	4,417.00	3,279.30	2,835.40	2,708.10	2,012.00	1,747.10
Wheat						
Planted (1000 acres)	88.50	99.7 0	102.20	119.10	121.30	124.40
Harvested (1000 acres)	35.80	75.80	68.10	88.40	107.80	100.40
Yield per harvested acre (bushels	39.90	47.90	58.40	48.30	43.10	38.90
Production (1000 bushels)	1,428.00	3,631.00	3,974.00	4,270.00	4,642.00	3,904.00
Totals of Corn, Sorghum and Wheat						
Planted (1000 acres)	188.10	187.80	198.70	212.10	216.90	227.60
Harvested (1000 acres)	133.70	157.10	160.40	177.20	197.50	200.60
Yield per harvested acre (bushels	287.80	305.50	314.60	342.80	270.30	299.70
Production (1000 bushels)	13,288.50	14,559.50	16,888.80	18,978.10	15,623.00	19,678.10

6

Source: 1994 Texas Agricultural Statistics

Crop Prices	1996	1997	1998	1999	2000	2001	2002
Corn (\$/bushel)	2.45	2.35	2.21	2.26	2.26	2.32	2.28
Sorghum (\$/bushel)	2.31	2.22	2.09	2.16	2.17	2.21	2.19
Wheat (\$/bushel)	3.48	3.16	3.35	3.39	3.23	3.18	3.24
Deficiency Payment Rates	*						
1990 Farm Bill Scener	1996	1997	1998	1999	2000	2001	2002
Corn (\$/bushel)	0.30	0.40	0.54	0.49	0.49	0.43	0.47
Sorghum (\$/bushel)	0.30	0.39	0.52	0.45	0.44	0.40	0.42
Wheat (\$/bushel)	0.52	0.84	0.65	0.61	0.77	0.82	0.76
Fixed Payment Rates							
1996 Farm Bill Scener	1996	1997	1998	1999	2000	2001	2002
Corn (\$/bushel)	0.2698	0.3730	0.4009	0.3864	0.3531	0.2842	0.2756
Sorghum (\$/bushel)	0.6334	0.7961	0.8462	0.8084	0.7364	0.5927	0.5752
Wheat (\$/bushel)	0.6771	0.6435	0.6843	0.6564	0.5971	0.4803	0.4656

Table B3. Historical and Projected Crop Prices, Deficiency Payment Rates and Fixed Payment Rates for Corn, Sorghum and Wheat, 1996 to 2002

*Target prices used in deficiency payment calculations are \$2.75 for corn, \$2.61 for sorghum and \$4.00 for wheat.

Average Domestic Annual Prices for Corn, Sorghum and Wheat, 1983 to 1995

	83/84	84/85	85/86	86/87	87/88	88/89
Corn (\$ per bushel)	3.21	2.63	2.23	1.50	1.94	2.54
Sorghum (\$/ bushel)	2.74	2.32	1.93	1.37	1.70	2.27
Wheat (\$/ bushel)	3.51	3.39	3.08	2.42	2.57	3.72
	89/90	90/91	91/92	92/93	93/94	94/95
Corn (\$ per bushel)	2.36	2.28	2.37	2.07	2.50	2.26
Sorghum (\$/ bushel)	2.10	2.12	2.25	1.89	2.31	2.13
Wheat (\$/ bushel)	3.72	2.61	3.00	3.24	3.26	3.45
	Corn (\$ per bushel)		Sorghum (\$/ bushel)		Wheat (\$/ bushel)	
Mean Annual Price	2.32		2.09		3.16	
Standard Deviation	0.41		0.35		0.44	

Source: December 1995 Summary of the FAPRI Baseline - Food and Agriculture Policy Research Institute at the University of Missouri-Columbia and Iowa State University

	1990 Farm	1996 Farm	Net Dollar	Percent
	Bill	BIII	Change	Change
Average Cash Receipts (\$100	0)			
1996	361.07	363.38	2.31	0.64%
1997	360.16	361.37	1.21	0.34%
1998	360.89	360.89	0.00	0.00%
1999	374.92	377.76	2.84	0.76%
2000	365.77	365.77	0.00	0.00%
2001	361.51	362.43	0.92	0.25%
2002	370.16	370.16	0.00	0.00%
1996-2002 Average	364.92	365.96	1.04	0.28%
Average Net Cash Farm Inco	me (\$1000)			
1996	70.64	74.49	3.85	5.45%
1997	68.51	70.87	2.36	3.44%
1998	59.62	60.70	1.08	1.81%
1999	61.26	65.06	3.80	6.20%
2000	46.45	47.59	1.14	2.45%
2001	26.60	28.46	1.86	6.99%
2002	24.67	25.71	1.04	4.22%
1996-2002 Average	51.11	53.27	2.16	4.23%
Average Government Payment	nts (\$1000)			
1996	27.64	29.96	2.32	8.39%
1997	35.00	36.21	1.21	3.46%
1998	38.96	38.96	0.00	0.00%
1999	34.44	37.27	2.83	8.22%
2000	34.23	34.23	0.00	0.00%
2001	26.79	27.71	0.92	3.43%
2002	26.25	26.25	0.00	0.00%
1996-2002 Average	31.90	32.94	1.04	3.26%

Table B4. Comparison of Cash Receipts, Net Income and Government Payments for Moderate Model Farm, 1990 and 1996 Farm Bills

Source: FLIPSIM model at the Agricultural & Food Policy Center at Texas A&M University

	1990 Farm	1996 Farm	Net Dollar	Percent
	Bill	Bill	Change	Change
Average Cash Receipts (\$100	0)			
1996	888.34	889.38	1.04	0.12%
1997	880.15	882.84	2.69	0.31%
1998	884.29	884.29	0.00	0.00%
1999	919.16	926.09	6.93	0.75%
2000	894.70	894.70	0.00	0.00%
2001	881.87	883.93	2.06	0.23%
2002	902.81	902.81	0.00	0.00%
1996-2002 Average	892.33	894.89	2.56	0.29%
Average Net Cash Farm Inco	me (\$1000)			
1996	219.73	229.62	9.89	4.50%
1997	218.99	224.37	5.38	2.46%
1998	212.57	215.01	2.44	1.15%
1999	234.77	243.90	9.13	3.89%
2000	191.31	193.95	2.64	1.38%
2001	159.11	163.53	4.42	2.78%
2002	173.34	175.63	2.29	1.32%
1996-2002 Average	201.40	206.57	5.17	2.57%
Average Government Paymer	nts (\$1000)			
1996	71.13	77.18	6.05	8.51%
1997	90.10	92.80	2.70	3.00%
1998	99.54	99.54	0.00	0.00%
1999	88.15	95.09	6.94	7.87%
2000	87.45	87.45	0.00	0.00%
2001	68.88	70.94	2.06	2.99%
2002	67.11	67.11	0.00	0.00%
1996-2002 Average	81.77	84.30	2.53	3.09%

Table B5. Comparison of Cash Receipts, Net Income and GovernmentPayments for Large Model Farm, 1990 and 1996 Farm Bills

Source: FLIPSIM model at the Agricultural & Food Policy Center at Texas A&M University

References

- Anderson, Carl. "Estimated Value of Basic Agriculture Production and Related Items." County Extension Programs Council TAES. (September 1995).
- Census of Agriculture 1992. v.1 Geographic Area Series. part 43A Texas State & County Data. (October 1994).

FAPRI Baseline Review - Copy of Speakers' Overheads. January 1996.

- Frederick, Roy. "Farm Bill Details From Conference Committee." Ag Policy Update. Department of Agricultural Economics University of Nebraska-Lincoln. no.25 (November 16,1995).
- Frederick, Roy. "Farm Bill Takes Shape in Senate." Ag Policy Update. Department of Agricultural Economics University of Nebraska-Lincoln. no.19 (October 6,1995).
- Frederick, Roy. "Momentum Toward Freedom to Farm." Ag Policy Update. Department of Agricultural Economics University of Nebraska-Lincoln. no.11 (August 11,1995).
- Frederick, Roy. "Year-End Deadline Missed." Ag Policy Update. Department of Agricultural Economics University of Nebraska-Lincoln. no.29 (January 5,1995).
- Frederick, A.L. (Roy) and Robert N. Wisner. "Feed Grain Policy." University of Nebraska-Lincoln. http://ianrwww.unl.edu/farmbill/feedgran.htm
- Glickman, Dan. "A Message From Secretary Glickman." 1995 Farm Bill: Guidance of the Administration. (May 10,1995).

- Knutson, Ronald D., et al. Agricultural and Food Policy. Prentice Hall Education, Career and Technology. Englewood Cliffs, New Jersey. (1995). 500p.
- Knutson, Ronald D., et al. "New Farm Bill: Watershed Change in Policy." AFPC TAES. (April 4, 1996). 17p.

"The Rainbow Book." December 1995 Summary of the FAPRI Baseline. pp. 222-237.

- Richardson, James W., et al. "Farm Level Impacts of the Senate and House Agriculture Reconciliation Provisions." AFPC Working Paper 95-20. (November 1995). 87p.
- Smith, Edward G., et al. "Representative Farms Economic Outlook: FAPRI/ AFPC December 1005 Baseline." AFPC Working Paper 95-21. (December 1995). 77p.

Texas Agricultural Statistics - 1994. Texas Agricultural Statistic Service.

Tweeten, Luther and Fred. C. White. "Targeting Farm Program Benefits." Ohio State University edited at Texas A&M University (1995).