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**An Economic Analysis of the 2008 Farm Bill:
How Well Has It Worked for North Dakota**

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The 2008 Farm bill included several additional provisions which were not included in previous legislation, mainly the Average Crop Revenue Election Program (ACRE) and the Supplemental Revenue Assistance Program (SURE). The ACRE program is voluntary while the SURE program is included in the Farm bill for all participating producers. The ACRE program is revenue based counter-cyclical program that replaces the traditional price based counter-cyclical program (CCP) and the SURE program is a whole farm disaster program which is tied to federal crop insurance. Experience has shown that the ACRE program has not been popular with producers, mainly because producers do not clearly understand the provisions of the program, and producers do not like the idea of losing 20% of their direct payments and 30% of their marketing loan benefits. In North Dakota, only 10% of the producers entered into the ACRE program. With the recent commodity prices and crop yields, the programs have not been activated and have had little bearing on producers.

RECENT HISTORY

Table 1 shows the historical farm payments made to U.S. agriculture during the last few years. Because of recent commodity prices, counter-cyclical farm payments have remained small. Direct payments are about \$5 billion per year because they are made regardless of commodity prices, yields or production. Other provisions of the farm bill, CCP, ACRE, marketing loan gains, have averaged about \$1 billion per year for the past few years. Recently commodity prices are at levels above which require program payments. Conservation payments have remained near \$3 billion throughout the time period. Even though program payments have been limited, the impact on the farm community has remained large. Total U.S. farm payments have averaged \$13.0 billion compared to average net farm income of \$68 billion. Even during period of relatively high prices, federal farm payment amounted to about 20% of net farm income.

Table 2 shows the same information for North Dakota. Average net farm income for the years 2005-2008 was \$3.3 billion per year, compared to an average of \$547 million in federal farm payments (17% of net farm income). That ratio has ranged from a high of 35% in 2006 to a low of 10% in 2008.

MAJOR ELEMENTS OF THE 2008 FARM BILL

Priced Based Counter-Cyclical Program

The CCP is enacted if the national market price of a commodity is lower than the target price for any marketing year. CCP payments are made to producers based on historical production and current price levels. Producers are paid 93.5% of the difference between market price and target price times base acres.

Table 1. Direct Government Payment in U.S. Agriculture

	Direct Payments	CCP/ ACRE	Loan	Marketing Loan Gains	Certificate Gains	Conservation	Ad Hoc	Total
	-----Million \$-----							
2006	5,052	4,036	731	188	873	2,974	275	15,789
2007	5,060	1,125	55	272	818	3,072	528	11,903
2008	5,110	712	85	30	202	3,156	2,121	12,238
2009P	4,995	1,230	150	135	703	3,230	827	12,898
2010F	4,810	*895/438	90	5	0	3,310	2,104	12,362

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Table 2. Recent Government Payments to North Dakota Agriculture

	Direct Payments	CCP	Loan	Marketing Loan Gains	Certificate Gains	Conservation	Ad Hoc	Total
-----Thousand \$-----								
2005	224,353	33,962	132,494	7,301	2,184	128,749	302,510	832,506
2006	220,038	32,824	56,200	5,323	695	134,733	1,724	453,140
2007	221,494	239	1,833	180	0	136,200	32,594	392,678
2008	223,014	-31	72	0	0	128,729	158,821	510,590

Average Crop Revenue Election Program

The ACRE program is revenue based counter cyclical program which was introduced for the 2008 Farm bill and is administered by the Farm Service Agency. The program specifies that all covered commodities must be included in the ACRE program. A producer may enroll during any year (2009-2012) of the Farm bill, but once enrolled, they remain in the ACRE program for the duration of the Farm bill. A condition of the ACRE program is that direct payments are lowered by 20% and marketing loan rates are reduced by 30%.

Producers are eligible for ACRE payments if ACRE actual state revenue is less than ACRE program guarantee and ACRE actual farm revenue is less than ACRE benchmark farm revenue. If both condition exists, ACRE payment are made to producers. The terms used to calculate ACRE payments are defined as: ACRE actual state revenue is actual state yield times ACRE national average market price. ACRE program guarantee is 90% of the ACRE benchmark state yield times ACRE guarantee price. ACRE guarantee price is the national average market price for the 2 preceding crop years. ACRE actual farm revenue is the actual commodity farm yield times the ACRE national average market price. ACRE benchmark farm revenue is the 5-year Olympic average farm crop yield times ACRE program guarantee price plus crop insurance premiums. Farm specific productivity ratio is the farm 5-year Olympic average crop yield divided by ACRE benchmark state yield

The amount of ACRE payments is determined by taking the minimum of ACRE program guarantee less actual state yield or 25% of ACRE program guarantee times 83.3% of farm specific ratio times planted acres.

Supplemental Revenue Assistance Program (SURE)

The SURE program will cover 2008-2012 crop years. To be eligible for the SURE program, producers are required to purchase federal crop insurance for all of the crops produced. The SURE program can be triggered two different ways; (1) a farm is qualified for SURE payments if a county is included in a federal disaster declaration or if the county is contiguous to a county with a declaration, and (2) if a farm suffers a 50 percent revenue loss.

SURE payments are calculated using three main variables: program guarantee, computed actual revenue, and expected revenue. The whole-farm guaranteed revenue for a farm is the sum of insurable crop revenue for all crops on the farm and non-insurable crop revenue for all other crops.

Whole farm insurable income is the sum of insurable and non-insurable crop revenues. Insurable crop revenue is the total of 115% of the crop insurance coverage level times crop insurance price election times the greater of APH yield or CCP yield times planted area. Non-insurable crop revenue is 120% of the non-insurable crop assistance program revenue guarantee times planted area of non-insurable crop.

The expected farm specific SURE revenue is the total of 90% of the crop insurance price election times the greater of APH yield or CCP yield times planted area of insurable crops plus NCAP yield times planted area of non-insurable crops times price of non-insurable crops.

The SURE computed actual revenue is calculated as the sum of harvested area of each crop times yield of each crop times price of each crop plus 15% of direct payments and 15% of either the CCP or ACRE payments + 100% of marketing loan benefits plus other disaster payments plus all crop insurance and NCAP payments.

If the SURE computed actual revenue exceeds the farm-specific SURE program guarantee, then there are no payments under the SURE program. If the computed actual revenue is below the program guarantee, and at least one of the two trigger events has occurred, then SURE payments will be made. The payments will be equal to or 60% of the difference between the program guarantee and the computed actual revenue. The actual revenue guarantee cannot be greater than 90% of the expected farm revenue.

Contribution of Each Program to Net Farm Income

The North Dakota Representative Farm model was used to estimate the impact that the 2008 Farm bill has had on North Dakota net farm income. Details of the North Dakota Representative Farm Model can be found in “2010 North Dakota Agricultural Outlook: Representative Farms, 2010-2019” Agribusiness and Applied Economics report No. 668. The recent price levels and commodity yields have, for the most part, prevented the utilization of either program. Therefore, several scenarios were developed to estimate potential impacts of the 2008 Farm bill on North Dakota net farm income and identify the differences between the CCP and the ACRE program. Under the base scenario, yields are at the long-run average levels (1999-2009) with normal distributions and prices are at the long-run average levels (1992-2009) with a log-normal distribution. Two sets of scenarios are developed: a pessimistic set and an optimistic set. Under the pessimistic scenarios normal long-run average crop prices are reduced by 10%, 20%, and 30% for scenarios 90P, 80P, and 70P, respectively. Under the optimistic scenarios normal long-run average crop yields and prices are increased by 10%, 20%, and 30% for scenarios 110P, 120P, and 130P, respectively. In addition, two additional scenarios are considered, a 30% reduction in both price and yield, scenario 70P70Y, and a 30% increase in both, 130P130Y. Table 3 shows the commodity prices for the various scenarios. The same procedure was used for the various yield scenarios in the model and is shown in Table 4. Scenarios 70Y, 80Y and 90Y have prices lowered 30%, 20% and 10% respectively, and scenarios 110Y, 120Y, and 130Y have all prices increased 10%, 20%, and 30%, respectively.

Table 3. Commodity Prices for North Dakota Crops, Long-run Average

	70P	80P	90P	Base	110P	120P	130P
-----dollars/bushel-----							
Spring Wheat	2.82	3.22	3.63	4.03	4.43	4.84	5.24
Durum Wheat	3.35	3.83	4.31	4.79	5.27	5.75	6.23
Barley	1.73	1.98	2.22	2.47	2.72	2.96	3.21
Corn	1.67	1.91	2.15	2.39	2.63	2.87	3.11
Soybeans	4.28	4.89	5.50	6.11	6.72	7.33	7.94
-----dollars/cwt-----							
Sunflowers	8.88	10.15	11.42	12.69	13.96	15.23	16.50
Canola	7.91	9.04	10.17	11.30	12.43	13.56	14.69

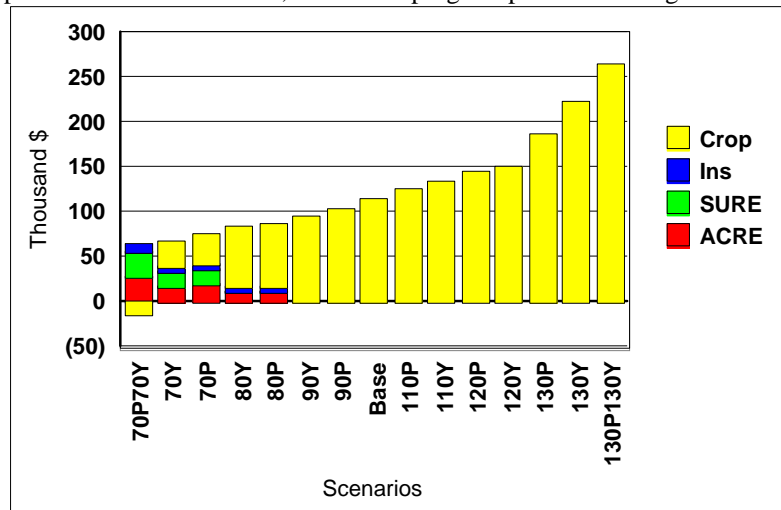
Prices are estimated with price equations within the North Dakota Representative Farm Model

Table 4. Selected Commodity Yields Under Various Scenarios

	RRV Swt	NC Swt	SC Swt	West Swt	RRV SB	SC SB	RRV Corn	SC Corn	NC Durum
-----bushels per acre-----									
70Y	35.59	24.87	29.02	18.25	23.63	21.86	90.72	72.11	22.34
80Y	40.67	28.42	33.17	20.86	27.00	24.98	103.68	82.42	25.53
90Y	45.76	31.98	37.31	23.46	30.38	28.11	116.64	92.72	28.72
Mean	50.84	35.53	41.46	26.07	33.75	31.23	129.60	103.02	31.91
110Y	55.92	39.08	45.61	28.68	37.13	34.35	142.56	113.32	35.10
120Y	61.01	42.64	49.75	31.28	40.50	37.48	155.52	123.62	38.29
130Y	66.09	46.19	53.90	33.89	43.88	40.60	168.48	133.93	41.48

RESULTS

State average net farm incomes, both under the ACRE and CCP programs, ACRE and SURE payments and crop insurance payments are shown in Table 5 under the various scenarios. Under the pessimistic scenarios, yields and prices lower than the base, the ACRE program provides for higher net farm income than the CCP. However, when



prices and/or yields are near the long-run average or higher than average, the CCP payments provide higher net farm income. In either case the difference is not large. Under the worst case scenario, 70P70Y, the ACRE program provides a \$14,556 higher income than does the CCP. However, with other pessimistic scenario, for example, 80Y, the difference is \$8,311. Under the optimistic scenarios, CCP provides higher incomes because no payments are made under either program and under the CCP full direct payments are made each year. Table 5 also shows the average ACRE, SURE, and crop insurance payments made

under the various scenarios. Under the pessimistic scenarios, 80P, 80Y, 70P, 70Y, and 70P70Y program benefits are a major portion of net farm income. Figure 1 shows the components of net farm income under the various scenarios. The figure shows clearly the counter-cyclical nature of the various components of the farm bill. Direct payments are not identified on the chart but are included in the production portion of each bar. All program payments, ACRE or CCP, Direct payments, SURE and crop insurance makeup a substantial portion of net farm income. For example, in under scenario 70P70Y, net farm income would be negative without the program payments. Under scenarios, 70Y, 70P, 80Y and 80P, program payments makeup 59%, 57%, 21%, and 21% of net farm income, respectively.

Table 5. Average Net Farm Income and Various Government Program Payments Under Various

	NFI-ACRE	NFI-CCP	ACRE	SURE	Crop Ins
	-----dollars-----				
70P70Y	53,915	39,359	29,184	26,689	9,776
70Y	68,591	54,897	17,754	16,310	6,570
70P	76,612	72,726	21,514	15,117	7,065
80Y	83,714	75,403	12,371	0	5,352
80P	87,834	88,010	12,137	0	6,565
90Y	95,059	99,119	0	0	0
90P	104,105	108,165	0	0	0
Base	115,858	119,918	0	0	0
110P	126,062	130,122	0	0	0
110Y	135,897	139,957	0	0	0
120P	146,932	150,992	0	0	0
120Y	150,724	154,784	0	0	0
130P	186,254	190,314	0	0	0
130Y	223,293	227,353	0	0	0
130P130Y	264,345	268,405	0	0	0

Regional

Similar analysis was conducted in the four regions of the state within the model. Figure 2 shows the net farm incomes of the four regions under the alternative scenarios. In all four regions the ACRE program provides higher average net farm incomes in the more pessimistic scenarios. The differences range between \$8,375 in the NC region under scenario 80Y to \$1,565 in the North Central region under scenario 80Y. The ACRE under the base scenario provides higher net farm incomes between \$401 in the RRV and \$232 in the West region. When average prices and/or yields are increased, the difference between the ACRE program and CCP disappears. Under all the optimistic scenarios, the CCP provides higher net farm incomes because no payments are made and the ACRE program reduces the direct payments that producers receive.

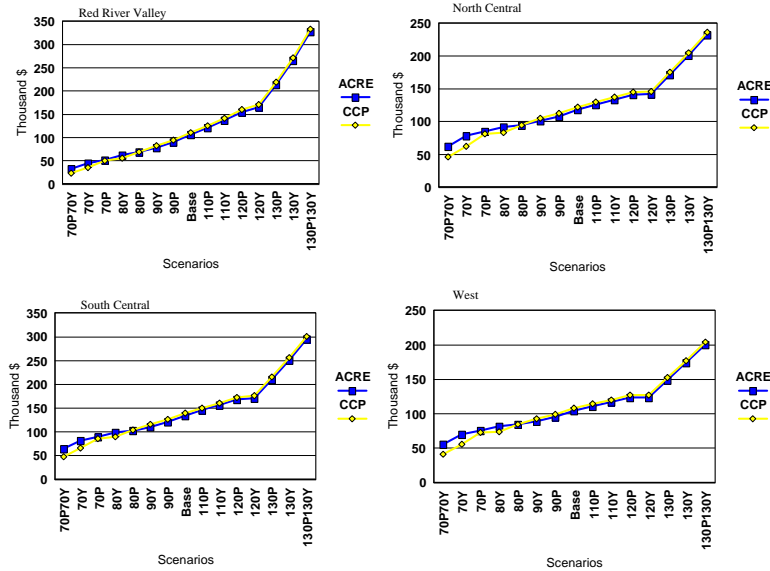


Figure 2. Regional Net Farm Income for the ACRE and CCP Programs Under Various Scenarios.

Figure 3 shows the components of net farm income in the four regions. The chart shows clearly the counter-cyclical nature of the various programs. Direct payments are not shown on the chart but are included in the production portion of each bar. Direct payments made to producers varied from \$22,039 in the RRV to \$6,959 in the West region. All program payments, ACRE or CCP, Direct payments, SURE and crop insurance make up a substantial portion of net farm income. For example, in all four regions, under scenarios 70P70Y and 70Y net farm income would be negative without the program payments. Without direct payments net farm income would also be negative under scenario 70P. Under scenarios 80P and 80Y, program payments vary from a high of 39% in the RRV to a low of 14% in the West region.

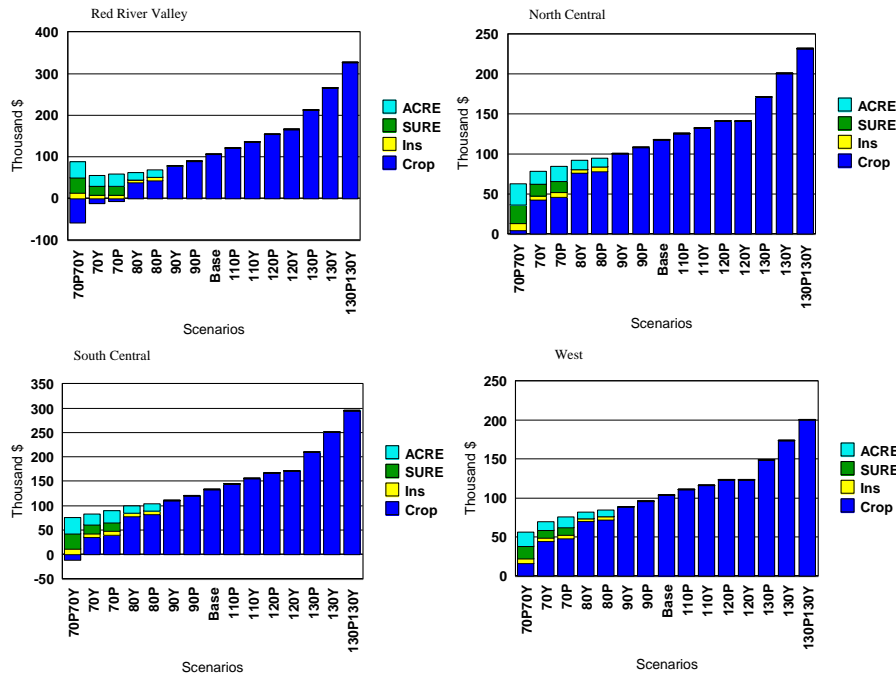


Figure 3. Components of Net Farm Income by Region Under the Various Scenarios

SUMMARY

In recent years commodity prices have been at levels which have limited most variable government payments. However, government payments still make up a substantial portion of net farm income. Direct and conservation payments provide over \$8 billion for U.S. producers and \$350 million for North Dakota producers.

This study was conducted to evaluate differences between the ACRE and traditional CCP programs of the 2008 farm bill. Since the 2008 farm bill is only two years old, a simulation was required to evaluate differences in the programs. The North Dakota Representative Farm Model was used to project net farm incomes under various price and yield scenarios.

The study found that the ACRE program provides for higher net farm than the CCP under the pessimistic scenarios. The 20% reduction in direct payments and 30% reduction in marketing loan rates in 2009 under the ACRE program are more than enough to offset by ACRE payments, resulting in higher net farm income. Under the optimistic scenarios the CCP program provides higher net farm incomes because ACRE payments do not offset the loss of direct payments.

There are regional differences between the ACRE and CCP programs but the general conclusion is the same. In all four regions, the ACRE program provides higher net farm income than the CCP under the pessimistic scenarios but not under the optimistic scenarios. Under the base scenario, the CCP increases net farm income slightly.

One limitation of the study is that when a producer qualifies for ACRE payments, those payments are made. There may be cases where state average revenue is not low enough to trigger the payment. This situation is not included in the model, indicating that the estimated income under ACRE may be over stated.

The study clearly shows the counter-cyclical nature of the farm bill. In all four regions payments increase substantially as price and/or yields are decreased. The provisions of the farm bill support net farm incomes, however, incomes still fall dramatically as prices and/or yields are reduced. The main reason is that most programs support gross revenues at about the 80% to 85% level. In recent years, North Dakota producers have retained about 13% of gross revenue as net farm income. When gross returns are allowed to vary 15%-20% before support programs engage, there will be large swings in net returns.

Another issue which has developed in recent years is increasing production costs. A similar occurrence happened in the late 1970s after the Russian Grain Deal increased commodity prices. Production costs increased to a level which required the increasing of support prices. The current support prices were established in the late 1990s and may need to be reevaluated in light of today's production costs. However under current federal budget constraints, it is highly unlikely to occur.

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