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**The Impacts of Eliminating the Direct
Payments on the U.S. Cotton Market**

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A close-up photograph of a cotton boll, showing the white, fluffy cotton fibers and the brown, woody core. The image is slightly blurred and has a soft, glowing effect around it.

**Cotton Economics
Research Institute Report**

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Abstract

This study analyzes the effects of eliminating direct payments paid to cotton farmers in the U.S. Our results suggest that while the impact of eliminating direct payments on domestic production is offset to some extent by rising prices, the more significant effect is on farmers' net income.

Introduction

U.S. Rep. Collin Peterson, one of the most powerful figures in Congress, has proposed taking the \$5 billion per year in direct payments that crop farmers get whether prices are high or low to improve crop insurance and other programs. He also proposes in the 2012 Farm Bill to end other farm programs that pay farmers on production rather than land ownership. The direct payment, however, has formed an integral part of the farm program, especially for some crops. It has served as a small, but steady form of cash flow to foster financing. Because it is paid on base acres, not production, it has generated some public controversy for payments to individuals not farming. Interestingly, however, direct payments are one of the few components of farm policy still considered compliant with WTO rules (WTO, 2003).

The objective of this study is to determine the possible effects of the elimination of the direct payments program in the U.S. and subsequently on world cotton markets using a partial equilibrium structural econometric model of the world fiber market developed at the Cotton Economics Research Institute, Texas Tech University (Pan et. al, 2004). This model has been used in several studies to investigate the impacts of several policies on cotton such as Chinese currency movements (Pan et al., 2007a), freer trade scenarios (Pan et al., 2007b), and changes in market structure and offset programs (Pan et al., 2009; Pan et al 2010).

U.S. Commodity Programs

There are three major commodity programs (ERS, 2008) used in the U.S. to support cotton production:

Direct payments

Under the 2002 Farm Act, farmers and eligible landowners receive annual fixed payments. The amount of the direct payment is equal to the product of the payment rate (6.67 cents/lb for cotton during 2002-2012), payment acres, and payment yield.

Counter Cyclical Payments (CCP).

CCP were developed to provide a counter-cyclical income safety net to replace most ad hoc market loan assistant payments that were provided to farmers during 1998-2001. Payments are based on historical production and are not tied to current production. It is available for covered commodities whenever the effective price is less than the target price (71.25 cents per pound). The payment amount is equal to the product of the payment rate, the payment acres (85 percent of base acres in crop years 2008 and 2012 and 83.3 percent in crop years 2009-11), and the payment yield. The effective price is equal to the sum of (1) the higher of the national average farm price for the marketing year, or the national loan rate for the commodity and (2) the direct payment rate for the commodity. The upland cotton target price is 71.25 cents/lb for 2008-2012.

Marketing Assistance Loan and Loan Deficiency Payment Programs

The Farm Service Agency administers commodity loan programs with marketing loan provisions for upland cotton through the Commodity Credit Corporation (CCC). CCC loan

programs allow producers of designated crops to receive a loan from the government at a commodity-specific loan rate per unit of production by pledging production as loan collateral. After harvest, a farmer may obtain a loan for all or part of the new production. These loans may be repaid in three ways: at the loan rate plus interest costs (CCC interest cost of borrowing from the U.S. Treasury plus 1%) ; by forfeiting the pledged crop to the CCC at loan maturity; or at the alternative loan repayment rate. The marketing loan rate for upland cotton is 52 cents/lb for 2008-2012.

Policy Shock and Assumptions

This analysis compares likely outcomes under three scenarios. In the first scenario, direct payments of 6.67 cents per pound of base production are eliminated with no changes in other commodity programs. In the second, the target price is reduced by the amount necessary to offset the effects of direct payment elimination (under the first scenario) on countercyclical payments rates. In this second scenario, the target price is reduced from 72 cents/lb to 65.33 cents/lb. In the third and final scenario, all three major commodity programs discussed in the last section are eliminated. The first scenario is called “DP elimination”; the second, “DP elimination with lower TP”, and the third, “Total elimination”.

The approach used to incorporate changes into the model for simulating direct payments program and other program eliminations is as follows. A five-year baseline (2012/13-2016/17) is developed assuming a continuation of current farm programs and economic growth. For the three scenarios discussed earlier, direct payments and other programs to domestic farmers were eliminated starting from 2012/13, while the rest of the world was allowed to react to the resulting

price signals. The effects are measured by comparing supply, demand, and trade indicators before and after elimination of these programs.

Simulation Results

Due to the current commodity price rise, the baseline cotton A-index is expected to hover between 87 cents/lb and 94 cents/lb over the five year-period. Once the baseline was developed alternative scenarios were simulated for the three different scenarios discussed earlier.

Simulation results are reported in Tables 1 and 2. Table 1 displays the effects of the three scenarios on U.S. farm price, acreage, production, mill use, and exports. Table 2 summarizes the effects of the three scenarios on the world market including the A-index, world production and trade. As discussed earlier, several routes by which direct payments affect cotton production are considered. First, elimination of direct payments without changing the CCP rate calculation would transfer the direct payments to CCP (“DP elimination”). Second, the target price is reduced by 6.67 cents/lb. When direct payments were eliminated in the first scenario, the CCP necessarily increased and absorbed some of the eliminated payments. In this second scenario (“DP elimination with lower TP”), 6.67 cents/lb was removed from the target price to effectively remove the direct payment from the CCP calculation.

“DP Elimination” Scenario

In this scenario, the target price is still 71.25 cents/lb. Because the effective price that the farmer receives is below 71.25 cents/lb in most years, the CCP is binding (a CCP payment is received).

As expected, “DP elimination” results in lower U.S. domestic cotton production and exports by 1.01% and 1.04%, respectively, in the first year of elimination, with an average

decline of 0.31% and 0.34% over the five-year period. Lower production increases the U.S. cotton farm price by around 1 cent/lb (1.55%) in the first year and continues to increase by the same margin for the remainder of the simulation period. More significantly, under “DP elimination” net farm income is lower by an average of 14.68% relative to the baseline.

Eliminating direct payments in the U.S. results in about a 0.44% increase in the cotton A-index. World production and world cotton trade are reduced slightly, with the effects more pronounced in the first years after the elimination (-0.16% for both world production and trade), and easing by 2015/16.

“DP Elimination with TP” Scenario

In this scenario, the target price is reduced from 71.25 cents/lb to 64.58 cents/lb. As discussed earlier, the CCP rate is binding only if the target price exceeds the effective price (the sum of the higher of the farm price and loan rate, and direct payments) received by farmers. With a now lower target price of 64.58 cents per pound and cotton farm prices historically above this target price, the CCP ceases to be binding. From Tables 1 and 2, one can see that the effects (on both the U.S. and the world) under this scenario are of higher order than those under the “DP elimination”. The results suggest that the domestic farm price would increase by an average of 2.44% over the five-year projection period owing to lower domestic production and exports projected to correspondingly decline by an average of 1.77% and 1.99%. Subsequently, farm net income would be reduced by an average of 16.72% per year over the five-year period. With less production in the world market, the A-index is projected to increase by an average of 1.48% relative to the baseline over the projection period.

“Total Elimination” Scenario

In this scenario, all the three major commodity programs are eliminated. While in the previous scenarios, the CCP may or may not be binding (depending on whether the effective price is below or above the target price), in this scenario, the CCP is non-binding even if the effective price drops to zero.

This scenario has the largest effects on cotton production, farm price, exports, as well as A-index among the three scenarios (Tables 1 and 2). However, the effect on farm income is smaller than other two scenarios. The main reason being that the production loss derived from the commodity program elimination resulted in higher cotton prices (5.04% on average)- high enough to make up for the income loss in this scenario.

Sensitivity Analysis

To determine how susceptible the effects of the commodity programs elimination are with respect to the baseline farm price used, the baseline farm price is lowered in the range of 50 cents/lb - 60 cents/lb, similar to the 2006 baseline number. Under this scenario, the cotton commodity programs would be effective if those programs were in place.

Table 3 presents the results based on our 2006 baseline number. From Table 3, it is apparent that farm net income is most significantly affected in all three scenarios. If all farm programs were totally eliminated (“Total Elimination”), the total farm income loss would reach average of as much as 38.31% over the five-year projection period.

Conclusions

As the discussion of the 2012 Farm Bill gathers steam, the issue of direct payments has been broadly underscored mainly due to the comments of former House Agriculture Chairman Colin Peterson. This paper analyzes the effects of eliminating direct payments on domestic cotton farmers' net income. We compare three scenarios under which direct payments are eliminated. The estimated effects of direct payment elimination are shown for both the U.S. and the world cotton markets. The results suggest that the size of the commodity program effects is dependent on the farm price used in the baseline. The effects would be more significant if cotton price hold under 60 cents. However, the effects would be smaller if the current cotton price continues in the next couple years.

Table 1. Effects of Direct Payments Program Elimination on U.S. Cotton Market

		2012/13	2013/14	2014/15	2015/16	2016/17	Average
		Cents per pound					
Farm price	Base	64.95	67.47	70.09	76.38	78.65	71.51
	DP Elimination	1.55%	0.49%	-0.52%	0.55%	1.42%	0.70%
	DP Elimination with lower TP	2.65%	3.13%	2.33%	2.08%	2.02%	2.44%
	Total Elimination	6.28%	6.95%	4.35%	4.00%	3.62%	5.04%
		1000 Acres					
Area	Base	11150.29	11045.23	11169.88	11248.26	11413.01	11205.33
	DP Elimination	-1.18%	0.17%	0.17%	-0.51%	-0.85%	-0.44%
	DP Elimination with lower TP	-1.84%	-1.57%	-1.21%	-1.30%	-1.27%	-1.44%
	Total Elimination	-4.65%	-3.36%	-2.40%	-2.69%	-2.37%	-3.09%
		1000 Bales					
Production	Base	18906.25	19092.59	19387.13	19609.68	20064.45	19412.02
	DP Elimination	-1.01%	-0.35%	0.26%	-0.45%	-0.97%	-0.51%
	DP Elimination with lower TP	-1.73%	-2.08%	-1.70%	-1.66%	-1.67%	-1.77%
	Total Elimination	-4.06%	-4.57%	-3.22%	-3.26%	-3.11%	-3.64%
		1000 \$					
Exports	Base	15582.58	15989.38	16671.93	16925.63	17976.19	16629.14
	DP Elimination	-1.04%	-0.52%	0.17%	-0.40%	-0.97%	-0.55%
	DP Elimination with lower TP	-1.77%	-2.38%	-2.04%	-1.92%	-1.84%	-1.99%
	Total Elimination	-4.14%	-5.26%	-3.99%	-3.77%	-3.46%	-4.12%
Farm income	Base	4968870.80	5564494.93	6102007.32	7257012.88	7856165.169	6349710.22
	DP Elimination	-10.99%	-16.75%	-18.71%	-14.48%	-12.50%	-14.68%
	DP Elimination with lower TP	-20.44%	-17.99%	-17.03%	-14.59%	-13.56%	-16.72%
	Total Elimination	-11.54%	-11.72%	-13.53%	-11.58%	-11.27%	-11.93%

Table 2. Effects of Direct Payments Program Elimination on World Cotton Market

		2012/13	2013/14	2014/15	2015/16	2016/17	Average
		Cents per Pound					
A-index	Base	86.60	90.95	94.92	95.89	98.13	93.30
	DP Elimination	1.17%	0.20%	-0.51%	0.41%	0.94%	0.44%
	DP Elimination with lower TP	2.00%	2.07%	1.30%	1.05%	0.97%	1.48%
	Total Elimination	4.71%	4.50%	2.24%	1.94%	1.61%	3.00%
		1000 Acres					
Area	Base	87727.08	89845.62	91766.45	93358.18	94339.31	91407.33
	DP Elimination	-0.15%	0.07%	0.05%	-0.06%	-0.08%	-0.03%
	DP Elimination with lower TP	-0.23%	-0.11%	-0.03%	-0.03%	-0.03%	-0.09%
	Total Elimination	-0.59%	-0.23%	-0.02%	-0.08%	-0.04%	-0.19%
		1000 Bales					
Production	Base	122389.87	130134.96	133988.41	138932.62	141157.70	133320.71
	DP Elimination	-0.16%	-0.01%	0.06%	-0.07%	-0.12%	-0.06%
	DP Elimination with lower TP	-0.27%	-0.23%	-0.13%	-0.13%	-0.13%	-0.18%
	Total Elimination	-0.62%	-0.49%	-0.22%	-0.24%	-0.23%	-0.36%
Trade	Base	42402.79	43187.93	44990.95	46975.89	47918.11	45095.14
	DP Elimination	-0.16%	-0.06%	0.03%	-0.07%	-0.14%	-0.08%
	DP Elimination with lower TP	-0.27%	-0.33%	-0.27%	-0.25%	-0.26%	-0.28%
	Total Elimination	-0.64%	-0.72%	-0.51%	-0.51%	-0.50%	-0.58%

Table 3. Sensitivity Analysis for the Direct Payments Elimination

		2012/13	2013/14	2014/15	2015/16	2016/17	Average
		Cents per Pound					
Farm price	Base	58.82	59.45	59.45	59.91	60.05	59.54
	DP Elimination	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	DP Elimination with lower TP	4.22%	4.43%	4.23%	3.76%	3.69%	4.07%
	Total Elimination	9.22%	5.87%	5.72%	5.32%	5.15%	6.25%
		1000 Acres					
Area	Base	12786.38	12888.19	12969.96	13000.57	13096.90	12948.40
	DP Elimination	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	DP Elimination with lower TP	-1.74%	-1.63%	-1.62%	-1.64%	-1.68%	-1.66%
	Total Elimination	-3.72%	-1.91%	-2.32%	-2.36%	-2.35%	-2.53%
		1000 Bales					
Production	Base	21343.70	21614.13	21907.29	22054.01	22222.58	21828.34
	DP Elimination	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	DP Elimination with lower TP	-1.66%	-1.67%	-1.67%	-1.70%	-1.76%	-1.69%
	Total Elimination	-3.55%	-2.08%	-2.37%	-2.45%	-2.47%	-2.58%
Exports	Base	16234.23	16568.34	17289.18	17407.31	17594.93	17018.80
	DP Elimination	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	DP Elimination with lower TP	-1.77%	-2.09%	-2.07%	-2.12%	-2.13%	-2.04%
	Total Elimination	-3.77%	-2.86%	-2.94%	-3.04%	-2.99%	-3.12%
		1000 \$					
Farm income	Base	3482048.61	3550512.88	3599338.83	3653232.97	3677033.21	3592433.30
	DP Elimination	-0.85%	-0.28%	-0.06%	0.05%	-0.16%	-0.26%
	DP Elimination with lower TP	-19.73%	-19.01%	-18.83%	-18.73%	-19.09%	-19.08%
	Total Elimination	-36.53%	-39.60%	-38.96%	-38.32%	-38.13%	-38.31%

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