ESTIMATING THE IMPACT OF PRICE LOSS COVERAGE (PLC) FOR TEXAS COTTON PRODUCERS

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Abstract

Texas is the largest cotton producing state in the U.S., averaging 55% of the planted upland cotton over the last decade. The dropping of cotton as a covered commodity in the 2014 farm bill has had a negative impact on Texas cotton producers and the State economy. The Bipartisan Budget Act of 2018 made seed cotton eligible to participate in federal farm programs other than marketing assistance loans through the Commodity Credit Corporation. This analysis summarizes estimates of how the Price Loss Coverage program would have performed for Texas producers if it had been available since the passage of the 2014 farm bill. Total foregone seed cotton PLC payments from 2014 through 2017 are estimated at $702.6. This was equivalent to $1.4 billion in foregone economic output across the entire Texas economy over the four-year period and up to 2,896 full- and part-time jobs annually. This total contribution includes an $804.8 million contribution to gross regional product and a $533.6 million contribution to labor income across the state.

Introduction

Texas is the largest cotton producing state in the nation. Over the last decade (2008-2017), Texas has averaged 5.9 million acres of Upland cotton or 55 percent of U.S. upland cotton acres (USDA-NASS). Cotton production is the third most valuable commodity produced in Texas behind only cow/calf, stocker and fed beef production (Grahame and Robinson, 2018). What affects U.S. cotton, greatly affects Texas Agriculture and the Texas Economy.

Table 1. Top Ranked Commodities by Economic Impact of Agricultural Production, 2017

Commodity	Estimated Value (Billion $)	Estimated Economic Impact (Billion $)
Beef Calves and Stocker Cattle	$5.06	$9.74
Feed Beef	$3.63	$6.99
Cotton: Lint + Seed	$3.48	$6.12
Milk	$1.99	$3.56
Nursery Crops	$1.86	$2.92
Total	**$16.01**	**$29.33**
Source: Texas A&M AgriLife Extension		

Price Loss Coverage and Agricultural Risk Coverage were introduced and made available to producers of covered commodities, except for cotton in the 2014 Farm bill. The dropping of cotton as a covered commodity in the 2014 Farm Bill has had a negative impact on Texas Cotton producers. This paper will estimate the impact of the seed cotton Price Loss Coverage (PLC) program as it was passed in the Bipartisan Budget Act of 2018. Estimates of these impacts to Texas Agriculture will based on how the PLC program would have performed for Texas cotton producers if seed cotton had been able to participate in federal programs from the time the 2014 farm bill was implemented.

Background

WTO Case

In 2002, Brazil filed a claim with the World Trade Organization (WTO) claiming U.S. cotton and other subsidies violated agreements the U.S. made during the Uruguay Round of Agreements on Agriculture. The WTO ruled in 2004 and again on appeal in 2008 that the structure of the U.S. cotton and export subsidies were market distorting and adversely affecting Brazilian interests (Cross, 2009, Salmonsen, 2012,). The U.S. and Brazil agreed on a mutually acceptable solution in 2014 that avoided tariffs being placed on several U.S. products. The Brazilian Cotton Institute received a large cash settlement and U.S. policy makers had to restructure domestic cotton programs (Salmonsen,2012). As a result, cotton was largely dropped as a covered commodity in the 2014 Farm Bill.

2014 Farm Bill

The 2014 Farm Bill eliminated Direct Crop Payments (DCP) and Counter-Cyclical Payments (CCP) for all crops. All crops except for cotton, were given a choice between two new safety net programs; Agricultural Risk Coverage (ARC) and Price Loss Coverage (PLC). PLC is similar to the counter-cyclical payments of earlier farm bills. If the market year average (MYA) price of a commodity is less than an established reference price, a PLC payment will be due to producers. The ARC program established a method of calculating an average gross revenue for each covered commodity. The average gross revenue figure is calculated with rolling averages of both market year average price and average yields. A payment is due if calculated revenue for a commodity is less than eighty-six percent of the average revenue.

With the 2014 legislation, producers were also given the opportunity to reallocate base acres between all covered commodities other than cotton. Cotton base acres were frozen and deemed to be generic base acres. The generic base acres still served a risk management role for Texas producers. If generic base acres were planted to a covered commodity in a given year, then those acres are considered base acres for that planted covered commodity in that crop year. Producers were also given the ability to update program yields, again for all crops except cotton.

Where other covered commodity crops were given a choice of ARC or PLC to replace the DCP and CCP programs cotton producers were presented with an area or county-wide crop revenue insurance program. The new STAX policy was intended to provide coverage above a producer's standalone crop insurance policy; stacked upon the existing crop insurance policy. Participation in the STAX program was never close to what policy makers had hoped for when it was introduced.

In 2014, cotton prices on the International Cotton Exchange (ICE) decreased 34 percent by the end of the year and remained depressed through all of 2015 and most of 2016 (Figure 1.). Texas cotton producers found themselves producing cotton for depressed global market without much of a financial safety net.

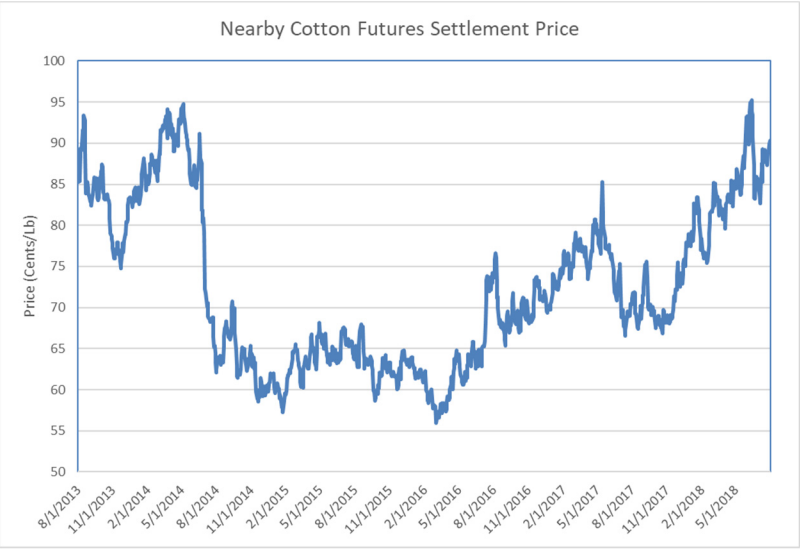

Figure 1. Nearby Futures Settlement Price, August-2013 – July 2018.

Bipartisan Budget Act of 2018

The Bipartisan Budget Act of 2018 among other things, made seed cotton eligible for the same federal farm programs as other covered commodities. Seed cotton is defined as unginned upland cotton. For the 2018 crop, cotton producers can participate in one of the two safety net programs that were created in the 2014 Farm Bill; PLC or ARC. At sign-up, producers were given the opportunity to update their cotton program yields and possibly re-allocate their generic base employing the same process and lookback periods used for other program commodities in 2014. The Bipartisan Budget Act of 2018 also established a reference price of $0.367 per pound of seed cotton.

Methods

Base Acres

The Farm Service Agency of USDA reports that Texas has 7.2 million generic base acres. During the 2009 to 2012 lookback period utilized for the base re-allocation process, Texas averaged 6.15 million acres of planted upland cotton, or eighty-five percent of the total generic (formerly cotton) base acres (Table 2). From 2008 through 2017 cotton plantings in Texas have averaged 5.9 million acres or eighty-two percent of generic base acres. It is assumed that collectively, producers would have allocated eighty-five percent of the generic base back to seed cotton.

Table 2. Texas Planted Cotton Acres as a Percent of Generic Base.

	Texas Upland Cotton	
Year	**Planted Acres**	**% of Cotton Base**
Total Texas cotton/generic base acres		7,204,323
2008	5,000,000	69.4%
2009	5,000,000	69.4%
2010	5,550,000	77.0%
2011	7,550,000	104.8%
2012	6,500,000	90.2%
2013	5,800,000	80.5%
2014	6,200,000	86.1%
2015	4,800,000	66.6%
2016	5,650,000	78.4%
2017	6,900,000	95.8%
2008-2017 Average	5,895,000	81.8%
2009-2012 Average	6,150,000	85.4%
Source: USDA-FSA/NASS		

Program Yields

With the passage of the Bipartisan Budget Act of 2018, cotton producers also received the opportunity to update program yields for each FSA farm number, again using the same process and look back periods used for other commodities in 2014. Producers will be able to keep their existing program yield or update their yields using 90 percent of the 2008-2012 yield per planted acre (Table 3). This analysis uses ninety percent of the 2008-2012 yield in estimating PLC payments that would have been received in Texas.

ARC/PLC Decision

In 2014, a large majority of producers in Texas chose to enroll their base acres into the PLC program. Several factors can be identified for this decision by Texas producers, though the complexity the ARC program and the frequency of below average rainfall in Texas adversely affecting the yields used to calculate gross revenue thresholds are the most common of reasons cited by producers. Producers enrolled eighty-four percent of their non-generic base acres into PLC in 2014 (Table 4). The impact of the seed cotton program in Texas will be measured assuming that eighty-five percent the seed cotton base acres are also enrolled into the PLC program.

Results

The MYA price of seed cotton, as reported by FSA, was below the established reference price in each of the four years after the passage of the 2014 Farm Bill. Table 5 presents estimates of PLC program payments that would have been made to Texas Cotton producers if seed cotton had been eligible to participate in federal commodity programs prior to the 2018 crop.

Table 3. Texas Upland Cotton Acres and Yields.

	Total Texas Upland Cotton	Irrigated				Non-Irrigated			
				Yield				Yield	
		Acres	Percent of Total	Per Planted Acre	90%	Acres	Percent of Total	Per Planted Acre	90%
2008	5,000,000	1,712,000	34.2%	804.1	723.7	3,288,000	65.8%	232.4	209.2
2009	5,000,000	1,756,000	35.1%	869.2	782.3	3,244,000	64.9%	213.1	191.8
2010	5,550,000	2,051,000	37.0%	982.9	884.6	3,499,000	63.0%	499.3	449.4
2011	7,550,000	2,476,000	32.8%	475.0	427.5	5,074,000	67.2%	99.3	89.4
2012	6,500,000	2,176,000	33.5%	716.9	645.2	4,324,000	66.5%	194.3	174.8
2013	5,800,000	1,705,000	29.4%	745.2		4,095,000	70.6%	178.5	
2014	6,200,000	2,018,000	32.5%	779.0		4,182,000	67.5%	332.9	
2015	4,800,000	1,530,000	31.9%	888.5		3,270,000	68.1%	423.9	
2016	5,650,000	1,890,000	33.5%	1013.8		3,760,000	66.5%	524.5	
2017	6,900,000	2,374,000	34.4%	962.1		4,526,000	65.6%	478.5	
	2008-2012 Average		34.6%				65.4%		
	2009-2012 Average				692.7				222.9

Source: USDA-Nass

Table 4. Texas Base Acres and ARC/PLC Participation.

Covered Commodity	Price Loss Coverage		Agriculture Risk Coverage*		All Program
	Base Acres	Percent	Base Acres	Percent	Base Acres
Barley	25,589.3	83.0%	5,232.1	17.0%	30,821.4
Canola	4,450.7	97.8%	100.5	2.2%	4,551.2
Corn	991,040.3	44.3%	1,244,409.1	55.7%	2,235,449.5
Dry peas	11.7	24.8%	35.4	75.2%	47.1
Flax	7.8	100.0%	-	0.0%	7.8
Grain sorghum	2,706,660.5	94.0%	172,799.9	6.0%	2,879,460.4
Long grain rice	591,983.6	100.0%	45.7	0.0%	592,029.3
Med. Grain rice	2,035.4	100.0%	-	0.0%	2,035.4
Oats	166,679.8	82.6%	35,005.3	17.4%	201,685.1
Peanuts	398,661.4	99.4%	2,370.1	0.6%	401,031.6
Safflower	848.4	85.8%	140.9	14.2%	989.3
Sesame	3,104.0	91.9%	274.1	8.1%	3,378.0
Small chickpeas	18.2	100.0%	-	0.0%	18.2
Soybeans	51,961.5	54.8%	42,840.1	45.2%	94,801.6
Sunflowers	23,921.1	87.9%	3,293.2	12.1%	27,214.4
Wheat	4,725,624.6	93.0%	357,960.6	7.0%	5,083,585.2
Totals	9,692,598.3		1,864,506.9		11,557,105.2
	Average PLC	83.7%	Average ARC	16.3%	

* Combined ARC-County and ARC-Individual (ARC-IN <1% total base acres)

Source: USDA-FSA

Table 5. Estimated PLC Payments to Texas Cotton Producers If Seed Cotton Program Was Part of the 2014 Farm Bill.

	MYA Seed Cotton Price	PLC Payment Rate	Irrigated		Non-Irrigated		Total
			Estimated Texas PLC Payments	$/Base Acre	Estimated Texas PLC Payments	$/Base Acre	
2014	$0.3161	$0.0509	$154,153,940	$71.92	$92,132,458	$23.15	$246,286,398
2015	$0.3254	$0.0416	$125,988,289	$58.78	$75,298,826	$18.92	$201,287,115
2016	$0.3456	$0.0214	$ 64,811,283	$30.24	$38,735,454	$9.73	$103,546,737
2017	$0.3357	$0.0313	$ 94,794,073	$44.23	$56,655,126	$14.23	$151,449,200
Total			**$439,747,585**		**$262,821,864**		**$702,569,449**

It was estimated that eighty-five percent of the 7.2 million generic acres would be allocated to seed cotton (6,123,676 acres) and eighty-five percent of those seed cotton acres were enrolled in to the PLC program (5,205,125 acres) From the data in Table 3 it was inferred that thirty-five percent of the base acres were irrigated, and sixty-five percent were non-irrigated. The ninety percent adjusted yields (Table 3) were also adjusted by the mandated 2.4 multiplier to establish seed cotton yields. Payments were only calculated on eighty-five percent of the seed cotton base acres enrolled in the PLC program. This acreage reduction is standard for all crop programs.

It is estimated that if the PLC program for seed cotton had been available to Texas cotton producers since the passage of the 2014 Farm Bill, Texas cotton producers would have received a total of $702.6 million of PLC payments, $439.8 million to irrigated producers and $262.8 million to dryland producers.

Estimated Economic Impact

To calculate the economy wide impact of the seed cotton program, an IMPLAN model was built for Texas, and the $702.6 million in foregone PLC payments was run as a loss to the cotton sector. Cotton rather than proprietors or household income was selected as the target sector because the policy is believed to affect farm production decisions and not just income. This method is similar to running CCP as payments to the cotton sector, as was common until 2014.

Economic activity by the agriculture industry (direct effect) ripples through the county economy as firms purchase inputs (indirect effect) and pay employees who also make regional purchases (induced effect). Many production expenses are paid to local suppliers. Farmers and ranchers also spend part of their wages and profits within the region--eating at local restaurants and buying groceries, clothing and movie tickets. In turn, the employees of these businesses purchase supplies and spend wages at local businesses. Money is multiplied as it circulates through the economy. Of course, money also leaks from the regional economy as firms and households purchase goods and services from other parts of the state, nation, and world. These leakages reduce the overall economic contribution of agricultural production.

Four types of multiplier effects are reported in the contribution analyses. The *employment* contribution measures jobs attributable to the direct economic activity. Contribution to *labor income* measures the effect of final demand spending on the incomes of households in the region and indicates the benefit to local residents. The *value-added* contribution measures contribution to regional gross domestic product (GDP). *The output or gross sales* contribution measures direct spending (or loss) on overall activity in the region.

The total effects are the sum of direct, indirect and induced for each of the outcomes: employment, labor income, total value added (contribution to gross regional product) and output (gross sales). The original $702.6 million in foregone cotton PLC payments was equivalent to $1.4 billion in foregone economic output across the entire Texas economy over the four-year period and up to 2,896 full- and part-time jobs annually. This total contribution includes an $804.8 million contribution to gross regional product and a $533.6 million contribution to labor income across the state. Labor income is a component of value added, which is a component of output, so the figures cannot be summed.

Discussion

Several estimates of how producer would have allocated their base acres, updated yields and choice of program were necessary for this analysis because sign-up into the new seed cotton program will conclude on December of 2018. None of the assumptions utilized appear unreasonable in the context of how producers signed their other base acres into the 2014 Farm bill.

The assumption of eighty-five percent of generic base being allocated to seed cotton appears reasonable due to the planting history and options available to producers for the re-allocation process. The implementation of the new seed cotton program gives producers two options for re-allocate their frozen generic base acres to program crops, including seed cotton on a FSA farm number by farm number basis. Option 1: The greater of eighty percent of the generic base acres or the average acres planted to cotton from 2009 through 2012. Option 2 simply allocates the generic base proportionally to all planted program crops. Only eighty-five percent of base acres between 2009 through 2012 were being planted to cotton, so again, the eighty-five percent allocation to seed cotton does not seen unreasonable.

Utilizing ninety percent of the per planted acre yield may slightly understate the program yields used to calculate PLC payments. Cotton yields in 2011 and 2012 were below average. It is not unreasonable to expect some farms to have program yields that were already above ninety percent of the 2008 through 2012 average.

It should also be noted that if cotton producer had been able to collect PLC payments in the recent periods of low prices, the Cotton Ginning Cost Share program payments would likely not have been made to Texas cotton producers.

The total annual PLC payments listed on Table 5 do not take into consideration any payment limitation that individual producers or entities may run into. Payment limitations and Adjusted Gross Income means testing may reduce the total payments coming to Texas, though this reduction is not expected to be significant.

Summary

Producers would prefer to generate their gross income (and net income) directly from the market. However, in periods of low prices or reduced yields, American farm policy has programs in place to provide financial stability or sustainability. The 2014 farm bill removed most of that safety net from U.S. cotton producers. The downturn in prices between 2014 and mid-2016 highlighted the need for a financial safety net for U.S. cotton producers. The 2018 Bipartisan Budget Act of 2018 brought seed cotton back under the umbrella of federal farm programs.

If the current program had been in place since 2014, Texas cotton producers would have collected over $702.5 million in PLC payments which cumulatively is $1.4 billion in foregone economic output across the entire Texas economy over the four-year period and up to 2,896 full- and part-time jobs annually. Future program payments will depend on how Texas cotton farmers actually enroll their acreage into the program and how prices react to global events in the years ahead, but moving forward, cotton producers, lenders and input suppliers know that there is once again a static federal program in place to help cotton producers endure depressed prices.

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