2014 FARM BILL COMMODITY PROGRAM AND THE CROP INSURANCE CHOICE INTERACTIONS

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Overview

With the announcement of the 2014 Farm Bill, there were many changes in the programs available through government agencies such as the Farm Service Agency (FSA) and the Risk Management Agency (RMA). When these programs opened for enrollment, producers faced complex decisions regarding which of the program combinations would best suit their operational needs. Because of the changed safety net provisions of the FSA programs, producers were likely to re-evaluate crop insurance type and coverage level decisions.

The primary objective of the research is to evaluate factors that influenced producer crop insurance program decisions after the introduction of new government crop insurance programs and other provisions of the 2014 Farm Bill. By comparing recent crop insurance coverage levels against earlier data, this research identifies impacts that the introduction of the new government programs had on producer traditional crop insurance coverage choices. The research also examines the influences of geographic location, the crop being insured, and the insurance coverage type on the level of crop insurance coverage elected.

Introduction

Background

The Agricultural Reform, Food and Jobs Act of 2014, better known as the 2014 Farm Bill, brought substantial changes to both agricultural commodity and crop insurance programs. Producers and land owners were allowed to update the base acres and commodities used as the basis of their underlying commodity program safety net. The new programs created by the 2014 Farm Bill were implemented in late 2014. A major difference from prior programs involved the

underlying “triggers” that activated payments. Agriculture Risk Coverage, or ARC, became the revenue-based program. A payment could be triggered for the ARC program based on a combination of yield and price shortfalls relative to historical averages. The yields could be based off the county’s historical productivity, known as ARC-CO, or the program could be based off the individual’s production history (ARC-IN). The alternative commodity program was the price-triggered program known as the Price Loss Coverage (PLC) program. Payments for this program are trigged when the commodity market year average price falls below the established program price. While the details are beyond the scope of this paper, suffice it to say that producers were faced with a complex decision that involved making five-year price and yield projections to determine the program best suited their individual situation. Whole farm payment limitations were included in both programs to cap the maximum amount the whole farm could receive.

Basic crop insurance programs for major commodities, such as corn, soybeans, and wheat remained essentially unchanged with the 2014 Farm Bill. Basic product options include “yield” only products, or “revenue” products with various coverage level selection options, and the premium subsidy levels for the various choices remained essentially unchanged from the previous several years. These subsidy levels generally decline as higher levels of insurance coverage are selected. However, as the 2014 Farm Bill began to be implemented, commodity prices were beginning to fall and price projections were suggesting an extended period of lower grain commodity prices. These price declines impact insurance guarantee levels for various insurance products and may influence crop insurance decisions. The primary crop insurance program change with the 2014 Farm Bill was in the form of a new product. For producers who

had not enrolled a commodity in the ARC program, an additional insurance coverage option, Supplemental Coverage Option (SCO), was made available through RMA[1].

SCO provides producers with an insurance plan that adds onto their underlying traditional policy. For example, assume a producer's wheat is enrolled in the PLC program in a county where SCO is available. The producer purchased a yield-based plan that covered wheat at a coverage level of 70% on the underlying traditional policy. The producer could then buy an SCO policy that would essentially raise the coverage level from 70% to 86%[2]. The premium subsidy for SCO policies are 65% and does not vary based on the underlying policy coverage level. Previous research suggests that the higher level of subsidy on SCO premiums could shift the way a producer evaluates the coverage level for the underlying base policy (Collins and Bulut, 2013). Specifically, the producer may have an incentive to choose a lower individual coverage level while adding on additional coverage through a SCO policy. Other authors predicted that the introduction of SCO would have little appeal to producers who have traditionally chosen higher levels of individual coverage due to the tradeoff of cost to only gaining a small amount of additional coverage (Schnitkey and Sherrick, 2014). In both situations, it was unclear what the producer would do since the cost of the policy had not yet been determined. To further complicate the decision, even though SCO was a part of the 2014 farm bill, it did not become available as an option until the 2015 crop year. This meant that at the signup time for the 2014 Farm Bill commodity programs, producers knew SCO was coming in future years, but it was not available for the first year of the new farm bill.

[1]The SCO program is not available for cotton; however, a similar program called the Stacked Income Protection Plan (STAX) was created for cotton. Acreage covered by the STAX program cannot be covered by SCO.
[2] The SCO insurance coverage is not exactly the same as the underlying traditional policy because the SCO loss calculation is based on a county-wide loss similar to the Group Insurance Product (GIP), whereas the individual underlying policy is most commonly based on individual farm yields.

Objectives

The primary objective of this research is to evaluate the influence that the implementation of the 2014 Farm Bill had on producers' crop insurance decisions, particularly focusing on coverage levels selected. Additional objectives include determining the differences in crop insurance coverage level choices as a result of specific commodity program choice (ARC vs PLC), geographic location (Midwest vs Southern Plains) and crops produced (wheat, corn, or soybeans).

Conceptual Framework

Previous studies have analyzed factors that influenced crop insurance coverage types and levels. Though these studies have been very informative, a majority have looked at the variables that are present at the farm level. These studies provide valuable information about farm-level decision factors; however, they do not include the influence that the current farm bill plays in the decision making process (Sherrick et al., 2003 & 2004, Makki and Somwaru, 2001a,b).

Additional studies have explored the impact that adjustments of the subsidy levels of crop insurance premiums have had on crop insurance policy decisions (Glauber, 2004). Glauber suggests that when subsidies are increased there is an apparent increase in the participation of producers in crop insurance, measured in both in both total premiums and premium per acre. These influences have been shown to depend on the covered crop type and on location (Dismukes et al., 2013). Of particular interest in this study is the influence of the perceived shift in the magnitude of the total safety net provided by the basic FSA commodity program (relative to previous farm programs), and the influence of the availability of the SCO coverage option,

which is likely subsidized at a higher level, perhaps providing an incentive to replace traditional coverage levels with SCO.

Producers are assumed to maximize the expected utility of terminal wealth by choosing acres of each crop and type and level of crop insurance. Once the decision to enroll in a government program is made, producers make cropping and insurance decisions simultaneously given the enrolled program. Mathematically,

$$(1)\ \max_{a,RP,YP} \mathrm{E}U\left[\sum_t\left(\sum_i a_{it}(p_{it}y_{it} - \sum_j r_{ijt}x_{ijt} - InsPrem_{it}(RP,YP)) + ARC_t + PLC_t + ACRE_t + DCP_t\right)\right]$$

where the subscript *t* denotes *t*-th year, subscript *i* denotes *i*-th crop (*y*), subscript *j* denotes *j*-th input (*x*), *p* denotes price of corresponding crop, *r* denotes price of corresponding input, insurance premium *InsPrem* is a function of the level revenue protection (*RP*) or yield protection (*YP*) that the farm chooses, and finally *ARC*, *PLC*, the average crop revenue election (*ACRE*), and direct-counter cyclical payments (*DCP*)[3] are expected program payments by year. Solving equation (1) leads to optimal acreage allocation to each crop and insurance coverage levels for both.

Data, Methods, & Procedures

Data

Data regarding crop insurance enrollment were accessed from the RMA Summary of Business reports. The time period for this study is the 2008 to 2015 cropping years. This period is used to examine the changes in crop insurance coverage due to the changes in government programs. While data are nationally available, the scope of this study is restricted to the states of Oklahoma,

[3] ACRE and DCP are both farm programs based out of the 2008 Farm Bill.

and the two Corn Belt states, of Illinois and Ohio. This selection of scope is a compromise, allowing an examination of two very different agricultural production regions of the United States, while reducing the magnitude of the study to a manageable level. The data categories from RMA that were utilized are: Crop Year (2008 – 2015); State (Illinois, Ohio, Oklahoma); County; Crop (Grain Corn, Soybeans, Winter Wheat); Insurance Plan (Yield based, Revenue based)[4]; Coverage Level; Net Reported Acres; Total Premiums Paid; Total Subsidy Paid.

Farm program options available, enrollment, and farm program payments guidelines were obtained from FSA. Historical yields for the counties and states for the selected years came from the National Agricultural Statistics Service (USDA/NASS). Yields going back to 1998 were obtained to facilitate the calculations of the historical yield variable.

Futures prices were collected through the Commodity Research Bureau database. Harvest contract corn and soybean prices were reported by the Chicago Board of Trade and harvest wheat prices were reported by the Kansas City Board of Trade. These prices were used directly in the model, as well as for the calculations of the estimated maximum FSA program payments.

[4] Area based and Whole Farm based plans were not included in this study. Also, products sold under different names in earlier years were renamed to be either *YP* or RP plans for this analysis.

Empirical Model

The weighted average crop insurance coverage is specified as a function of expected subsidy levels, estimated program payments, futures prices, recent yield history, and various Farm Bill related variables as:

$$
\begin{aligned}
&\textit{Weighted Average Crop Insurance Coverage}_{icst} = \\
&\quad \alpha_1 + \beta_1\left(\textit{Weighted Average Total Insurance Subsidy \%}_{icst}\right) \\
&\quad + \beta_2\left(\textit{Weighted Average \% Enterprise Units}_{icst}\right) \\
&\quad + \beta_3\left(\textit{Weighted Average Estimated Max FSA Program Payments}_{icst}\right) \\
&\quad + \beta_4\left(\textit{Futures price}_{it}\right) \\
&\quad + \beta_5\left(\textit{Deviation of Prior Year Yield from 10 Year Average}_{icst}\right) \\
&\quad + \beta_6\left(\textit{\% of State Enrolled in ARC Program}_{ist}\right) \\
&\quad + \beta_7\left(\textit{\% of State Enrolled in ACRE Program}_{ist}\right) \\
&\quad + \delta_1\left(\textit{SCO Available}_{icst}\right) \\
&\quad + \delta_2\left(2014\ \textit{Farm Bill}_{t}\right) + \nu_t + \varepsilon_{icst}
\end{aligned}
\tag{2}
$$

where crop (i), county (c), and state (s) are fixed effects and year (t) is a random effect. An additional error term was included to account for the variance of the random effect variable year, denoted as v_t.

Specific descriptions and calculations for all included variables

Weighted Average Crop Insurance Coverage

All observations were categorized by coverage level; subscript l denotes the l-th level of coverage. Of interest here are the weighted averages for each variable across all coverage levels for each state, county, crop, year, and coverage type observation based on coverage levels.

Weighted Average Crop Insurance Subsidy Percent

Crop insurance subsidy levels have been shown to have an impact on the coverage level elected by producers. By including the crop insurance subsidy rate, the model captures that influence on the coverage level selected. RMA data include total premiums and total subsidies, so subsidy percentage was a straightforward calculation for each observation. The weighted average of the corresponding subsidy levels was then calculated for the variable.

Weighted Average Percent Enterprise Units

An enterprise unit is a combination of all acres of a single crop within a county in which the policyholder has a financial interest into a single unit, regardless of tenure relationship or geographic location within the county. Optional (traditional) crop insurance units are based on acres under the same tenure relationship and within the same "section" geographically. This distinction has obvious implications for potential loss calculations, and enterprise units are subsidized at different levels than optional unit policies. By accounting for the percent enterprise units, the model captures this effect on the overall coverage selection. Using the total premium paid and the total subsidy paid, along with the optional unit and enterprise unit subsidy rates reported by RMA, the percent enterprise units was calculated as:

$$\text{(3)}\quad \textit{Percent Enterprise Units}_{iclst} = \frac{\textit{Total Subsidy Paid}_{iclst} - \left(\textit{Total Premiums Paid}_{iclst} \times \textit{Optional Unit Subsidy Rate}_{iclst}\right)}{\textit{Total Premiums Paid}_{iclst} \times \left(\textit{Enterprise Units Subsidy Rate}_{iclst} - \textit{Optional Unit Subsidy Rate}_{iclst}\right)}.$$

A weighted average was then taken across all coverage levels (l) for all years (t), crops (i), counties (c), and states (s).

Weighted Average Maximum Estimated FSA Program Payments

The maximum estimated FSA commodity program payment (at crop insurance decision time) was included as a component of a producer's expected revenue. Payments were calculated based on the payment formulas from FSA for the programs available at the time, resulting in different payment calculations depending on the observed year. The maximum of all available payments was used when calculating the weighted average[5]. The calculations and active time frame for the FSA programs are:

$$(4)\, ARC(2014-2015) = Min\left\{0.1\times BCY\times BCP, Max\left(0, 0.86\times BCY\times BCP - ECY\times FP\right)\right\};$$

$$(5)\, PLC(2014-2015) = Min\left[FRP - FLR, Max\left\{0, FRP - Max\left(FP, FLR\right)\right\}\right]\times BCY;$$

$$(6)\, ACRE\ (2009-2013) =$$

$$0.8\times\frac{BCY}{BSY}\times Min\left\{0.9\times BSY\times MYP - ESY\times Max\left(FP, 0.7\times NLR\right), 0.225\times BSY\times MYP\right\}$$
$$\times If\left\{BCY\times MYP + SR > ECY\times Max\left(FP, 0.7\times NLR\right), 1, 0\right\}$$
$$\times If\left\{0.9\times BSY\times MYP > ESY\times Max\left(FP, 0.7\times NLR\right), 1, 0\right\}$$
$$+0.779\times\left(2001-1998\ County\ Yield\ Average\right)\times ADR;$$

$$(7)\, DCP\ (2008-2013) = If\left\{MYP > CCT, 0.85\times\left(2001-1998\ County\ Yield\ Average\right)\times MYP, 0\right\}$$
$$+If\left(Year = 2012\ or\ 2013, 0.85, 0.833\right)\times 0.935$$
$$\times\left(2001-1998\ County\ Yield\ Average\right)\times DDR$$

$$(8)\, MYP = \frac{FP + HP}{2}\ .$$

[5] It is important to note that the weighted average maximum estimated FSA program payment variable is capturing the planting time expectation of FSA program payments, and as such many observations are zero or close to zero. Several of the particular year-crop-county combinations actually triggering relatively large FSA program payments when looked at historically.

Listed Variables:	Variable Source:
BCY=Benchmark County Yield	(5 Year Olympic Average from NASS data)
BCP=Benchmark County Price	(5 Year Olympic Average from FSA data)
ECY=Estimated County Yield	(Calculated as above)
ESY=Estimated State Yield	(Reported from WASDE)
FP=Futures Price	(Calculated as above)
FRP=FSA Reference Price	(Reported from FSA)
FLR=FSA Loan Rate	(Reported from FSA)
NLR=National Loan Rate	(Reported from FSA)
HP=Previous Year Harvest Price	(Reported from WASDE)
SR=Subsidy Rate	(Calculated as above)
ADR=ACRE Direct Rate	(Reported from FSA)
DDR=DCP Direct Rate	(Reported from FSA)
CCT=Counter Cyclical Threshold	(Reported from FSA)

Several of the expected FSA payment calculations involve a yield expectation. Weighted averages of the deviations of the actual county yields from the actual state yields were calculated for the previous five years. These weighted average deviations were added to the current crop year's estimated state level yields. The estimated state level yields came from the World Agricultural Supply and Demand Estimates (WASDE) to arrive at an estimated county yield for each observation[6]. This estimated county yield was then used in the calculations of FSA program payments. Estimate count yields were calculated as:

$$(9)\quad Estimated\ Yield_{cits} = \frac{\sum_{k=1}^{5}\left((Yield_{cit} - Yield_{ist})_k \cdot (6-k)\right)}{15}.$$

[6] This is done because only estimated state-level yields are available at insurance signup time.

Futures Prices

Harvest prices are used when calculating some crop insurance payments, so using the futures price as an estimate captures the influence on producer decision making. The use of futures prices to estimate harvest time prices has been utilized by others (e.g., Schnitkey 2016). In addition, some of the aforementioned FSA commodity program payments trigger off actual prices, resulting in an additional need for a relevant expected price. Futures prices used in the analysis are a calculated monthly average of the daily settlement prices of harvest time futures contracts for the month prior to the specific state's insurance contract sign-up deadline. Thus, corn and soybeans futures prices were from the daily February settlement prices on the December and November contracts, respectively, and wheat futures prices were from the daily September settlement prices on the July hard red winter wheat contract.

Deviation of Prior Years Yield from its 10-Year Average

A recent poor yield experience may well influence a producer's crop insurance decision. That potential impact is included in our model as the deviation of last year's yield from the prior 10 year average, calculated as:

$$(10)\quad Deviation\ of\ \ Yield_{cits} = Yield_{cis,t-1} - \frac{\sum_{k=2}^{12} Yield_{t-k,ics}}{10}.$$ [7]

A weighted average for this variable was taken across all levels of coverage for all combinations of *t*, *i*, *c*, and *s*.

[7] Missing observations were omitted from the calculations, resulting in a smaller denominator in some instances.

Other Fixed Effects

The 2014 Farm Bill fixed effect variable directly accounts for the impact of the introduction of the 2014 Farm Bill. In the model this variable is 1 for observations covered by the 2014 Farm Bill, and 0 otherwise.

The SCO fixed effect variable measures the impact of the availability of SCO for a given crop, location, and year. The variable is 1 for observations representing cropping decisions for which SCO enrollment could be an option and 0 otherwise.

Percent of the State Enrolled in FSA Programs

In order to sort out any differences in crop insurance coverage level choices between producers who enrolled in the ARC program and those who enrolled in the PLC program during 2014 Farm Bill signup, the model includes the percent of each state's acreage base for each crop that was enrolled in the ARC program.

Similarly, for the relevant time period representing the 2008 Farm Bill, the model includes the percent of each state's acreage base for each crop and year that was enrolled in the ACRE program.

Methods

The model was evaluated using SAS Enterprise Guide 6.1. The Proc Mixed procedure was used to allow for fixed and random effects. The year variable was treated as a random effect, while state, county and crop were treated as fixed effects. Two models were estimated, one for revenue protection (*RP*) policies and the other for yield protection (*YP*) policies. The estimation models were identical in model specification.

Multicollinearity was present involving the 2014 Farm Bill fixed effect variable and the Percent County in ARC variable (as evidenced by relatively high Variance Inflation Factors). This finding should not have been a surprise since the Farm Bill fixed effect variable value was 1 for all 2014 and 2015 observations. The ARC variable only had values during the same time period giving these two variables a high correlation. The ARC variable was dropped from the original model in order to correct for the multicollinearity issue (11). An additional model (not shown) was estimated that included the Percent ARC variable but did not include the 2014 Farm Bill variable to determine the ARC impact.

The following model (11) was estimated:

$$
\begin{aligned}
&\textit{Weighted Average Crop Insurance Coverage}_{icst} = \\
&\quad \alpha_1 + \beta_1 \left(\textit{Weighted Average Total Insurance Subsidy \%}_{icst}\right) \\
&\quad + \beta_2 \left(\textit{Weighted Average \% Enterprise Units}_{icst}\right) \\
&\quad + \beta_3 \left(\textit{Weighted Average Estimated Max FSA Program Payments}_{icst}\right) \\
(11) \qquad &\quad + \beta_4 \left(\textit{Futures price}_{it}\right) \\
&\quad + \beta_5 \left(\textit{Deviation of Prior Year Yield from 10 Year Average}_{icst}\right) \\
&\quad + \beta_7 \left(\textit{\% of State Enrolled in ACRE Program}_{ist}\right) \\
&\quad + \delta_1 \left(\textit{SCO Available}_{icst}\right) \\
&\quad + \delta_2 (2014\ \textit{Farm Bill}_t) + \nu_t + \varepsilon_{icst} \quad .
\end{aligned}
$$

Results

Table 1	Yield Protection			Revenue Protection		
Effect	**Estimate**	**t Value**	**Pr > |t|**	**Estimate**	**t Value**	**Pr > |t|**
Intercept	0.1411	5.36	.	-0.0009	-0.05	.
Illinois	0.0285	3.47	0.0005	0.0971	18.88	<0.0001
Ohio	0.1012	12.47	<0.0001	0.1183	23.25	<0.0001
Oklahoma	0.0000	.	.	0.0000	.	.
Corn	0.0192	6.52	<0.0001	0.0492	25.03	<0.0001
Soybeans	-0.1136	-33.42	<0.0001	-0.0020	-0.76	0.4497
Wheat	0.0000	.	.	0.0000	.	.
Wgtd_Sub	0.2350	27.23	<0.0001	0.8953	105.21	<0.0001
Wgtd_Enter_Unit	0.0149	1.54	0.1228	-0.0568	-14.34	<0.0001
Wgtd_Max_Pmt	0.0005	12.08	<0.0001	0.0003	10.39	<0.0001
Futures	0.0281	42.84	<0.0001	0.0093	19.96	<0.0001
Dev_of_Lag	-0.0001	-2.00	0.0459	-0.0001	-1.74	0.0814
SCO_Dummy	-0.0148	-2.09	0.0364	0.0065	1.50	0.1348
FB_Dummy	0.2235	30.95	<0.0001	0.1259	25.83	<0.0001
Perc_ACRE	0.3056	15.74	<0.0001	0.2117	17.21	<0.0001

The null hypothesis that the introduction of the 2014 Farm Bill resulted in no change in producer crop insurance level selection is rejected for both the *YP* insurance product, and the *RP* insurance product. The *t* value in table 1 shows the 2014 Farm Bill fixed effect for both *YP* and *RP* products. The null hypothesis that the availability of the SCO insurance product does not impact traditional crop insurance product coverage levels could not be rejected for the *RP* products with a *t* value of -2.09, but was rejected at the 5% level for the *YP* products with a *t* value of 1.50. Table 1 reveals another factor that impacts crop insurance level choice is geographic location (for both *YP* and *RP*, corn belt farmers tend to select higher coverage levels than Oklahoma farmers, but the magnitude of the difference is larger for the *RP* product). Table 1 also shows that corn producers select higher levels of coverage than wheat producers, with the difference of the magnitudes being much larger for the *RP* product. On the other hand, soybean producers tend to select lower levels of coverage than wheat producers; however, the coefficient was only significant for the *YP* product model. Crop insurance premium subsidy levels contribute significantly to crop insurance purchase decisions. This result confirms the expectation that

higher subsidy levels result in higher coverage level election. The degree of enterprise unit participation was not significant in the *YP* model, but was significant in the *RP* model. Interestingly, the *RP* model resulted in a negative relationship, while the *YP* model revealed a positive relationship. Expected FSA program payment had a positive and significant impact on coverage level and election for both *YP* and *RP* products. The degree to which the most recent year's yield deviated from the historical average was marginally significant (5% level in the *YP* model and 10% level in the *RP* model), with the sign being as expected (a recent bad yield experience was associated with higher insurance coverage levels). Looking back at the 2008 FSA Farm Program options, producers in states with higher enrollment in the ACRE program relative to the DCP program tended to purchase higher levels of crop insurance.

Estimating essentially identical models for both *YP* and *RP*, with the exception of taking out the 2014 Farm Bill variable and replacing it with the Percent Enrolled in ARC variable allows a test of whether or not enrollment in the ARC program option made any difference in crop insurance coverage selection choices when compared to enrollment in PLC. The comprehensive results table is not included here, because with the exception of the ARC variable itself, the results are very similar to the results reported for the earlier model. We reject the null hypothesis that increased enrollment in the ARC program has no impact on crop insurance coverage level selection. Producers in states with higher levels of ARC participation tend to purchase significantly higher levels of crop insurance coverage. The model estimates were significant for both insurance products (0.2646 and 0.1563 for *YP* and *RP*, respectively). The few results that did change in modified model relative to the estimates of initial model (11) were in the *RP* application. The SCO fixed effect variable coefficient switched to a negative and both the SCO fixed effect and the deviation of the prior year's yield becoming significant.

Conclusions

This research examines factors that influence the insurance coverage level selected by producers. While non-policy items, such as futures prices and location, were tested in the model, the primary focus of this study is on the impact of the implementation of the 2014 Farm Bill, and other policy- related issues. Results confirm that the 2014 Farm Bill had an impact on the coverage level selected by producers. Producers in our sample states on average selected higher coverage levels of insurance after implementation of the 2014 Farm Bill. Reasons are not completely clear, but this finding is likely a consequence of the removal of direct payments, lowering the producers overall guaranteed income level. Further confirmation of this result and an explanation of the causes could be the subject of additional research.

The inclusion of specific FSA commodity program choice variables and availability of the supplemental insurance option from RMA allowed for an in-depth look at specific components of the 2014 Farm Bill that could have resulted in changes in traditional insurance coverage levels. A higher level of participation in the ARC program relative to the alternative (PLC) program is associated with higher levels of crop insurance purchased. Interestingly, the magnitude of the impact of the tendency to select this new FSA revenue based safety net program is similar to the magnitude of the impact associated with the tendency to select the previous FSA revenue based safety net program (ACRE) if one simply compares the magnitude of the estimated coefficients.

Results regarding the impact of the availability of the new insurance program (SCO) as it impacts traditional crop insurance coverage selection choices are not conclusive. Results from the model specification that included the 2014 Farm Bill fixed effect switched signs between the

RP product and the YP product estimations. The SCO coefficient was negative and marginally significant in the YP model and positive but not significant in the RP model. When the model was re-specified to include the Percent ARC variable instead of the 2014 Farm Bill fixed effect, the SCO coefficient was negative and significant for both the RP product and the YP product. These results may partially be attributed to only a single year of observations that include the availability of SCO.

This research has implications for future changes in government policies and programs. Research of this type that investigates the impact of recent program changes on insurance coverage selection choices is useful for future policy debates. A better understanding of how producers respond to program changes may help in the development of policies and programs to better meet the needs of producers and other parties.

Continued research in this area is needed to evaluate more directly what changes were key in influencing the shifts in coverage levels. In the process of evaluating the impact of various factors on the two most common crop insurance product coverage levels, this study pointed out many more questions to be answered before the influence the 2014 Farm Bill had on crop insurance coverage levels is fully explored. Obvious examples include extending similar research to include additional states, and going back further in history to sort out impacts resulting from earlier program changes. Additional work is needed to further explore the causes underlying the results found here, or in subsequent work that expands on the scope of this study. Finally, differences in coverage level choice may be impacted by other factors that were not addressed.

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