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2014 Farm Bill Crop Commodity Program Payments in Idaho

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Introduction

The 2018 Farm Bill (FB), which was signed into law on December 20, 2018, extended and modified several programs initiated under the 2014 FB that are designed to provide revenue support for crop farmers (USDA-FSA 2019a). Participation in the programs requires that producers make choices among several program options: Agriculture Risk Coverage — county (ARC-CO), Agriculture Risk Coverage — individual coverage (ARC-IC), and Price Loss Coverage (PLC), which provide producers of a set of twenty-eight covered commodities payments under certain market conditions. A producer of a covered commodity chooses a program in advance of the crop year. If price and yields for the crop year, which are uncertain at the time of sign-up, negatively change by enough to exceed thresholds established within the 2018 FB, then the programs provide payments to make up some of the revenue losses. The programs are available premium free to all eligible farms with base acres of covered commodities but require that producers sign up at their local United States Department of Agriculture (USDA) Farm Service Agency (FSA) office (USDA-FSA 2019a).

There are two primary objectives for this study. The first is to describe and examine the variation of the ARC-CO and PLC program payments for Idaho over 2014–18.[1] The investigation of the payment data over time and across crops will provide insights into whether the programs functioned as expected, especially when also taking into consideration the adjustments in prices. The second is to estimate the extent to which changes in yields and prices explain adjustments in program payments over this period. Notably, the empirical methods employed allow for direct comparison of the estimates of the price and yield effect on program payments.

This study will provide fundamental background information for producers to use when making program decisions under the 2018 FB. One of the key logistical modifications to the ARC-CO and PLC programs between the 2014 and 2018 FB is that producers have more opportunities to change their program elections, which also implies that they more regularly need to reassess their current choices in light of changing market conditions. Specifically, under

the 2014 FB, producers chose one program that applied for the entire 2014–18 period. Under the 2018 FB, producers chose by March 2020 for the 2019 and 2020 crop years, and will make elections each year from 2021 to 2023 (USDA-FSA 2019a).

The empirical analysis of this study focuses on barley and wheat. These crops were chosen for emphasis because they are the "covered commodity" crops with the highest cash receipts for Idaho producers.[2] Specifically, as of 2018, total cash receipts for Idaho barley producers were over $216 million and those for wheat producers were over $523 million (USDA-ERS 2018).

In addition to providing a statewide overview of payment patterns and determinants of payments, an empirical analysis was also conducted on a regional level to account for the wide variation in Idaho producer practices across regions of the state, particularly with respect to dryland and irrigated conditions. Xu et al. (2014) created a map that shows in detail how agricultural cultivation under irrigation is more widespread in eastern and southern Idaho than in western and northern Idaho.[3] These differences in production practices across state regions imply that fluctuations in yield caused by changes in weather-related growing conditions are more pronounced in western and northern Idaho than in eastern and southern Idaho. Since yield is a primary variable that influences farmer revenue, such regional differences in production practices plausibly lead to expectations that the degree to which price and yield influence ARC-CO payments also varies across regions.

Review of ARC-CO and PLC Programs

Under the 2018 FB, eligible producers[4] have the opportunity to choose between the ARC-CO and PLC programs for each farm and covered crop combination. To make a choice between programs, a producer needs to consider their farm and county production characteristics as well as current and historical prices, all of which are subject to change over time. Payments under both programs are based on 85% of historical base acres rather than actual production (USDA-FSA 2019a). ARC-CO payments are revenue-based, in that a payment is initiated when the actual farm revenue is less than the county revenue guarantee. The guaranteed revenue level is calculated using historical countywide production and national price data. Thus, ARC-CO payments depend on both prices and production. Since historical base acres are fixed for the 2018 FB period, the primary variables that can influence ARC-CO payments are price and yield. For PLC payments, the actual payment amounts are influenced by historical base acres and program payment yields, both of which are fixed values for any program year.[5] Whether a PLC payment occurs or not depends upon price changes and not yield fluctuations.

The specific ARC-CO and PLC payment formulas are described in detail in CRS (2019). The payment formulas are provided here in a slightly simplified form to emphasize the key variables that influence whether or not a payment occurs. The streamlined payment formulas are

1. $arc = [RG - (p \times y)] \times 0.85$,

2. $plc = (P^* - p) \times Y \times 0.85$,

where lowercase terms indicate variables and uppercase terms represent fixed values, such that *arc* and *plc* are per base acre payments under ARC-CO and PLC programs, respectively, *RG* is a countywide revenue guarantee that is based on historical price and yield data, *p* is the higher of the US marketing year average (MYA) price or the loan rate set in the 2018 FB, y is actual county yields, P^* is an effective reference price for which the formula is set within the 2018 FB, and Y are farm PLC program yields that are fixed for a given crop year. Hence, the only variables that can change within and across crop years in equations (1) and (2) are *arc*, *plc*, *p*, and *y*.

Given the observed effects of prices and yields on program payments, estimation of the the relationship among these variables is a key focus of this study. While the relationships appear direct such that it is expected that there are strong relationships among the variables, there are some statutory program characteristics that can cause the variable relationships to become independent. For example, both the ARC-CO and PLC programs have a payment limit of $125,000/person or legal entity per year (USDA-FSA 2019a). This cap on payments means that in some cases payments would stay capped at $125,000/person or legal entity even if prices

continued to decline to a level that would have resulted in payments greater than the limit amount. If that scenario was fairly common, then, in the aggregate, the actual payment amount values would have a weaker relationship with prices than would be the case without the payment cap.

ARC-CO and PLC Program Payments under 2014 FB in Idaho

The first step in the empirical analysis was to organize the data on ARC-CO and PLC program payments for Idaho by crop to examine how these payments changed over the 2014–18 period. Focus is placed on the state total payment amounts for select crops for both programs for each year over the 2014–18 period and the total payments. The tables in Appendix A provide the payments for a larger set of crops by county.

Regarding the statewide program payments data in Table 1, Idaho producers received over $81 million under ARC-CO and over $202 million under PLC in total over the full program period. ARC-CO payment rates per acre have a cap set at 10% of the county revenue benchmark, while PLC payment rates do not have a per-acre cap. Hence, it is more likely for relatively large payment values to occur under PLC than under ARC-CO. In addition to these overall program payment amounts, ARC-CO payments occurred for more crops than was the case for PLC, which is reflected in both Table 1 and in the county-based tables in Appendix A. Regarding payments over time, ARC-CO payments exceeded those for PLC in 2014, but the reverse was the case for every year from 2015 to 2018. Additionally, payments under ARC-CO peaked in 2015 and declined afterward, while those for PLC peaked in 2016 and were consecutively smaller for the 2017 and 2018 years. Among crops, payments were largest for both ARC-CO and PLC for barley and wheat, although the shares of payments for these crops was more even for ARC-CO than PLC. For PLC, wheat accounted for nearly 80% of all payments. PLC payments for barley were a distant second, comprising about 13% of total payments.

Table 1. ARC-CO and PLC payments for select crops and total in Idaho, 2014–18.

ARC-CO									
Year	Barley	Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Lentils	Oats	Wheat	Total for all crops, including those not listed in table
2014	$267,300	$671,888	$80,872	$5,374,816	$162,761	$20,991	$83,719	$4,221,303	$10,883,650
2015	$418,032	$600,168	$17,371	$6,288,425	$360,513	$392,022	$217,616	$18,687,873	$26,982,020
2016	$117,068	$13,090	$0	$5,690,631	$6,566	$0	$176,355	$17,761,304	$23,765,013
2017	$1,650,732	$0	$0	$1,185,535	$365,655	$482,486	$163,321	$15,540,073	$18,387,802
2018	$185,451	$0	$0	$638,378	$76,027	$569,637	$11,200	$4,219	$1,484,912
Total	$2,638,583	$1,285,146	$98,243	$19,177,785	$971,522	$1,465,136	$652,211	$55,214,772	$81,503,397

PLC									
Year	Barley	Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Lentils	Oats	Wheat	Total for all crops, including those not listed in table
2014	$267,300	$671,888	$80,872	$5,374,816	$162,761	$20,991	$83,719	$4,221,303	$10,883,650
2015	$418,032	$600,168	$17,371	$6,288,425	$360,513	$392,022	$217,616	$18,687,873	$26,982,020
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Source: USDA-FSA.

Note: ARC-CO payments for barley, oats, and wheat were aggregated across irrigated, nonirrigated, and for all formatting purposes. Payments demarcated by these categories are in Appendix A. Several crops were excluded from the table due to their relatively low values in most years for both ARC-CO and PLC. These omitted crops include canola, flaxseed, mustard, safflower, sorghum, soybeans, and sunflower. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Figure 1 is a plot of US MYA prices for barley and wheat for 2014–18. The observed movements in MYA prices help explain the changes in magnitudes of payments under PLC over this period. For barley, the MYA price was highest for 2015, and no PLC payment occurred that year. However, the prices declined fairly precipitously between 2015 and 2017, and were slightly above their 2017 level in 2018. This decline in prices corresponds with the changes in PLC payments for barley with a large increase between 2016 and 2017, and then a small decrease between 2017 and 2018. For wheat, the MYA price was also highest in 2014, substantially lower in 2016, and then was higher but not up to the 2014 level in 2018. The large decline in the MYA wheat price between 2014 and 2016 corresponds with the dramatic increase in PLC payments over these years. The patterns observed in the data show that payments under the PLC program were highest under low price conditions, which is consistent with the design of the programs.

Econometric estimation can help to determine the extent to which variation in payments in Idaho under the 2014 FB is explained by variation in prices and yields. Although PLC payments are solely determined by price changes, estimation of the payment and price relationship was implemented to determine whether or not there were differences between barley and wheat that could be explained by differences in their market structures.

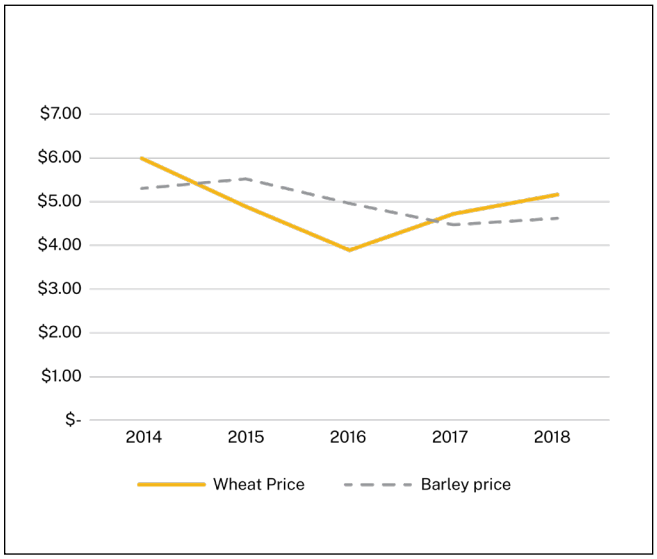

Figure 1. US Marketing Year Average (MYA) prices for barley and wheat econometric estimation, 2014–18.

Data

Payments and yield data for the 2014–18 period for the ARC-CO and PLC programs used in the analysis were obtained from the USDA FSA (USDA-FSA 2019b). These datasets also included information on base acres, which were used to convert countywide total payments to payments per base acre. US MYA price data were gathered from the USDA Office of the Chief Economist World Agricultural Supply and Demand Estimates reports (USDA-OCE 2018).

Some counties were excluded from the dataset used in estimation due to the presence of both irrigated and nonirrigated production within the county. This was done because the variable of interest is payment per base acre. However, while payment and yield data are demarcated by irrigated or nonirrigated, data are not available for the number of base acres in each category. Hence, only the counties for which there is no demarcation between irrigated and nonirrigated production were included to obtain clearer values of payments per base acre. These exclusions, in addition to those omitted due to absence of data, limited the utilized dataset to 27 out of 44 Idaho counties.[6]

Summary Statistics

The standard deviation (SD), mean, and coefficient of variation (CV), which is the standard deviation divided by the mean, for the payment, price, and yield variables across all regions (counties for payments and yields, and nation for prices) and years are displayed in Table 2. Since the CV is a general measure of the degree of variation in a variable relative to the mean, comparing the CV across variables implies that payments are substantially more variable than prices and yield. This is explained in part by the presence of many cases of zero payments when the payment criteria are not met and some substantial payments in some counties and years. Additionally, yields are substantially more variable than prices. This is a result that follows from the nature of the yield data coming from counties with diverse production conditions and the prices being national averages across many markets such that much of the cross-market variation was already averaged out. Comparing across crops, barley payments and yields had m ore variability than wheat, while wheat prices had slightly greater variation than barley prices.

Table 2. Summary statistics for 2014–18 ARC-CO and PLC payments for barley and wheat in Idaho across all regions and years.

	ARC-CO payments	PLC payments	Price	Yield
Barley				
SD	97,376	241,380	0.40	31.06
mean	22,523	102,505	4.97	88.85
CV	4.32	2.35	0.08	0.35

	ARC-CO payments	PLC payments	Price	Yield
Wheat				
SD	818,144	1,604,740	0.68	25.89
mean	375,128	768,241	4.93	96.60
CV	2.18	2.09	0.14	0.27

Table 3. Summary of regression estimates for explaining the variation in 2014–18 ARC-CO payments for barley and wheat in Idaho.

Variable	Statewide	East	North	South	West
Barley					
Price	0.37	0.63	...	0.75	...
Yield	0.56	0.56	0.72	0.75	0.54

Variable	Statewide	East	North	South	West
Wheat					
Price	0.89	0.92	0.84	0.94	0.89
Yield	0.51	0.47	0.73	0.46	0.37

Variable Standardization

While it is of interest to determine whether and the extent to which yields and prices are associated with program payment variation, producers may want to know which of the variables is *relatively* more important in explaining payments. To help make this determination, the payment, yield, and price variables were standardized so that each has a mean of 0 and standard deviation of 1. Standardization essentially involved calculation of z-score values, which are the difference between observation value and sample mean divided by the sample standard deviation, for each observation. These standardized variables were then included in the regression models that estimate the relationships among program payments, yields, and prices. Since all variables are "unit free" after standardization, preestimation standardization can allow for direct comparison of the relative size of effects of price and yield on payments.

Estimation Results

Since the data comprise a panel such that the variables are county-based for each year of the 2014–18 period, a fixed effects panel regression model was used. Essentially, fixed effects regressions account for factors that are different across counties but remain constant over time to measure more directly the relationships between payments, prices, and yields. More details of the estimated econometric models are provided in Appendix B.

The econometric models were estimated for barley and wheat for all included counties in Idaho, and then subsequently reestimated by each region, East, North, South, and West.[7] Estimation by region was done because it was expected that the effect of yield variation on payments would be larger in the regions for which irrigated production is less widespread, the North and West, than in the more heavily irrigated East and South. The estimation results were summarized so that readers could more easily discern what the authors believe are the most important results. Complete estimation results are provided in Appendix C.

A summary of the regression results for the ARC-CO payments models are displayed in Table 3. The values in the table are absolute values of the estimated coefficients associated with the explanatory variables (price or yield), and are only presented if they were statistically significantly different from zero at the 5% significance level. The absolute values are presented because all estimated coefficients were negative, as was expected since payments decline (increase) with price/yield increases (decreases). The main takeaways from the results include whether or not the coefficient is statistically significant, which implies that the variable is important for explaining variation in payment amounts, and the magnitude of the coefficient. Even though standardization is helpful to view the relative magnitude differences

between prices and yield, the interpretation is somewhat difficult to translate in practical terms. For example, the statewide results for barley imply that a 1 standard deviation (SD) change in the price translates into a 0.37 SD change in payments, while a 1 SD change in yield implies a 0.56 SD change in payments. While this may be interpreted as yield having a somewhat larger effect on payments than prices, one must also consider that yield has a higher SD than prices, which means that small changes in prices can have pronounced effects on ARC-CO barley payments. Regardless, more definitive results are found across regions such that ARC-CO payments for barley were determined almost exclusively by yield variation for the North and West regions, while both price and yield variation mattered statewide and in the East and South. The wheat results differed from the barley results in that both price and yield were found as important for explaining ARC-CO wheat payments statewide and in all regions. While acknowledging the differences in SD between price and yield, the larger magnitudes for the coefficients associated with wheat prices statewide and in all regions but the North imply that prices have been relatively more important for explaining ARC-CO payments than yield for wheat in all regions but the North. These results are consistent with expectations given differences in cultivation practices such that dryland wheat cultivation is relatively more common in the North.

The relationship between PLC payments and prices was also estimated in similar fixed effects regression models. Since price is the sole variable determinant of PLC payments, it may be expected that there would be a 1:1 correspondence between PLC payments and prices. However, statutory features of the PLC program such as the aforementioned payment limits per legal entity can cause payments and prices to stop moving together. The absolute values of the regression coefficients were 0.88 and 0.96 for barley and wheat, respectively. These variables were not far from the expected value of 1[8], but since the barley coefficient was lower, it could be that there were more cases in which the payment limit was reached for barley than was the case for wheat.

Conclusions

The goals of this study were to analyze how payments for the crop commodity support programs ARC-CO and PLC changed over the course of the 2014 FB period of 2014–18 among crops grown in Idaho, and to determine whether price or yield was relatively more important for influencing program payments for the key crops of barley and wheat. The relationship of ARC-CO payments with yield and prices for barley and wheat was estimated within a fixed effects regression model that accounted for countywide differences that are constant over time for both a statewide sample and by region. The regional analysis was done because the extent of production under irrigation and its impact on yield fluctuations due to weather changes varies across regions. Production under irrigation is more prevalent in the East and South, but relatively less so in the West and North. Standardization of the payment, yield, and price variables allowed for direct comparison of the relative effects of the variables.

Determinants of ARC-CO payments varied between barley and wheat in that yield effects were found to exceed price effects in explaining the variation in ARC-CO payments for barley at the statewide level and in nearly all regions. For barley, only yield was found to have a statistically significant relationship with ARC-CO payments for the North and West regions, while both price and yield effects were important in the East and South. Regarding wheat, both yield and price effects were statistically significant at the statewide level and for all regions. Price-coefficient magnitudes for wheat were roughly twice those of yield in several regional cases, suggesting that program payments were more determined by price than yield changes.

There are several implications from these results that can help Idaho producers understand 2014–18 ARC-CO payments, and form expectations for ARC-CO payments under the 2018 FB period of 2019–23. First, farm location greatly influenced the degree of yield or price effects on ARC-CO payments. Second, the relative influence of yield and price on ARC-CO payments varied across crops due to differences in their individual markets. These findings can

help producers determine the likelihood of an ARC-CO payment occurring in advance of the release of the official FSA program payment, yield, and price data. While it is useful to form expectations, it is recommended that producers also use a decision aid such as the "Texas A&M University 2018 Farm Bill Decision Aid" or the "University of Illinois FarmDoc Gardner Program Payment Calculator" when electing either ARC-CO or PLC for the 2021–23 crop years. These decision aids encompass historical individual farm characteristics, countywide yields, national prices, and the program parameter information into an expected payment estimator. Each provides specific payment and probability estimates that are helpful supplements to general expectations.

Further Reading

CRS. 2019. 2018 *Farm Bill Primer: ARC and PLC Support Programs*. Research Brief IF11161. Washington, DC: Congressional Research Service.

USDA-ERS. 2018. *Annual Cash Receipts by Commodity*. Data files. https://data.ers.usda.gov/reports.aspx?ID=4055.

USDA-FSA. 2019a. *The 2018 Farm Bill—What Is New and What Has Changed*. Issue brief. Washington, DC: USDA-FSA.

USDA-FSA. 2019b. *ARC/PLC Program Data*. Data files. https://www.fsa.usda.gov/resources/programs/arc-plc/program-data.

USDA-OCE. 2018. World Agricultural Supply and Demand Estimates. Various reports. https://usda.library.cornell.edu/concern/publications/3t945q76s?locale=en.

Xu, W., S.E. Lowe, and R.M. Adams. 2014. "Climate Change, Water Rights, and Water Supply: The Case of Irrigated Agriculture in Idaho." *Water Resources Research* 50(12): 9675–95.

Endnotes

[1]The focus is on the ARC-CO and PLC programs and not the ARC-IC program because the USDA-FSA enrollment data utilized for the study show that only 2% of farms and 3% of base acres in Idaho were enrolled under that option for the 2014–18 period. Due to its unpopularity among producers, the other programs are analyzed instead.

[2]Note that potatoes, hay, and sugar beets, which are a few of the other crops with the highest cash receipts, are not covered commodities.

[3]See especially Figure 1 on p. 9686.

[4]Program eligibility criteria are included in the 2018 FB, such as farms with more than 10 base acres, unless exceptions apply (USDA-FSA 2019a).

[5]Owners have an opportunity to update PLC payment yields during the 2020 crop year. If these are not updated, then those under the 2014 FB still apply. If they are updated, then the updated yields apply for the 2020–23 period (USDA-FSA 2019a).

[6]Those excluded for each region were, for East: Bannock, Bear Lake, Bonneville, Caribou, Franklin, Fremont, Oneida, Power, and Teton; for North: Bonner, Kootenai, and Shoshone; for South: Blaine and Custer; and, for West: Adams, Boise, and Washington.

[7]The included counties in each region are, for East: Bingham, Clark, Jefferson, Lemhi, and Madison; for North: Benewah, Boundary, Clearwater, Idaho, Latah, Lewis, and Nez Perce; for South: Butte, Camas, Cassia, Gooding, Jerome, Lincoln, Minidoka, and Twin Falls; and, for West: Ada, Canyon, Elmore, Gem, Owyhee, Payette, and Valley.

[8]Note that hypothesis tests were conducted regarding whether the estimated parameters are equal to -1. The t-statistic values for these tests were 2.60 and 1.46 for barley and wheat, respectively. Thus, with a t-table value at the 5% significance level of 1.96, the estimate for barley was statistically significantly different from -1, while that for wheat was not.

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Appendix A: **ARC-CO and PLC Payments by Idaho County for 2014–18**

Table 1A. 2014 ARC-CO payments by Idaho county.

	Barley			Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Lent.	Oats			Wheat			
County	*Irrig.*	*Non-irr.*	*all*						*Irrig.*	*Non-irr.*	*all*	*Irrig.*	*Non-irr.*	*all*	*Total*
Ada			$980			$99,341									$100,321
Bannock		$19,605										$20,877	$21,744		$62,226
Bear Lake															$0
Benewah			$618		$219		$7,305				$7,687			$1,725,252	$1,741,081
Bingham						$39,742									$39,742
Blaine						$3,607									$3,607
Bonner											$512				$512
Bonneville			$3,322			$9,013							$150,933		$163,268
Boundary				$9,353							$1,328				$10,681
Butte															$0
Canyon		$604				$74,485					$66				$75,155
Caribou															$0
Cassia						$226,453									$226,453
Clark			$15,288			$107,245									$122,533
Clearwater					$52						$322			$60,295	$60,669
Elmore			$90,523			$236,071								$28,826	$355,420
Franklin			$8,228			$86,197								$23,871	$118,296
Fremont	$2,240	$20,218				$525							$10,301		$33,284
Gem			$99			$197,856								$6,676	$204,631
Gooding						$302,045									$302,045
Idaho					$158			$2,577			$35,766			$2,237	$40,738
Jefferson			$26,319			$43,847									$70,166
Jerome						$1,234,697									$1,234,697
Kootenai			$3,147				$1,644			$9,796	$1,026			$295,204	$310,817
Latah			$20,497	$241,775	$9,383		$30,892	$140			$5,120			$404,886	$712,693
Lemhi						$712									$712
Lewis				$55,927	$506		$2,728	$253			$9,607			$76,962	$145,983
Lincoln						$154,812					$158			$62,712	$217,682
Madison															$0
Minidoka						$509,169					$4			$121,067	$630,240
Nez Perce			$3,015	$364,833	$70,554		$120,192	$18,021			$4,867			$1,045,744	$1,627,226
Oneida		$27,804				$21					$6,976				$34,801
Owyhee						$65,710									$65,710
Payette			$822			$147,616									$148,438
Power	$330	$22,172	$1,024			$92,555									$116,081
Teton	$445											$11			$456
Twin Falls						$1,690,416					$484			$163,705	$1,854,605
Valley															$0
Washington						$52,681									$52,681
Total	$3,015	$90,403	$173,882	$671,888	$80,872	$5,374,816	$162,761	$20,991	$0	$9,796	$73,923	$20,888	$182,978	$4,017,437	$10,883,650

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are canola, flaxseed, mustard, safflower, sorghum, soybeans, and sunflower. The excluded counties are Adams, Boise, Camas, and Custer. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 2A. 2015 ARC-CO payments by Idaho county.

	Barley			Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Lent.	Oats			Wheat			
County	*Irrig.*	*Non-irr.*	*all*						*Irrig.*	*Non-irr.*	*all*	*Irrig.*	*Non-irr.*	*all*	*Total*
Ada			$104			$99,056								$7,456	$106,616
Bannock											$810	$19,474			$20,284
Bear Lake											$623				$623
Benewah			$115,878		$16		$16,618	$192,361			$12,671			$1,757,266	$2,094,810
Bingham						$57,553					$789			$106,226	$164,568
Blaine						$4,619					$711	$26,297			$31,627
Bonner											$939			$7,732	$8,671
Bonneville						$9,167			$2,021	$209		$435,249			$446,646
Boundary			$103,123	$13,283			$3,985				$1,826			$723,905	$846,122
Butte											$307			$58,359	$58,666
Canyon			$772			$117,835					$332	$47,994		$27,205	$194,138
Caribou									$56						$56
Cassia			$87,147			$360,414					$36,247			$606,353	$1,090,161
Clark						$82,000					$641			$82,266	$164,907
Clearwater				$2,443			$7	$484			$504			$75,093	$78,531
Elmore						$310,851								$107,194	$418,045
Franklin						$113,418			$3,839		$602	$15,035		$2,668	$135,562
Fremont						$669					$153	$12,959	$1,197		$14,978
Gem						$248,213					$3,781			$5,131	$257,125
Gooding						$293,878					$653			$34,875	$329,406
Idaho			$42,397	$1,367			$11,841	$15,386			$43,619			$3,170,683	$3,285,293
Jefferson						$77,939					$4,318			$127,459	$209,716
Jerome						$1,499,528					$3,758			$67,009	$1,570,295
Kootenai		$21,247	$6,431				$9,218	$3,896	$923	$20,428	$2,176			$645,888	$710,207
Latah				$212,823			$98,456	$94,282			$9,028			$3,054,752	$3,469,341
Lemhi						$908					$10,804				$11,712
Lewis			$31,141	$52,155			$83,368	$24,497			$11,931			$2,828,816	$3,031,908
Lincoln						$240,700					$6,406			$36,519	$283,625
Madison														$53,123	$53,123
Minidoka						$611,357					$4,242			$1,145,221	$1,760,820
Nez Perce			$9,475	$318,097	$17,355		$137,020	$61,116			$4,683			$2,788,593	$3,336,339
Oneida						$55					$7,387			$226,383	$233,825
Owyhee						$71,306								$853	$72,159
Payette						$120,073									$120,073
Power	$317					$124,475						$140,773			$265,565
Teton										$89					$89
Twin Falls						$1,802,458					$17,961			$193,197	$2,013,616
Valley											$1,773			$9,510	$11,283
Washington						$41,953				$376				$39,160	$81,489
Total	$317	$21,247	$396,468	$600,168	$17,371	$6,288,425	$360,513	$392,022	$6,839	$21,102	$189,675	$697,781	$1,197	$17,988,895	$26,982,020

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are canola, flaxseed, mustard, safflower, sorghum, soybeans, and sunflower. The excluded counties are Adams, Boise, Camas, and Custer. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 3A. 2016 ARC-CO payments by Idaho county.

	Barley			Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Lent.	Oats			Wheat			
County	*Irrig.*	*Non-irr.*	*all*						*Irrig.*	*Non-irr.*	*all*	*Irrig.*	*Non-irr.*	*all*	*Total*
Ada						$77,286								$13,854	$91,140
Bannock											$835	$20,381			$21,216
Bear Lake		$248									$731			$72,896	$73,875
Benewah											$12,627			$1,685,821	$1,698,448
Bingham						$63,078					$827			$229,036	$292,941
Blaine			$48,872			$4,489					$729	$24,938			$79,028
Bonner											$978			$7,620	$8,598
Bonneville						$9,076			$2,110	$198		$277,103	$176,664		$465,151
Boundary											$1,563			$696,965	$698,528
Butte											$282			$55,765	$56,047
Canyon			$886			$186,039					$238			$27,505	$214,668
Caribou		$3,991							$54	$697		$96,872			$101,614
Cassia						$323,174	$172				$1,702			$620,894	$945,942
Clark						$21,445					$62			$71,687	$93,194
Clearwater				$13,090							$518			$8,327	$21,935
Elmore			$11,368			$330,030	$2,571							$89,464	$433,433
Franklin						$129,333			$3,728			$62,958	$89,574		$285,593
Fremont						$651					$156	$27,111	$8,908		$36,826
Gem						$296,790					$3,496			$37,128	$337,414
Gooding						$238,263					$668			$34,785	$273,716
Idaho											$44,627			$2,469,434	$2,514,061
Jefferson						$67,213					$3,892			$114,624	$185,729
Jerome						$1,372,398	$378				$3,512			$65,061	$1,441,349
Kootenai									$923	$20,590				$626,403	$647,916
Latah											$9,119			$2,806,010	$2,815,129
Lemhi						$884					$11,462				$12,346
Lewis											$7,167			$2,533,240	$2,540,407
Lincoln			$47,747			$274,704					$6,481			$137,587	$466,519
Madison														$51,865	$51,865
Minidoka						$426,336					$3,214			$1,108,658	$1,538,208
Nez Perce											$5,277			$2,705,468	$2,710,745
Oneida						$84					$7,475				$7,559
Owyhee			$2,405			$82,156								$12,689	$97,250
Payette			$1,462			$152,697								$13,476	$167,635
Power						$42,485						$33,268	$2,305		$78,058
Teton										$91		$17,921	$36,447		$54,459
Twin Falls						$1,544,717	$3,445				$17,766			$553,507	$2,119,435
Valley			$89								$1,796			$9,411	$11,296
Washington						$47,303				$764				$27,674	$75,741
Total	$0	$4,239	$112,829	$13,090	$0	$5,690,631	$6,566	$0	$6,815	$22,340	$147,200	$560,552	$313,898	$16,886,854	$23,765,013

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are canola, flaxseed, mustard, safflower, sorghum, soybeans, and sunflower. The excluded counties are Adams, Boise, Camas, and Custer. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 4A. 2017 ARC-CO payments by Idaho county.

	Barley			Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Lent.	Oats			Wheat			
County	*Irrig.*	*Non-irr.*	*all*						*Irrig.*	*Non-irr.*	*all*	*Irrig.*	*Non-irr.*	*all*	*Total*
Ada						$18,340								$7,998	$26,338
Bannock											$713	$19,054			$19,767
Bear Lake	$32,743										$940			$66,859	$100,542
Benewah			$137,623				$17,878	$96,166			$7,340			$1,602,228	$1,861,235
Bingham			$9,343			$59,046					$746			$94,984	$164,119
Blaine			$46,385								$644	$12,172			$59,201
Bonner											$145			$966	$1,111
Bonneville			$221,120			$5,876	$705					$443,116			$670,817
Boundary			$93,367				$5,180							$435,398	$533,945
Butte			$3,557								$282			$25,085	$28,924
Canyon			$812											$9,423	$10,235
Caribou	$3,528									$511		$98,096	$112,506		$214,641
Cassia						$318,011					$37,570			$603,643	$959,224
Clark			$15,612								$266			$45,997	$61,875
Clearwater			$1,395					$465			$481			$51,687	$54,028
Elmore			$4,715				$238							$43,475	$48,428
Franklin						$93,904	$2,361			$704		$9,375	$113,125		$219,469
Fremont	$76,016										$132		$2,497		$78,645
Gem						$92,670					$5,041			$15,843	$113,554
Gooding			$2,822								$592			$32,782	$36,196
Idaho			$45,020				$13,466	$16,642			$42,125			$3,142,983	$3,260,236
Jefferson			$16,833			$47,440					$3,629			$65,486	$133,388
Jerome			$95,731				$34				$3,243			$73,502	$172,510
Kootenai		$25,915					$8,945	$49,213	$870					$539,552	$624,495
Latah			$213,190				$85,614	$227,076			$4,112			$2,652,846	$3,182,838
Lemhi			$387								$7,911				$8,298
Lewis			$36,583				$89,809	$27,870			$11,582			$2,685,169	$2,851,013
Lincoln			$23,814								$5,598			$148,890	$178,302
Madison			$4,855												$4,855
Minidoka			$148,173								$3,410			$434,779	$586,362
Nez Perce			$110,432				$141,112	$65,054			$4,663			$556,500	$877,761
Oneida	$21,399	$7,868				$69					$4,487			$204,658	$238,481
Owyhee														$1,407	$1,407
Payette			$1,641											$719	$2,360
Power						$54,759						$12,062			$66,821
Teton												$18,750			$18,750
Twin Falls			$249,737			$495,420	$313				$13,733			$150,985	$910,188
Valley			$116								$1,068			$3,294	$4,478
Washington										$783				$2,182	$2,965
Total	$133,686	$33,783	$1,483,263	$0	$0	$1,185,535	$365,655	$482,486	$870	$1,998	$160,453	$612,625	$228,128	$13,699,320	$18,387,802

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are canola, flaxseed, mustard, safflower, sorghum, soybeans, and sunflower. The excluded counties are Adams, Boise, Camas, and Custer. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 5A. 2018 ARC-CO payments by Idaho county.

	Barley			Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Lent.	Oats			Wheat			
County	*Irrig.*	*Non-irr.*	*all*						*Irrig.*	*Non-irr.*	*all*	*Irrig.*	*Non-irr.*	*all*	*Total*
Ada			$716												$716
Bannock															$0
Bear Lake															$0
Benewah								$203,167			$10,522				$213,689
Bingham															$0
Blaine															$0
Bonner											$678				$678
Bonneville															$0
Boundary			$72,753												$72,753
Butte															$0
Canyon			$694												$694
Caribou															$0
Cassia						$318,143									$318,143
Clark			$49												$49
Clearwater								$423							$423
Elmore			$45,094												$45,094
Franklin			$18,784												$18,784
Fremont															$0
Gem															$0
Gooding														$224	$224
Idaho								$13,998							$13,998
Jefferson															$0
Jerome															$0
Kootenai							$2,665	$56,243							$58,908
Latah							$73,362	$211,874							$285,236
Lemhi															$0
Lewis								$24,523							$24,523
Lincoln															$0
Madison														$3,995	$3,995
Minidoka						$320,235									$320,235
Nez Perce			$44,302					$59,409							$103,711
Oneida															$0
Owyhee															$0
Payette			$2,673												$2,673
Power															$0
Teton															$0
Twin Falls															$0
Valley			$386												$386
Washington															$0
Total	$0	$0	$185,451	$0	$0	$638,378	$76,027	$569,637	$0	$0	$11,200	$0	$0	$4,219	$1,484,912

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are canola, flaxseed, mustard, safflower, sorghum, soybeans, and sunflower. The excluded counties are Adams, Boise, Camas, and Custer. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 6A. 2014 PLC payments by Idaho county.

County	Barley	Canola	Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Flaxseed	Lentils	Oats	Sorghum	Wheat	Total
Ada												$0
Adams												$0
Bannock												$0
Bear Lake												$0
Benewah		$52										$52
Bingham		$5,674										$5,674
Blaine												$0
Bonneville		$10,430										$10,430
Boundary		$222,243										$222,243
Butte												$0
Camas		$154										$154
Canyon												$0
Caribou												$0
Cassia												$0
Clark												$0
Clearwater		$313										$313
Custer												$0
Elmore												$0
Franklin		$171										$171
Fremont		$13,454										$13,454
Gem												$0
Gooding												$0
Idaho		$307,799										$307,799
Jefferson		$2,822										$2,822
Jerome												$0
Kootenai												$0
Latah		$28,246										$28,246
Lemhi												$0
Lewis		$269,492										$269,492
Lincoln												$0
Madison												$0
Minidoka												$0
Nez Perce		$85,258										$85,258
Oneida												$0
Owyhee												$0
Payette												$0
Power												$0
Teton												$0
Twin Falls												$0
Valley												$0
Washington												$0
Total	$0	$946,108	$0	$0	$0	$0	$0	$0	$0	$0	$0	$946,108

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are mustard, safflower, soybeans, and sunflower. The excluded counties are Boise and Bonner. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 7A. 2015 PLC payments by Idaho county.

County	Barley	Canola	Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Flaxseed	Lentils	Oats	Sorghum	Wheat	Total
Ada					$39,952				$2,380	$35	$133,809	$176,176
Adams					$312				$2,659		$7,289	$10,260
Bannock					$31				$6,365		$952,245	$958,641
Bear Lake									$6,803		$355,454	$362,257
Benewah		$73							$7		$205	$285
Bingham		$7,944			$11,970				$6,972		$4,348,992	$4,375,878
Blaine					$22				$1,691		$18,332	$20,045
Bonneville		$14,601			$26,810				$4,175	$6,228	$1,596,468	$1,648,282
Boundary		$309,906									$13,723	$323,629
Butte					$1,433				$9,096		$457,676	$468,205
Camas		$216			$2,651				$2,729		$133,543	$139,139
Canyon					$92,315				$4,700	$52	$508,649	$605,716
Caribou					$675				$6,792		$767,217	$774,684
Cassia					$204,425				$28,734		$3,372,676	$3,605,835
Clark					$173				$2,905		$322,506	$325,584
Clearwater		$439							$523		$59,968	$60,930
Custer									$4,433		$21,423	$25,856
Elmore					$21,588				$2,647		$251,351	$275,586
Franklin		$239			$8,204				$3,078		$416,258	$427,779
Fremont		$20,974			$4,329		$4,057		$1,942		$1,302,207	$1,333,509
Gem					$6,866				$1,283		$55,776	$63,925
Gooding					$201,528				$8,683	$851	$189,792	$400,854
Idaho		$388,482			$9		$795		$5,249		$59,357	$453,892
Jefferson		$55			$13,517				$9,262	$46	$2,027,597	$2,050,477
Jerome					$21,630				$6,182		$718,624	$746,436
Kootenai					$254				$1,450		$9,129	$10,833
Latah		$39,534					$487		$3,641		$638,846	$682,508
Lemhi									$1,712		$45,593	$47,305
Lewis		$379,041					$563		$2,976		$257,289	$639,869
Lincoln					$10,448				$3,105		$60,171	$73,724
Madison					$1,412				$2,262		$1,513,732	$1,517,406
Minidoka					$8,801				$11,568	$168	$895,432	$915,969
Nez Perce		$112,616			$17				$3,764		$1,403,450	$1,519,847
Oneida					$3,411				$12,005		$828,645	$844,061
Owyhee					$108,888				$5,891	$7,689	$123,837	$246,305
Payette					$17,887				$387	$7	$69,994	$88,275
Power		$3,628			$11,827		$1,711		$2,113		$4,911,947	$4,931,226
Teton									$441		$60,877	$61,318
Twin Falls		$119			$102,016				$34,011	$177	$921,136	$1,057,459
Valley												$0
Washington					$13,388				$7,343	$166	$341,265	$362,162
Total	$0	$1,277,867	$0	$0	$936,789	$0	$7,613	$0	$221,959	$15,419	$30,172,480	$32,632,127

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are mustard, safflower, soybeans, and sunflower. The excluded counties are Boise and Bonner. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 8A. 2016 PLC payments by Idaho county.

County	Barley	Canola	Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Flaxseed	Lentils	Oats	Sorghum	Wheat	Total
Ada					$152,377				$3,145	$112	$340,721	$496,355
Adams					$1,177				$3,293		$18,649	$23,119
Bannock					$123				$7,410		$1,948,010	$1,955,543
Bear Lake									$9,341		$987,464	$996,805
Benewah		$56							$7		$2,823	$2,886
Bingham		$6,198			$52,374				$9,296		$12,221,692	$12,289,560
Blaine					$86				$3,063		$92,206	$95,355
Bonneville		$11,392			$32,643				$5,050		$3,440,722	$3,489,807
Boundary		$247,723							$208		$41,745	$289,676
Butte					$8,887				$13,517		$1,142,413	$1,164,817
Camas		$190			$10,013				$5,340		$364,548	$380,091
Canyon					$415,409				$8,129	$309	$1,603,902	$2,027,749
Caribou					$2,122				$8,827		$2,172,396	$2,183,345
Cassia					$672,012				$31,686		$7,711,659	$8,415,357
Clark					$652				$6,418		$728,573	$735,643
Clearwater		$342							$639		$157,937	$158,918
Custer									$6,596		$53,077	$59,673
Elmore					$195,107				$4,899	$848	$952,229	$1,153,083
Franklin		$126			$35,984				$3,745		$1,113,724	$1,153,579
Fremont		$15,604			$16,135		$4,945		$3,072		$3,211,330	$3,251,086
Gem					$27,994				$2,912	$291	$203,667	$234,864
Gooding					$687,323				$7,815	$1,541	$394,803	$1,091,482
Idaho		$336,422			$35		$1,113		$6,539		$163,777	$507,886
Jefferson		$3,127			$57,186				$11,286	$83	$4,888,393	$4,960,075
Jerome					$129,932				$7,057		$1,576,978	$1,713,967
Kootenai					$960				$1,584		$8,971	$11,515
Latah		$30,808					$685		$3,918		$1,611,276	$1,646,687
Lemhi									$2,018		$120,029	$122,047
Lewis		$295,599					$793		$3,611		$687,794	$987,797
Lincoln					$59,652				$5,368		$229,926	$294,946
Madison					$5,604				$2,183		$3,722,492	$3,730,279
Minidoka					$32,414				$13,369	$257	$2,194,989	$2,241,029
Nez Perce		$90,029			$69				$6,661		$3,562,189	$3,658,948
Oneida					$13,194				$16,012		$2,367,146	$2,396,352
Owyhee					$432,822				$9,071	$13,902	$399,383	$855,178
Payette					$91,863				$618		$337,269	$429,750
Power		$2,829			$48,456				$2,772		$11,385,265	$11,439,322
Teton									$469		$199,068	$199,537
Twin Falls		$112			$337,868				$39,050	$322	$2,194,779	$2,572,131
Valley									$3,435		$2,910	$6,345
Washington					$58,308				$8,930	$420	$967,530	$1,035,188
Total	$0	$1,040,557	$0	$0	$3,578,781	$0	$7,536	$0	$288,359	$18,085	$75,524,454	$80,457,772

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are mustard, safflower, soybeans, and sunflower. The excluded counties are Boise and Bonner. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 9A. 2017 PLC payments by Idaho county.

County	Barley	Canola	Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Flaxseed	Lentils	Oats	Sorghum	Wheat	Total
Ada	$26,365				$128,664					$71	$164,909	$320,009
Adams	$11,247										$3,058	$14,305
Bannock	$247,587				$32						$1,035,891	$1,283,510
Bear Lake	$195,856										$471,113	$666,969
Benewah	$10,268	$45									$2,109	$12,422
Bingham	$610,817	$4,621			$52,226						$6,225,239	$6,892,903
Blaine	$431,121				$86						$43,697	$474,904
Bonneville	$1,363,294	$8,495			$28,604						$1,969,897	$3,370,290
Boundary	$6,187	$170,776									$29,273	$206,236
Butte	$405,737				$8,878						$623,324	$1,037,939
Camas	$170,186	$142			$10,003						$168,967	$349,298
Canyon	$44,847				$411,736					$3,038	$808,029	$1,267,650
Caribou	$1,746,087				$2,524						$1,075,229	$2,823,840
Cassia	$1,173,271				$693,711						$4,086,024	$5,953,006
Clark	$80,129				$652						$299,957	$380,738
Clearwater	$21,678	$255									$77,100	$99,033
Custer	$89,224										$20,639	$109,863
Elmore	$14,586				$86,097						$354,054	$454,737
Franklin	$316,013	$139			$36,405						$493,182	$845,739
Fremont	$1,348,534	$12,369			$15,060						$1,550,017	$2,925,980
Gem	$15,534				$30,052					$139	$97,129	$142,854
Gooding	$45,605				$692,656					$966	$213,055	$952,282
Idaho	$341,457	$243,905			$35						$88,968	$674,365
Jefferson	$1,186,716	$32			$51,005					$52	$2,074,296	$3,312,101
Jerome	$470,001				$129,304						$847,215	$1,446,520
Kootenai	$979				$959						$9,532	$11,470
Latah	$164,790	$15,227									$741,642	$921,659
Lemhi	$36,944										$58,087	$95,031
Lewis	$306,414	$224,504									$322,761	$853,679
Lincoln	$119,750				$58,728						$108,166	$286,644
Madison	$1,034,398				$6,019						$1,773,693	$2,814,110
Minidoka	$527,957				$7,183					$30	$563,869	$1,099,039
Nez Perce	$358,556	$66,485			$69						$1,833,645	$2,258,755
Oneida	$400,985				$13,331						$1,147,708	$1,562,024
Owyhee	$34,283				$423,568					$6,670	$210,103	$674,624
Payette	$13,297				$96,565					$7	$172,031	$281,900
Power	$329,010	$2,114			$45,695						$6,715,883	$7,092,702
Teton	$821,646										$79,434	$901,080
Twin Falls	$652,233	$99			$279,476					$203	$939,715	$1,871,726
Valley	$3,184										$1,334	$4,518
Washington	$61,039				$51,715					$263	$450,356	$563,373
Total	$15,237,812	$749,208	$0	$0	$3,361,038	$0	$0	$0	$0	$11,439	$37,950,330	$57,309,827

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are mustard, safflower, soybeans, and sunflower. The excluded counties are Boise and Bonner. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Table 10A. 2018 PLC payments by Idaho county.

County	Barley	Canola	Chick. (lg.)	Chick. (sm.)	Corn	Dry peas	Flaxseed	Lentils	Oats	Sorghum	Wheat	Total
Ada	$25,487				$40,807	$70				$71	$79,835	$146,270
Adams	$7,746				$313						$2,464	$10,523
Bannock	$171,324				$8						$509,513	$680,845
Bear Lake	$140,536										$213,696	$354,232
Benewah	$7,123	$71									$1,134	$8,328
Bingham	$445,921	$7,611			$13,689	$27					$2,862,493	$3,329,741
Blaine	$314,004				$22						$22,224	$336,250
Bonneville	$982,422	$13,989			$8,422	$81					$984,006	$1,988,920
Boundary	$3,918	$305,553									$11,401	$320,872
Butte	$265,806				$2,355						$247,211	$515,372
Camas	$125,274	$232			$2,656	$152					$67,879	$196,193
Canyon	$38,401				$125,219	$1,604				$1,805	$396,983	$564,012
Caribou	$1,231,342				$677						$462,365	$1,694,384
Cassia	$1,048,345				$227,324	$538					$2,062,835	$3,339,042
Clark	$61,350				$174						$195,254	$256,778
Clearwater	$12,607	$420				$72		$608			$32,905	$46,612
Custer	$64,300										$6,194	$70,494
Elmore	$24,976				$43,212					$18	$270,681	$338,887
Franklin	$231,871	$229			$9,460						$247,766	$489,326
Fremont	$962,062	$20,225			$4,478						$684,583	$1,671,348
Gem	$12,384				$9,377	$1,205				$132	$50,675	$73,773
Gooding	$35,445				$209,865					$917	$110,108	$356,335
Idaho	$235,855	$404,869			$9	$2,415		$3,372		$50	$40,662	$687,232
Jefferson	$829,984	$52			$14,662	$207					$1,077,991	$1,922,896
Jerome	$318,915				$21,372	$321					$365,500	$706,108
Kootenai	$1,050				$256	$4		$22			$7,253	$8,585
Latah	$107,220	$34,386				$11,119		$71,387			$320,118	$544,230
Lemhi	$15,112										$24,835	$39,947
Lewis	$203,345	$377,342				$1,805		$2,110			$150,592	$735,194
Lincoln	$72,134				$12,857						$43,213	$128,204
Madison	$767,957				$1,391	$87					$836,455	$1,605,890
Minidoka	$605,590				$6,448	$1,468				$183	$482,550	$1,096,239
Nez Perce	$258,340	$106,234			$18	$18,931		$84,767			$797,624	$1,265,914
Oneida	$241,595				$3,370						$473,799	$718,764
Owyhee	$25,600				$120,680	$255				$6,400	$96,521	$249,456
Payette	$8,829				$25,029	$80				$7	$76,097	$110,042
Power	$238,788	$5,721			$12,833	$1,046					$2,751,039	$3,009,427
Teton	$566,531										$33,970	$600,501
Twin Falls	$403,683	$50			$67,735	$7,231				$49	$390,412	$869,160
Valley	$3,422										$613	$4,035
Washington	$44,808				$15,107					$179	$208,580	$268,674
Total	$11,161,402	$1,276,984	$0	$0	$999,825	$48,718	$0	$162,266	$0	$9,811	$17,700,029	$31,359,035

Source: USDA-FSA.

Note: Several crops and counties were excluded due to consistently low values from 2014 to 2018. The excluded crops are mustard, safflower, soybeans, and sunflower. The excluded counties are Boise and Bonner. These omitted payments are available in the USDA-FSA ARC/PLC program datasets.

Appendix B: **Description of Estimation Method**

Since ARC-CO and PLC payments varied across the time period 2014–18 and across counties, the relationships of interest were estimated in fixed effects (FE) panel regression models. The estimated FE panel regression models include the program payments as the dependent variable and price and yield, for the ARC-CO case, and price only, for the PLC case, as the explanatory variables. Time-constant countywide differences are accounted for with a control variable to focus on estimation of the relationship between the variables of interest over time.

The specific estimated models, which are specific versions of the general FE regression models in the econometrics literature, such as those in Verbeek (2017), are

$$ARC_{it} = \beta_p p_t + \beta_y y_{it} + \gamma_i + \varepsilon_{it} \quad (1B)$$

$$PLC_{it} = \beta_p p_t + \gamma_i + \varepsilon_{it}, \quad (2B)$$

where i signifies the county and t the year, ARC_{it} are ARC-CO payments, PLC_{it} are PLC payments, p_t are US MYA prices, y_{it} are yields, γ_i are countywide FE control variables, and ε_{it} is a random error. The parameters of interest are β_y and β_p, which represent the extent to which program payments adjustments are explained by variation in yield and prices, respectively.

Reference

Verbeek, M. 2017. *A guide to modern econometrics*. 5th ed. Hoboken, NJ: Wiley.

Appendix C: **Full Fixed Effects Regression Estimation Results**

Table 1C. Estimation results for 2014–18 ARC-CO payment determinants for barley for the state of Idaho and by region.

Estimated parameter	Statewide	East	North	South	West
$\widehat{\beta_p}$	-0.37*** (0.08)	-0.63*** (0.19)	-0.14 (0.13)	-0.75*** (0.12)	-0.05 (0.17)
$\widehat{\beta_y}$	-0.56*** (0.08)	-0.56*** (0.19)	-0.72*** (0.13)	-0.75*** (0.12)	-0.54*** (0.17)
Adj. R^2	0.40	0.45	0.54	0.65	0.31
n	135	25	35	40	35

Note: Standard errors are below the parameter estimates in parentheses. *** denotes statistical significance at the 1% level. n is the number of observations.

Table 2C. Estimation results for 2014–18 ARC-CO payment determinants for wheat for the state of Idaho and by region.

Estimated parameter	Statewide	East	North	South	West
$\widehat{\beta_p}$	-0.89*** (0.06)	-0.92*** (0.13)	-0.84*** (0.13)	-0.94*** (0.11)	-0.89*** (0.11)
$\widehat{\beta_y}$	-0.51*** (0.06)	-0.47*** (0.13)	-0.73*** (0.13)	-0.46*** (0.11)	-0.37*** (0.11)
Adj. R^2	0.67	0.78	0.64	0.69	0.71
n	130	20	35	40	35

Note: refer to the note below table 1C for a description of table notation.

Table 3C. Estimation results for the 2014–18 PLC payment and price relationship for barley and wheat for the state of Idaho.

Estimated parameter	Barley	Wheat
$\widehat{\beta_p}$	-0.88*** (0.05)	-0.96*** (0.03)
Adj. R^2	0.78	0.92
n	135	130

Note: refer to the note below table 1C for a description of table notation.