The Regional Economic Impacts of Coronavirus Food Assistance Program 2.0 on Row Crop Agriculture in the Texas High Plains

Briefing Paper

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Coronavirus Food Assistance Program (CFAP) 2.0

The Coronavirus Food Assistance Program (CFAP) was first created to support the food industry through the COVID-19 pandemic in 2020 (6. Farmers.gov, 2021). This program provided money to producers using predetermined payment rates in order to support them through the various disruptions that COVID-19 caused across the nation. A significant cross-section of commodities was covered in this program separated into different categories. CFAP was updated from its first version into CFAP 2.0 in 2021. Covered commodities include (5. Farmers.gov, 2021):

- "Price Trigger" Commodities
    - Broilers and Eggs
    - Crops: barley, corn, upland cotton, sorghum, soybeans, sunflowers, and all wheat classes
    - Dairy (Milk)
    - Livestock: beef cattle, hogs and pigs, and lambs and sheep
- "Flat-Rate" Crops
    - Alfalfa, amaranth grain, buckwheat, canola, cotton (ELS), crambe (colewort), einkorn, emmer, flax, guar, hemp, indigo, industrial rice, kenaf, etc.
- Sales Commodities
    - Specialty crops, tobacco, goat milk, etc.
- Livestock and Poultry Produced Under Contract

The CFAP program has a different payment rate for each commodity. This paper covers a subset of those commodities: corn, upland cotton, wheat, and

sorghum. These crops were chosen as the primary row crops in the region. Data on acre and yields were obtained from the USDA NASS database (3.Quickstats.nass.usda.gov, 2021). Additionally, for each of these crops the Consolidated Appropriations Act of 2021 provided an additional payment of $20 per acre of the commodity planted (4. Farmers.gov, 2020). This research was completed for row crop agriculture, excluding all livestock, in the West Texas region.

The region 7 analysis was the Northern and Southern High Plains region of Texas. (Figure 1) (2. Mapchart.net, 2022) The counties that were included in this research include the Texas counties of Armstrong, Bailey, Briscoe, Carson, Castro, Cochran, Crosby, Dallam, Dawson, Deaf Smith, Floyd, Gaines, Glasscock, Gray, Hale, Hansford, Hartley, Hemphill, Hockley, Howard, Hutchinson, Lamb, Lubbock, Lynn, Martin, Moore, Ochiltree, Oldham, Parmer, Potter, Randall, Roberts, Sherman, Swisher, Terry, and Yoakum (3. Quickstats.nass.usda.gov, 2021).

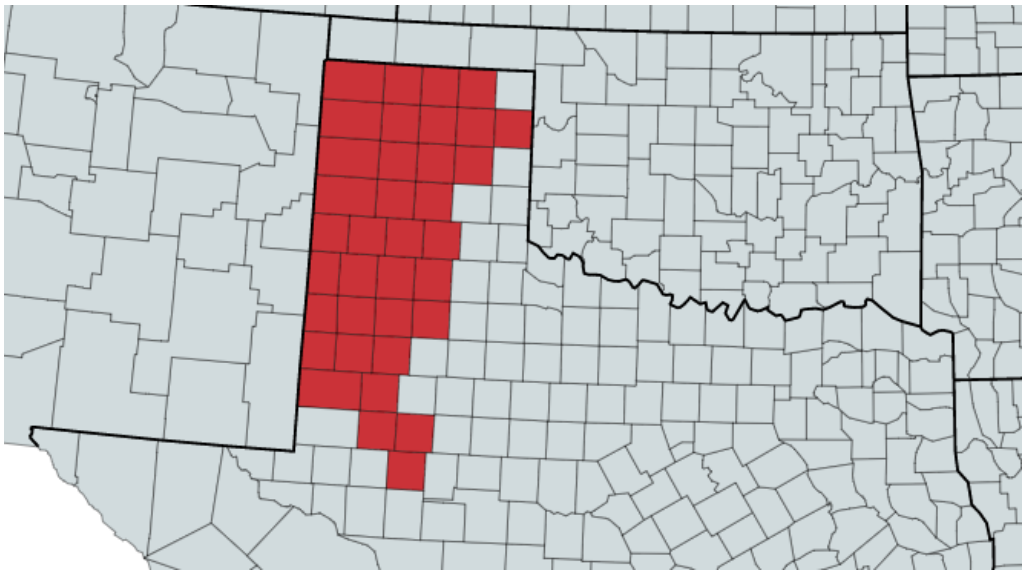

Figure 1

Outline of Research

Using the NASS data collected, the amount of CFAP payments could be approximated for each crop in the region. Each crop payment was calculated by multiplying the reported 2020 planted acres, yield, standard crop marketing percentage, and payment rate (6. Farmers.gov, 2021).

$$\textit{Crop Payment} = \textit{Reported 2020 Planted Acres} \times \textit{Yield} \times \textit{Standard Crop Marketing \%} \times \textit{Payment Rate}$$

The standard crop marketing percentage for corn was 40%, cotton was 46%, wheat was 73%, and sorghum was 55%. Under the CFAP program corn had a payment rate of $0.58 per bushel, cotton had a payment rate of $0.08 per pound, wheat had a payment rate of $0.54 per bushel, and sorghum had a payment rate of $0.56 per unit measured in bushel (4. Farmers.gov, 2020). For instance, the equation for corn crop payment would be found by multiplying together 40%, $0.58 per bushel, acres planted, and yield in bushels per acre (4. Farmers.gov, 2020). Multiplying the $20 payment with the acres planted and adding the result to the calculated CFAP payment calculated accounts for the additional $20 payment from the Consolidated Appropriations Act of 2021 (6. Farmers.gov, 2021). After the CFAP payments were calculated with additional payments from the Consolidated Appropriations Act of 2021, IMPLAN regional economic impact calculation was used to determine the financial impact CFAP had on the region.

IMPLAN

IMPLAN is an economic impact analysis software that allows for the analysis of various monetary impacts on various regions which can be selected from national data down to zip-code data levels. This software uses over 90 sources and thousands of data points to create a vast database to mirror the economy (1.IMPLAN.com, 2021). Using economic theory and a large database, IMPLAN creates individual results based on various economic scenarios. By imputing an effect and applying it to a region the software can show the direct, indirect, induced, and total impact that the imputed effect would have on the region. This result includes all areas of the economy that could be impacted from real estate, GDP, agriculture support programs, employment, etc. (1. IMPLAN.com, 2021)

The calculated CFAP and additional payments that were calculated above were entered into IMPLAN to determine the impact of this program on the West Texas region. In total, the CFAP payments were found to provide an additional contribution of 7.3% for corn, 22.7% for cotton, 34.0% for wheat, and 16.6% for sorghum to production revenues in the region studied. Without CFAP payments the region produced $1,200,017,311.20 in total row crop revenue, while with CFAP payments produced $1,487,578,110.81meaning CFAP added $287 million in additional regional revenue. (Table 1) Thus, all CFAP payments added 19.3% to regional row crop revenue.

Table 1

Price Trigger Crops	**CFAP 2.0 Payment (With $20 Consolidated Appropriations Act 2021 payment)**
Corn, Grain	$30,436,358.16
Cotton, Upland	$168,319,153.92
Sorghum, Grain	$21,636,360.96
Wheat, Winter	$67,168,926.57
Totals	**$287,560,799.61**

Results

Using IMPLAN, the CFAP 2.0 payments on the counties researched totals an output of $483,508,430.97. Of that total $287,560,799.61 was a direct impact and $111,938,670.54 from an indirect contribution. (Table 2) In the employment sector there was a total contribution of 4,682.14 jobs and the labor income increased by $145,597,804.33. Overall, the value added to the economy totaled $264,958,369.15[1]. The direct and indirect contribution of these categories is shown in Table 2.

Table 2

Impact of CFAP 2.0	Employment	Labor Income	Value Added	Output
1-Direct	3,080.45	$75,950,489.70	$160,151,658.00	$287,560,799.61
2-Indirect	1,023.67	$44,908,470.45	$60,094,368.53	$111,938,670.54
3-Induced	578.02	$24,738,844.18	$44,712,342.62	$84,008,960.82
Totals	**4,682.14**	**$145,597,804.33**	**$264,958,369.15**	**$483,508,430.97**

Also, the highest estimated growth percentages by industry due to CFAP payments were 47.32%, 13.72%, 6.00%, and 4.01% for the industries all other crop farming, cotton farming, support activities for agriculture and forestry, and pesticide and other agricultural chemical manufacturing, respectively (1. IMPLAN.com, 2021). It was observed that in each category of output and value added the top industry benefitting was cotton farming followed by all other crop farming and then support activities for agriculture and forestry. In the employment category the top industry was all other crop farming followed by cotton farming and then support activities for agriculture and forestry. These industries were mainly supported by direct impacts in the first two industries and indirect impacts in the third industry. The other effected industries did not include direct impacts and were mainly other real estate, full-service restaurants, owner-occupied dwellings, and wholesale – other nondurable goods merchant wholesalers (1. IMPLAN.com, 2021).

Conclusion

This research determined the varying economic impacts of the Coronavirus Food Assistance Program (CFAP) 2.0 on the West Texas region in concern with the additional payments for corn, cotton, wheat, and sorghum farmers using the computer software IMPLAN. With direct impacts CFAP gave approximately $287,560,799.61 to the corn, cotton, wheat, and sorghum farmers in payments allowing for an additional $195,947,631.36 to be stimulated in the region through indirect and induced impacts. Overall, CFAP 2.0 contributed positively to the economy and helped to stimulate the economy to employ a total of about 4,682.14 additional workers, added labor income of about $145,597,804.33, and added value of $264,958,369.15 for a total of about $500 million in addition economic activity in the region.

Citations

1. IMPLAN® model, using inputs provided by the user and IMPLAN Group LLC, IMPLAN System (data and software), 16905 Northcross Dr., Suite 120, Huntersville, NC 28078 www.IMPLAN.com
2. *United States - counties: Create a custom map*. MapChart. (n.d.). Retrieved March 15, 2022, from https://www.mapchart.net/usa-counties.html
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