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COVID-19 Working Paper: Distribution and Examination of Coronavirus Food Assistance Program Payments and Forgivable Paycheck Protection Program Loans at the State Level in 2020

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Abstract

Government payments to the farm sector were a record-high $45.7 billion in calendar year 2020. COVID-related payments from two programs—USDA's Coronavirus Food Assistance Program (CFAP) at $23.5 billion and Small Business Administration's (SBA) Paycheck Protection Program (PPP) at $6.0 billion—accounted for nearly two-thirds of those 2020 payments. This report analyzes the distribution of direct Government payments relative to cash receipts in calendar year 2020 using Lorenz curves and Gini coefficients. We find that USDA COVID-related payments from CFAP relative to cash receipts at the State level were closely aligned with distribution of cash receipts.

Keywords: Coronavirus Food Assistance Program, Paycheck Protection Program loans, direct Government payments, Lorenz curves, Gini coefficients

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Summary

What Is the Issue?

In calendar year 2020, USDA pandemic assistance from the Coronavirus Food Assistance Program (CFAP) and non-USDA pandemic assistance from the Small Business Administration's (SBA) Paycheck Protection Program (PPP) disbursed $23.5 billion and $6.0 billion, respectively, to the U.S. farm sector. In aggregate, payments from these two programs (CFAP and PPP) combined accounted for 65 percent of total direct farm-related Government payments that year. CFAP (administered by USDA's Farm Service Agency) made direct payments to producers for a broad range of commodities that faced sales losses, price declines, or increased production/marketing costs associated with the pandemic, and the payments continued beyond 2020. The PPP (administered by SBA) provided forgivable loans and was an economy-wide program designed to help small businesses retain employees by offsetting labor expenses. Figure 1 shows that Coronavirus (COVID-19)-related payments from these two programs combined—CFAP (USDA) and PPP (non-USDA)—were larger than non-pandemic-related payments in most States.

CFAP and PPP differed in scope and objective, had different statutory bases, and a different magnitude compared to traditional Farm Bill commodity programs, which provide price and/or income support to certain commodities such as corn, soybeans, wheat, and rice, as well as to dairy and sugar. Except for disaster programs, livestock production generally does not receive commodity program payments. For example, poultry producers do not receive revenue support from Farm Bill programs. However, CFAP made payments to producers for a broader range of commodities, including poultry, other livestock, and specialty crops. Because one of the objectives of CFAP payments, especially the first round, was to offset commodity price declines, we focus on the distribution of CFAP payments relative to cash receipts at the State level. The paper also provides an analysis of PPP payments relative to labor expenses.

What Did the Study Find?

Direct Government payments to the farm sector were higher in 2020 than the 20-year average (2000–19) period for all States and the Nation, primarily because of COVID-19-related program payments.

- At the national level, CFAP payments in calendar year 2020 ($23.5 billion) were slightly more than half of the total direct Government payments ($45.7 billion) to the farm sector.
- At the national level, Paycheck Protection Program (PPP) payments to the farm sector ($6.0 billion) were equivalent to about 20 percent of hired agricultural labor expenses for 2020.
- Gini indices show that the distribution of COVID-19 payments relative to cash receipts to States was closely aligned with the distribution of cash receipts.

The Gini index is used to measure the distribution of different types of payments relative to cash receipts at the State level. A Gini index can have values from 0 (indicating complete equality in distribution) to 1 (complete inequality in distribution).

How Was the Study Conducted?

This working paper uses data from USDA, Economic Research Service (ERS) reports of direct Government payments at the national and State level in the ERS Farm Income and Wealth Statistics data product. In 2020, Government payments at the State level were differentiated between pandemic assistance (both USDA and non-USDA) and payments from other programs, including those from Farm Bill programs. In this analysis, non-USDA pandemic assistance includes only the Paycheck Protection Program (PPP), and direct Government payments are direct farm-related payments from the federal Government.

Introduction

This COVID-19 Working Paper analyzes the distribution of payments from the two largest relief programs to the farm sector in response to the COVID-19 pandemic—the Coronavirus Food Assistance Program (CFAP) and the Paycheck Protection Program (PPP). CFAP, USDA's primary pandemic assistance program, made direct payments to producers of agricultural commodities who faced sales losses, a decline in prices, or increased production and marketing costs associated with the pandemic (U.S. Department of Agriculture, 2020a and 2020b). USDA administered CFAP in two rounds. The first round, CFAP 1, was designed to compensate for losses due to price declines and additional marketing costs incurred by producers. CFAP 1 made payments on a per unit (bushel, pound, or hundredweight) payment rate (U.S. Department of Agriculture, 2020a) to most eligible commodity producers. The second round, CFAP 2, made payments on a flat-rate basis (per head or per acre) (U.S. Department of Agriculture, 2020b) to eligible commodity producers except for sales commodities.

The Coronavirus Food Assistance Program was intended to reach a broader set of commodities, including animals and animal products, than covered by traditional farm programs. For example, almost all commodities (97 percent, as measured by cash receipts) were eligible for CFAP 2 payments (Giri et al., 2021). Federal programs for livestock are generally not comparable to those for major crops[1] (U.S. Department of Agriculture, 2022).

The Paycheck Protection Program provided forgivable loans to small businesses with employees on the payroll that demonstrated positive net income and/or payroll expenses in a previous tax year (SBA, 2022). The maximum forgivable PPP loan was 2.5 times the average monthly payroll cost (SBA, 2022). A PPP loan was fully forgiven if at least 60 percent of the loan was used to cover payroll expenses. The publicly-released SBA individual loan database contains a self-reported North American Industry Classification System (NAICS), so we used PPP loans made to the farm sector (NAICS 111, Crop Production, and NAICS 112, Animal Production and Aquaculture). Some businesses, including farm businesses, may have been ineligible to participate in the PPP.

We used data from the February 4, 2022, release of the Farm Income and Wealth Statistics (FIWS) data product (U.S. Department of Agriculture, Economic Research Service, Farm Income and Wealth Statistics, February 4, 2022). The FIWS includes detailed State-level data on direct farm-related Government payments by program (including USDA and non-USDA pandemic assistance), cash receipts, and hired labor expenses. We adjusted historical data for inflation and report all values in 2020 dollars.

Federal Government payments (differentiated by COVID and non-COVID payments) at the State level were examined relative to that State's cash receipts for the 2020 calendar year. We constructed Lorenz curves and calculated a Gini index for COVID and non-COVID payments relative to cash receipts to compare how closely they aligned with distribution of cash receipts at the State level. To build Lorenz curves comparing the distribution of CFAP (or PPP) payments, States were ranked by cash receipts (or hired-labor expense), and the cumulative percentage of State cash receipts (or hired-labor expense) were plotted on the horizontal axis, and the cumulative percentage of CFAP payments relative to cash receipts made in calendar 2020 (or PPP loans) were plotted on the vertical axis.

The Lorenz curve provides a comprehensive overview of changes in the distribution of payments, and the Gini index measures the dispersion in the distribution (Bokusheva and Kimura, 2016). This enables a comparison of whether CFAP payments were more (or less) closely aligned to cash receipts and allowed an analysis of the distribution of payments. However, the purpose is not to imply the attainment of program goals, as CFAP payments had broad objectives, including helping to offset additional marketing costs incurred because of pandemic-related market disruptions. We divided total PPP payments by annual hired-labor expense to examine the share of this

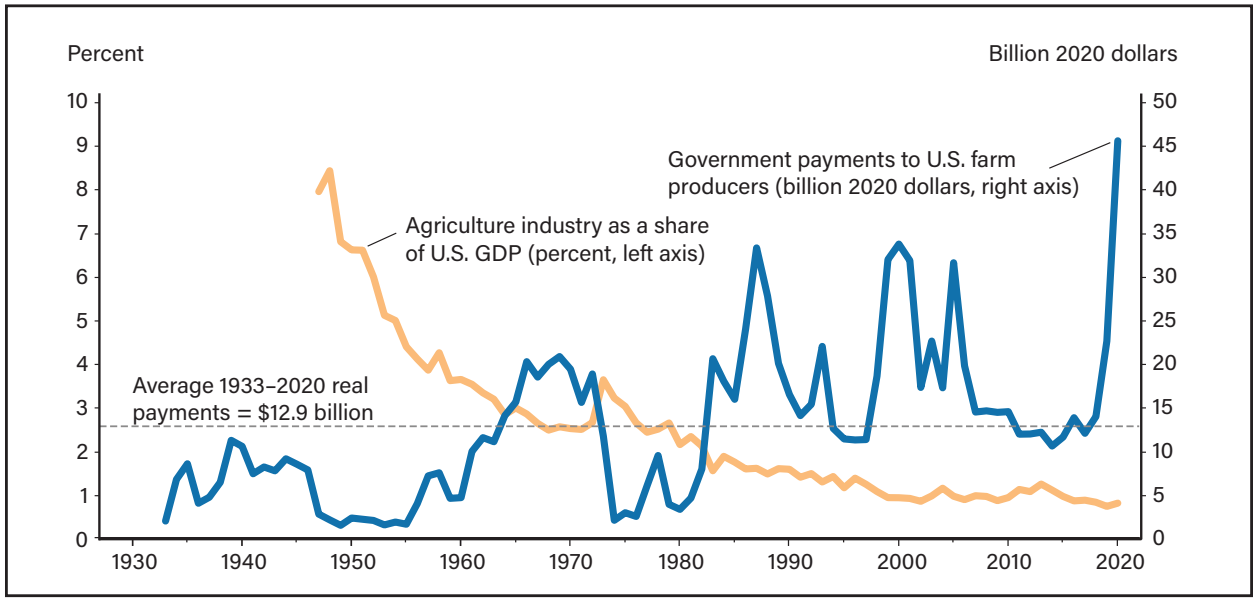
[1] Complete list of crop commodity programs, rate of payments, and eligible commodities can be found on the ERS website for Farm Economy/Farm Economy Policy.

expense that PPP payments might have offset. The set of activities that constitute production agriculture is not evenly distributed across the United States but follows patterns dictated by resource endowments, including climate, land, and water availability. The 50 States are of different sizes, contribute different amounts (measured in cash receipts) to the national agriculture production, and incur different levels of labor costs (in part depending on the primary commodity mix of the State). Therefore, Government payments and PPP loans would be different in absolute magnitude across the States as well. Lorenz curves and the Gini indexes were used to measure the distribution and dispersion of Government assistance programs from CFAP and PPP relative to cash receipt and hired-labor expense patterns. The Lorenz curve shows the rank ordering, and the Gini index provides a numeric measure of the proportional distribution.

Direct Farm-Related Government Payments in 2020

Figure 2 shows the total direct Government payments to the farm sector from 1933 to 2020 in real (inflation-adjusted) 2020 dollars. Direct Government payments are those made to farm producers from the Farm Bill and other programs and contribute to total gross cash farm income, and thus play an important role in the overall financial condition of the farm sector. Direct Government payments to the farm sector have typically increased during times of farm financial stress and reached levels exceeding $30 billion in real terms in 1987, 1999–2001, 2005, and 2020—when they totaled a record high of $45.7 billion. In contrast, agriculture's share of the U.S. Gross Domestic Product (GDP) has been decreasing over time. Over the 1933–2020 period, real annual average payments were $12.9 billion.

Figure 2
Agriculture industry's share of U.S. Gross Domestic Product (GDP) and direct Government payments to U.S. farm producers, 1933–2020



Note: Values are adjusted for inflation using the U.S. Bureau of Economic Analysis Gross Domestic Product Price Index (BEA, API series code: A191RG) rebased to 2020 by USDA, Economic Research Service. This figure shows contribution of agriculture sector to the total GDP from 1947 through 2020 in the left axis. It also shows total farm-related Government payments from 1933 to 2020 in real 2020 dollars in the right axis, along with the average for the same period.

Source: USDA, Economic Research Service Farm Income and Wealth Statistics data as of February 4, 2022, (Government payments) and U.S. Department of Commerce, Bureau of Economic Analysis, Gross Domestic Product and Value Added by Industry accounts (available starting in 1947).

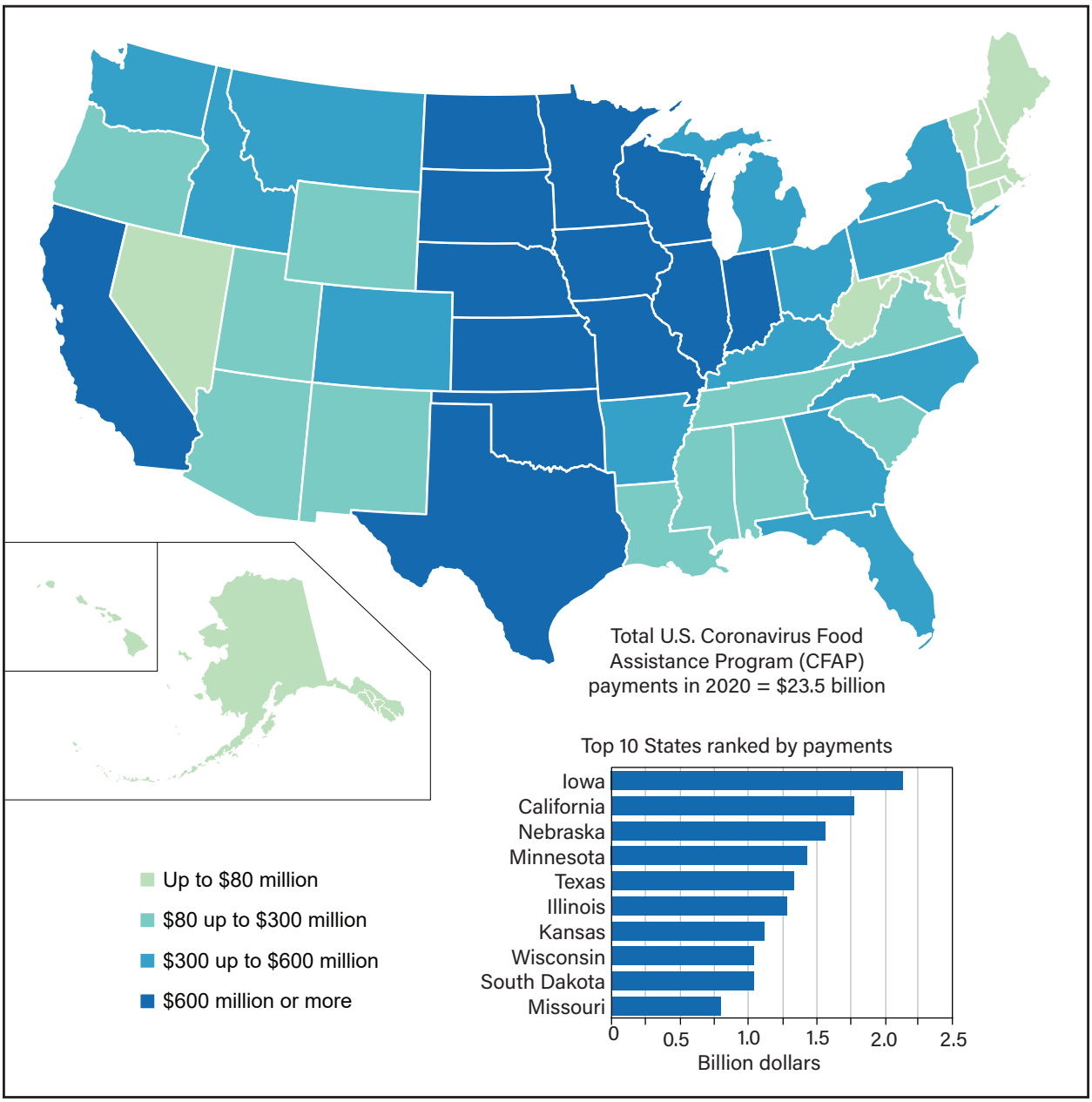
In calendar year 2020, payments from newly enacted pandemic-related assistance programs contributed about 65 percent of the total $45.7 billion in payments to farm producers. CFAP (at $23.5 billion) and PPP (at $6.0 billion) bolstered existing Farm Bill programs, which provided another $6.3 billion from the Agriculture Risk Coverage ($1.3 billion) and Price Loss Coverage ($5.0 billion) programs. Conservation programs provided $3.8 billion in payments, and USDA's Market Facilitation Program (MFP), which made direct payments to producers to offset market losses caused by retaliatory tariffs imposed on U.S. agricultural exports (U.S. Department of Agriculture, 2019), provided an additional $3.8 billion in payments, while the remaining $2.3 billion came from other programs.

Distribution of Coronavirus Food Assistance Program Payments by State

Figure 3 shows the distribution of CFAP payments among the States. Nine States received more than a billion dollars in CFAP payments in 2020, including Iowa ($2.1 billion), California ($1.8 billion), Nebraska ($1.6 billion), Minnesota ($1.4 billion), Texas ($1.3 billion), Illinois ($1.3 billion), Kansas ($1.1 billion), Wisconsin ($1.0 billion), and South Dakota ($1.0 billion). In 2020, of these 9 States, only South Dakota was not among the top 10 agriculture-producing States as measured by cash receipts (ERS, 2022).

Figure 3

Distribution of 2020 Coronavirus Food Assistance Program (CFAP) payments by State, and Top 10 States ranked by total payments



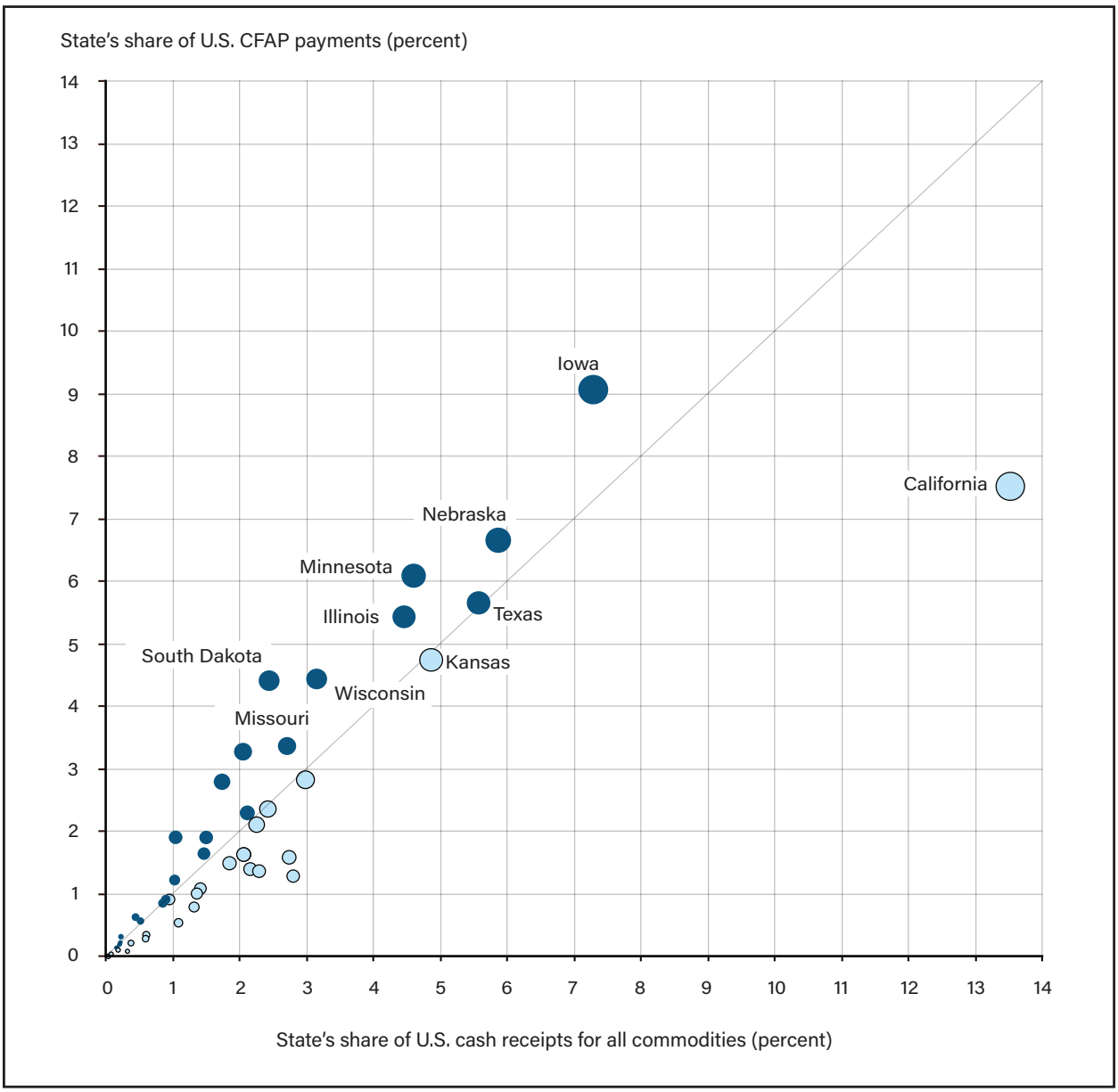
CFAP = Coronavirus Food Assistance Program.

Source: USDA, Economic Research Service calculations using data from the Farm Income and Wealth Statistics data product, February 4, 2022.

CFAP payment shares and cash receipt shares by State were highly correlated, with most States receiving a share of payments within a percentage point or two of their share of cash receipts (figure 4). Notable exceptions include California (with about 8 percent of U.S. CFAP payments and 13 percent of U.S. cash receipts) and Iowa (with about 9 percent of all CFAP payments and 7 percent of U.S. cash receipts). Payment limitations likely help explain the exception in California, where CFAP payments were low relative to cash receipts. In California and other States, the diversity of commodities produced (including specialty crops) impacted CFAP payments as per-commodity payment rates varied, providing another reason for the less-than-perfect correlation.

Figure 4

Share of Coronavirus Food Assistance Program (CFAP) payments and share of agricultural cash receipts by State, 2020 (States of interest are labeled)



Note: The horizontal axis shows the share of total U.S. cash receipts for each State. The vertical axis shows the share of total U.S. Coronavirus Food Assistance Program (CFAP) payments for each State. The data for U.S. cash receipts and CFAP payments are for 2020.

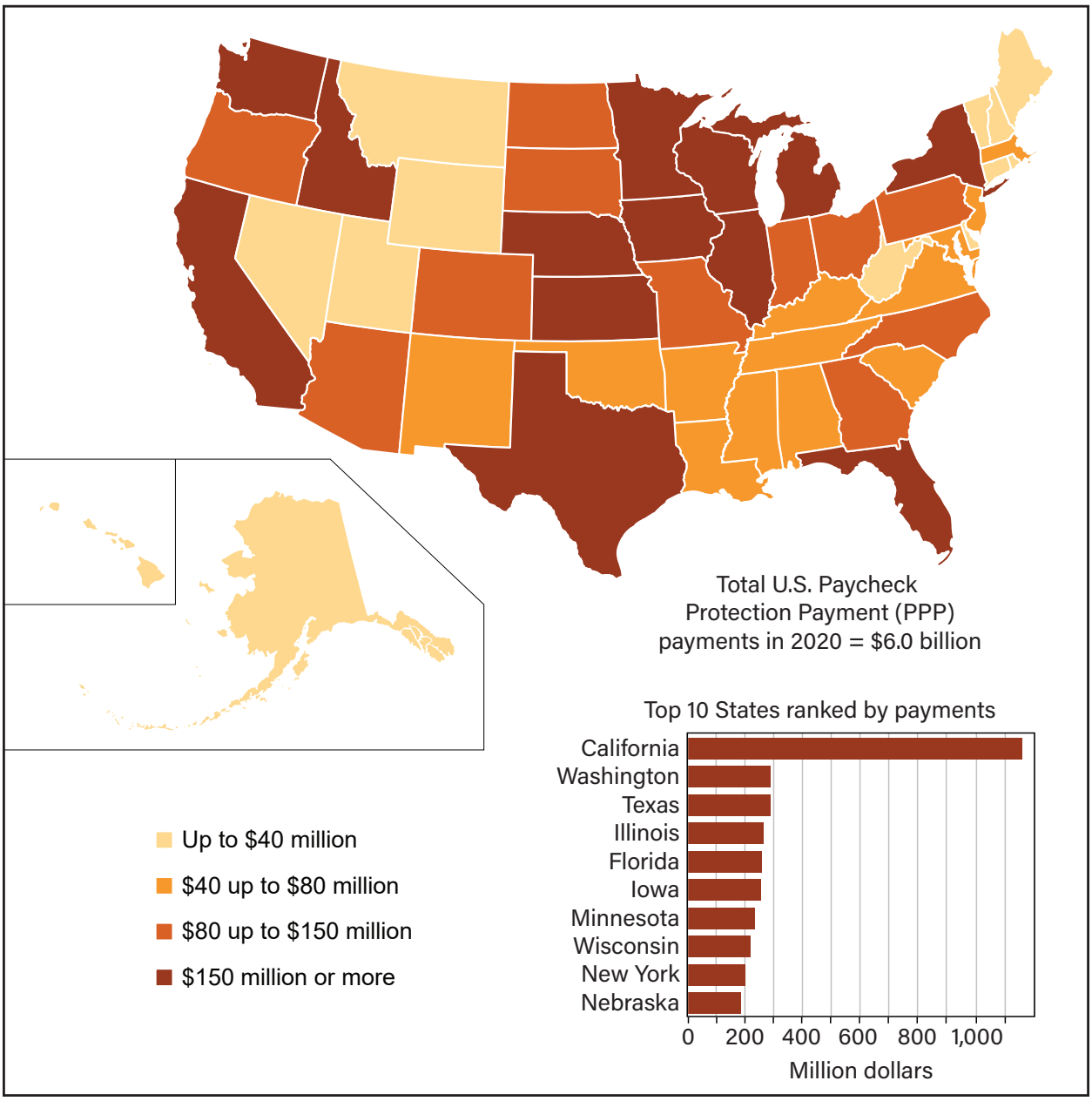
Source: USDA, Economic Research Service calculations using data from the Farm Income and Wealth Statistics data product, February 4, 2022.

Distribution of Paycheck Protection Program Payments by State

ERS estimated that the Paycheck Protection Program provided $6.0 billion, or 13 percent of total direct farm-related Government payments, to the farm sector in 2020 in its Farm Income and Wealth Statistics data product release on February 4, 2022 (ERS, 2022). Figure 5 shows the distribution of 2020 PPP loans to agricultural sector applicants by State. California's agricultural sector recipients received the most PPP loans at $1.2 billion, more than four times the total of the second-highest recipient State, Washington ($291 million). California leads the nation in the value of agricultural production, with a profile of commodities that tends to rely more on hired labor. For example, in calendar year 2020, California's agricultural producers had cash receipts from vegetables and melons of $7.9 billion (16 percent of total California cash receipts), $7.5 billion from milk and dairy products (15 percent of the total), $4.5 billion for grapes (9 percent of the total), and $2.9 billion for pistachios (6 percent of the total). All are relatively labor-intensive commodities (see the USDA, ERS website topic page on "Farm Labor," accessed July 27, 2022).

As noted, Washington had the second-highest value of State PPP loans to agricultural applicants ($291 million). Nationwide, Washington ranked 8th in cash receipts for all commodities in calendar year 2020, with production concentrated in relatively labor-intense enterprises, including apples (21 percent of total Washington cash receipts), vegetables and melons (13 percent of the total), and milk and dairy products (12 percent of the total).

Figure 5
Distribution of 2020 Paycheck Protection Program (PPP) loans by State and Top 10 States ranked by total loans disbursed



Note: This figure shows total PPP payments to each State, along with the list of top 10 States that received the most PPP payments in calendar year 2020.

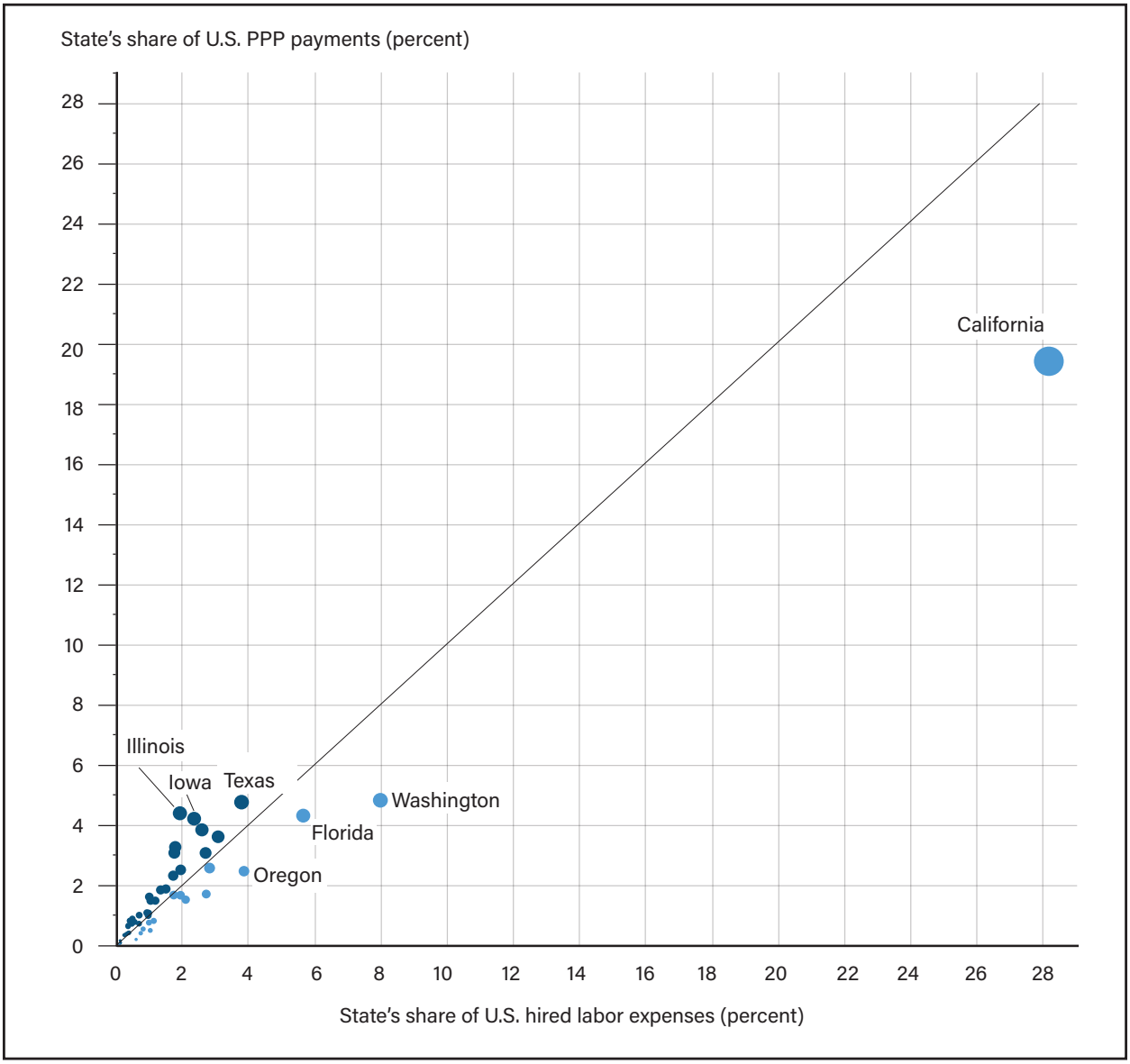
Source: USDA, Economic Research Service calculations using data from the Farm Income and Wealth Statistics data product, February 4, 2022.

Paycheck Protection Program Relative to Hired-Labor Expense

Figure 6 shows State shares of total U.S. PPP loans relative to State shares of total U.S. hired-labor expenses in 2020. For most States, the share of national PPP loans was closely correlated to the State's share of U.S. hired-labor expenses. Notable exceptions included California (about 28 percent of total hired-labor expense,

19 percent of total PPP dollars); Washington (about 7 percent of total hired-labor expense, 5 percent of total PPP dollars); Illinois (about 2 percent of total hired-labor expense, 4 percent of total PPP dollars); and Iowa (about 2 percent of total hired-labor expense, 4 percent of total PPP dollars). The design of the PPP was targeted at small businesses, and payments were limited to some businesses. In addition, each individual employee's salary used to calculate PPP was capped at $100,000, meaning if an employee was earning more than $100,000 per year, the calculation used to derive the maximum PPP reduced the wage (SBA, 2022). Giri et al. (2021) found that 72 percent of all farm businesses would have been eligible to receive a PPP loan.

Figure 6
Share of Paycheck Protection Program (PPP) loans and share of hired labor expenses by State, 2020 (States of interest are labeled)



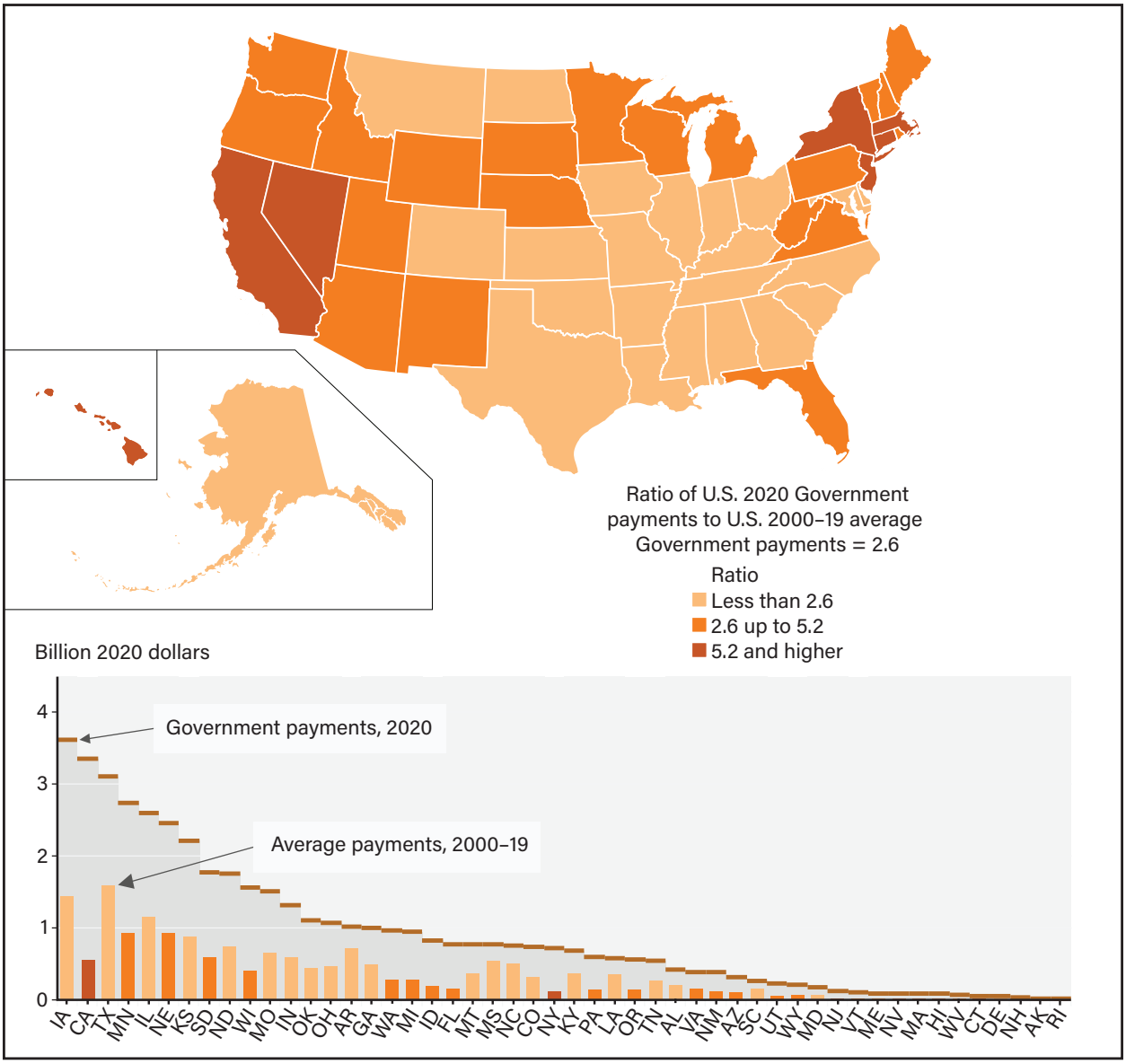
Note: This horizontal axis shows the share of total U.S. hired labor expense for each State. The vertical axis shows the share of total U.S. PPP payments for each State. The data are for 2020.

Source: USDA, Economic Research Service calculations using data from the Farm Income and Wealth Statistics data product, February 4, 2022.

2020 Government Payments versus Average Payments From 2000 to 2019

Figure 7 shows that every State received more in total direct Government farm-related payments in 2020 than their average total payments in real dollars from 2000 to 2019. At the national level, total direct Government payments of $45.7 billion in calendar 2020 were higher by $28 billion (or 2.6 times) than the historical average annual direct payments of $17.7 billion from calendar years 2000 to 2019. For 43 States, total direct farm-related payments in 2020 were more than double the State's average annual payments during the period.

Figure 7
2020 direct farm-related Government payments relative to average farm-related Government payment at State level from 2000 to 2019



Note: The top map shows how much more (in ratio calculated by dividing calendar 2020 Government payments by the average of Government payments from calendar years 2000 to 2019) calendar year 2020 Government payments were relative to the 20-year average for each State. The bottom graph shows the absolute values of 2020 Government payments along with the 20-year average Government payment for the respective State.

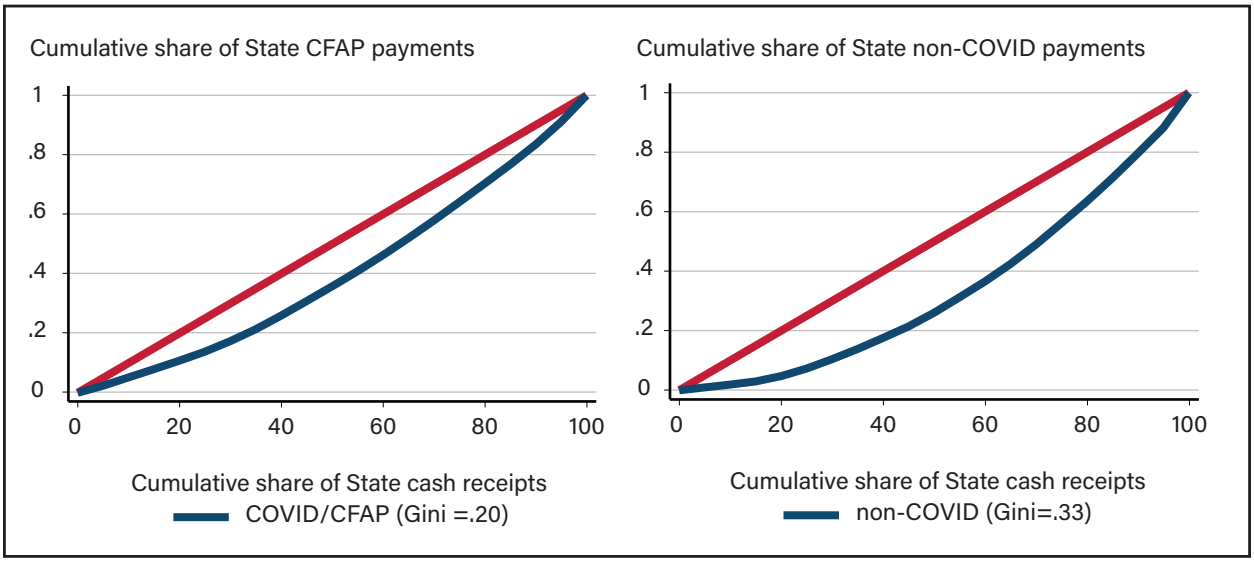
Source: USDA, Economic Research Service calculations using data from the Farm Income and Wealth Statistics data product, February 4, 2022.

COVID Payments Relative to Cash Receipts

We examined the distribution of COVID payments (CFAP from USDA and PPP from SBA) and non-COVID payments (from other USDA programs) relative to cash receipts and hired labor expenses by constructing the Lorenz curves and calculating the Gini index at the State level. Figure 7 shows the distribution of COVID and non-COVID USDA payments relative to cash receipts along with a baseline representing the proportional distribution, shown by the straight diagonal dotted line. This baseline represents the situation where each State's share of total payments relative to cash receipts from the two sources equals the respective State's share of total cash receipts and has a Gini index value of 0. A Gini index can have values from 0 (indicating complete equality in distribution) to 1 (complete inequality in distribution). The closer the Lorenz curve is to the diagonal dotted line, the lower the value of the Gini index, indicating payments relative to cash receipts are more proportional to cash receipts at the State level.

Figure 8 shows the Lorenz curve for COVID payments (yellow curve in the left panel of figure 8) relative to cash receipts is closer to the diagonal dotted line compared to the Lorenz curve for non-COVID payments (blue curve in the right panel of figure 8) relative to cash receipts at the State level. The Gini index is 0.20 for COVID payments and 0.33 for non-COVID payments, indicating that COVID payments were more closely aligned to cash receipts compared with non-COVID payments.[2] It is important to note that COVID payments covered a broader set of commodities than non-COVID (Farm Bill) programs. In addition, some non-COVID programs do not directly relate to current production (and hence, cash receipts).

Figure 8
Lorenz curves show USDA COVID payments were more proportional to cash receipts compared to USDA non-COVID payments at the State level



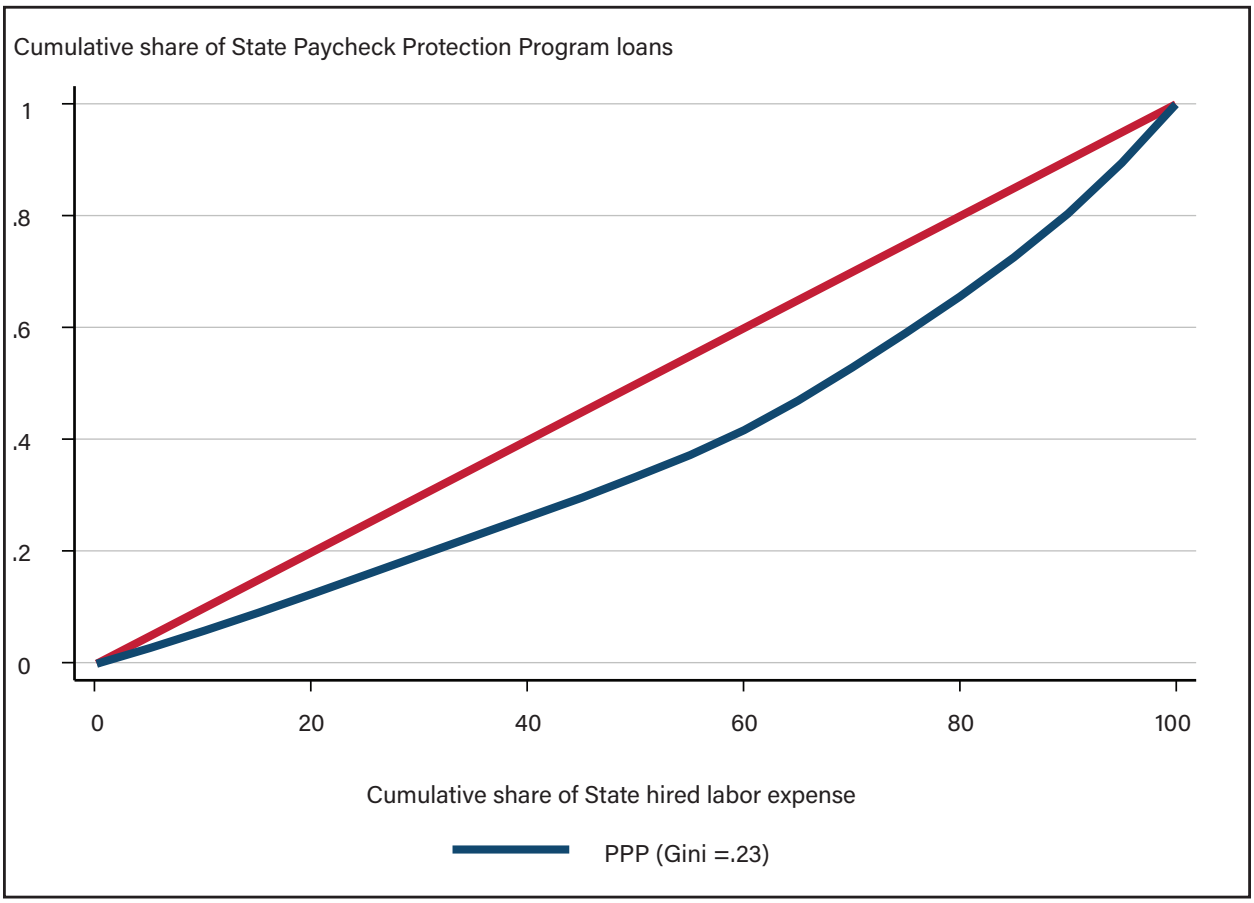
Note: The left panel Lorenz curve is for the distribution of USDA COVID/Coronavirus Food Assistance Program (CFAP) payments relative to cash receipts. The right panel Lorenz curve is for non-COVID farm-related payments relative to cash receipts. The Gini coefficients are in the parentheses.

Source: USDA, Economic Research Service calculations using data from the Farm Income and Wealth Statistics data product, February 4, 2022.

[2] As a sensitivity analysis, we calculated the Gini index using 2019 cash receipts and 2020 Government payments to account for the fact that at least some payments were based on 2019 production. The Gini index was 0.21 when we used 2019 cash receipts. Therefore, using either 2019 or 2020 cash receipts in the analysis does not change the overall analysis.

We also used a Lorenz curve and Gini index to examine the distribution of PPP loans relative to hired labor expense at the State level (figure 9), as SBA's main objective was to encourage businesses to continue employing workers. The Gini index of 0.23 suggests that the distribution of PPP loans relative to hired labor expense was also proportional to the distribution of hired labor expenses at the State level. In fact, PPP reflected proportionality similar to CFAP payments. This shows that COVID payments from two sources (CFAP and PPP) were more proportional than non-COVID USDA payments—again, likely due to the scope of commodities covered and program design differences.

Figure 9
Lorenz curves show non-USDA PPP loans were relatively proportional to hired labor expenses at the State level



Note: This Lorenz curve is for the distribution of PPP payments relative to hired labor expenses. The Gini coefficient is in parentheses.

Source: USDA, Economic Research Service calculations using data from the Farm Income and Wealth Statistics data product, February 4, 2022.

Conclusion

Government payments to the farm sector were at a record high in calendar year 2020, primarily due to ad hoc assistance programs meant to ameliorate the impacts of the COVID-19 pandemic. Combined direct payments from two COVID-related programs, the Coronavirus Food Assistance Program and the Paycheck Protection Program, accounted for nearly two-thirds of total direct payments to the farm sector in 2020. All

States received some payments from both CFAP and PPP. The State COVID-related payments to the farm sector were more proportionally distributed—relative to the State's agricultural cash receipts—compared to non-COVID payments. This is primarily due to the larger number of commodities addressed by the COVID-related programs and the specifics of how different programs are designed. Analysis of pandemic-related payments and how they differed from non-pandemic farm program payments at the State level may be useful because CFAP and PPP were broader in scope (available to a wider range of agricultural sector applicants) and distributed more consistently with cash receipts (for CFAP) and hired-labor expense (for PPP) than Farm Bill commodity programs that include fewer commodities and had different program designs.

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