Kansas Agriculture and the Bigger Economy

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Introduction [1]

Gross Domestic Product (GDP) is one of the most widely used measures of a country's economic performance. In the U.S., GDP is calculated and reported by the Bureau of Economic Analysis (BEA) quarterly and annually. It represents the total monetary or market value of all goods and services produced within a country over a specified period, usually a year or a quarter. While GDP is typically calculated at the country level, it can also be produced at the state level and for various sub-sectors of the economy. This article presents the contribution of farming to the overall GDP. Both the national and state level GDP are presented.

Farm GDP

Farm GDP, or the contribution of production agriculture to the Gross Domestic Product (GDP), is calculated as part of the overall GDP using either the Production (Value-Added) Approach or the Income Approach. Both methods should give the same result. The Bureau of Economic Analysis (BEA) and the U.S. Department of Agriculture (USDA) track and report farm GDP as part of the Agriculture, Forestry, Fishing, and Hunting sector.

Farm GDP is not the same as Total Agricultural Sector GDP. Farm GDP includes only primary agricultural production. Total Agricultural Sector GDP includes farm GDP plus downstream industries (food processing, agricultural transportation, etc.). The two approaches are discussed below.

Value added approach

Farm GDP is calculated as the total value of agricultural output minus intermediate inputs. Subtracting out the intermediate inputs avoids double counting. This calculation measures the “value added” by farms, distinguishing farm GDP from total farm sales.

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Farm GDP = Gross Farm Output - Intermediate Inputs

Where:
• Gross Farm Output includes:
    • Crop and livestock sales
    • Farm-related services (e.g., custom work, storage, agritourism)
    • Inventory changes (e.g., unsold grain, livestock on farms)
    • Government subsidies (e.g., farm support programs)

• Intermediate Inputs include:
    • Seeds, fertilizers, pesticides
    • Fuel, electricity, and water for irrigation
    • Equipment repairs, animal feed, and veterinary services
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Income approach

This method estimates farm GDP by summing all incomes generated in agricultural production:

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Farm GDP = Employee Compensation + Proprietor's Income + Rent + Interest +
Taxes - Subsidies

Where:
• Employee Compensation: Wages paid to farmworkers
• Proprietor's Income: Earnings of farm owners
• Rent: Land rental income
• Interest: Interest paid or received related to farming
• Taxes: Indirect business taxes (e.g., property taxes)
• Subsidies: Government payments to farmers (subtracted to avoid overstatement)
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Current situation

Figures 1 and 2 show the Kansas and U.S. GDP. The U.S. economy is nearly $30 Trillion. Figures 3 and 4 show the farm GDP for Kansas and the U.S. farm GDP. As might be expected, the direct farm economy is small compared to the total economy. As shown in Figures 5 and 6,

Kansas farm GDP is nearly 4% of the total Kansas economy. The U.S. farm GDP is less than 1% of the total U.S. economy.

Kansas is a major agricultural state so it is not surprising that Kansas farm GDP is a bigger percentage of the state economy than many other states. As shown in Figure 7. Kansas farms contribute 3.7% of the total U.S, farm GDP.

This analysis focuses on the contribution of farms to the economy. The actually contribution of agriculture is larger than just the farm contribution when downstream sectors are included. As shown in Figure 8, this analysis by the USDA-ERS[2], calculates a 5.5% contribution of agriculture to the total U.S. economy.

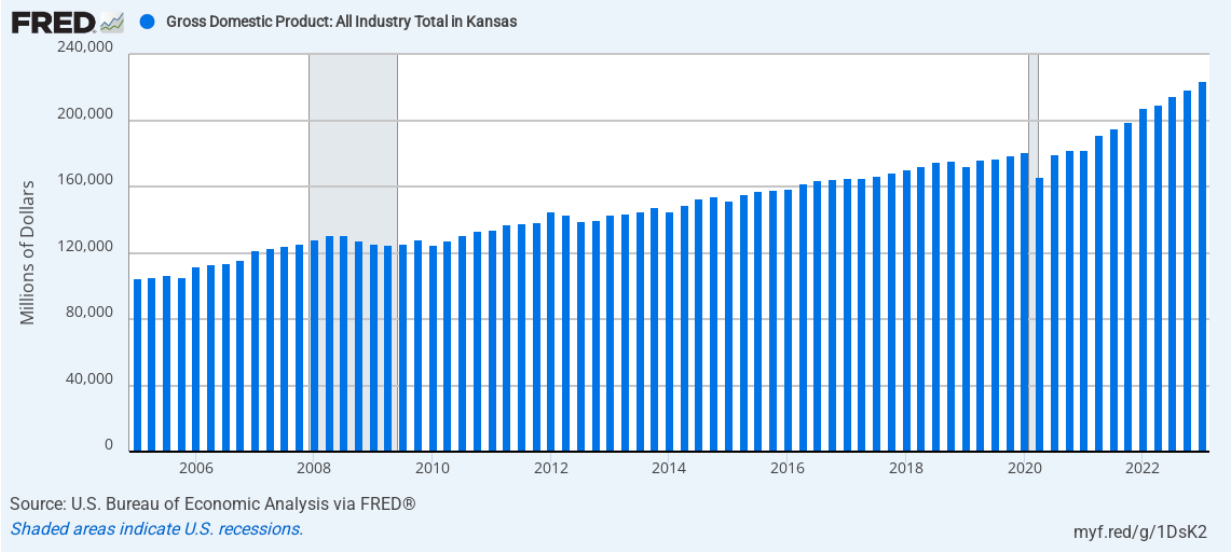


Figure 1. State GDP

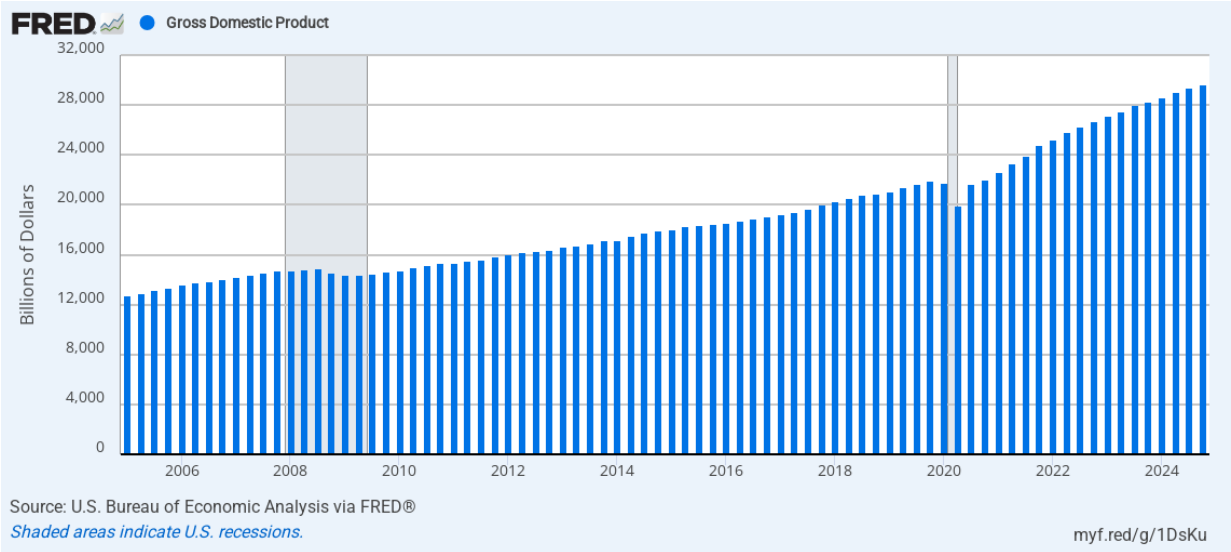


Figure 2. U.S. GDP

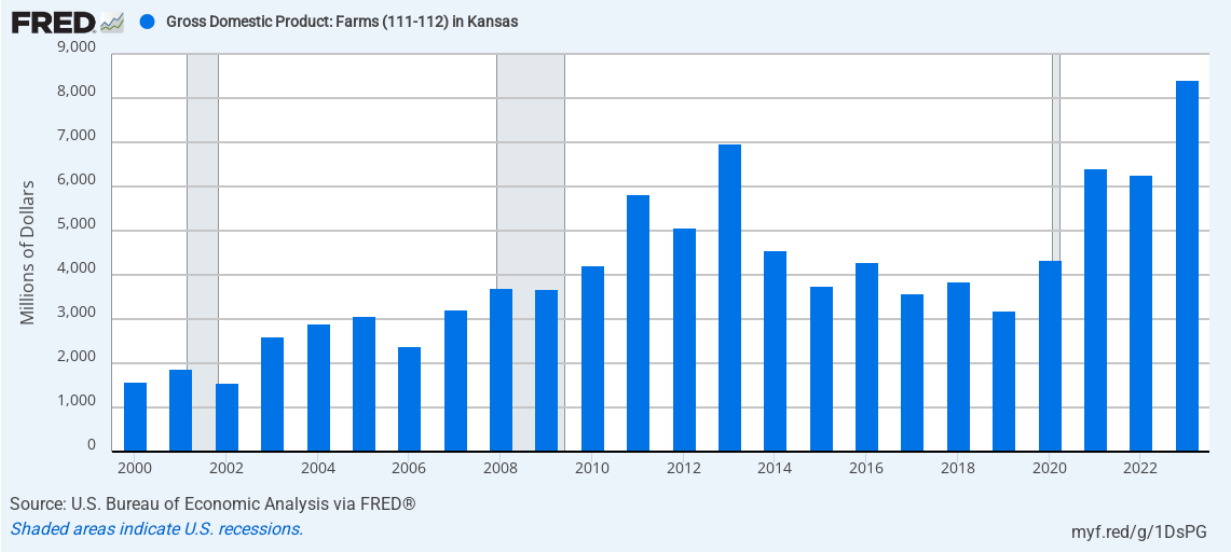


Figure 3. Kansas Farm GDP

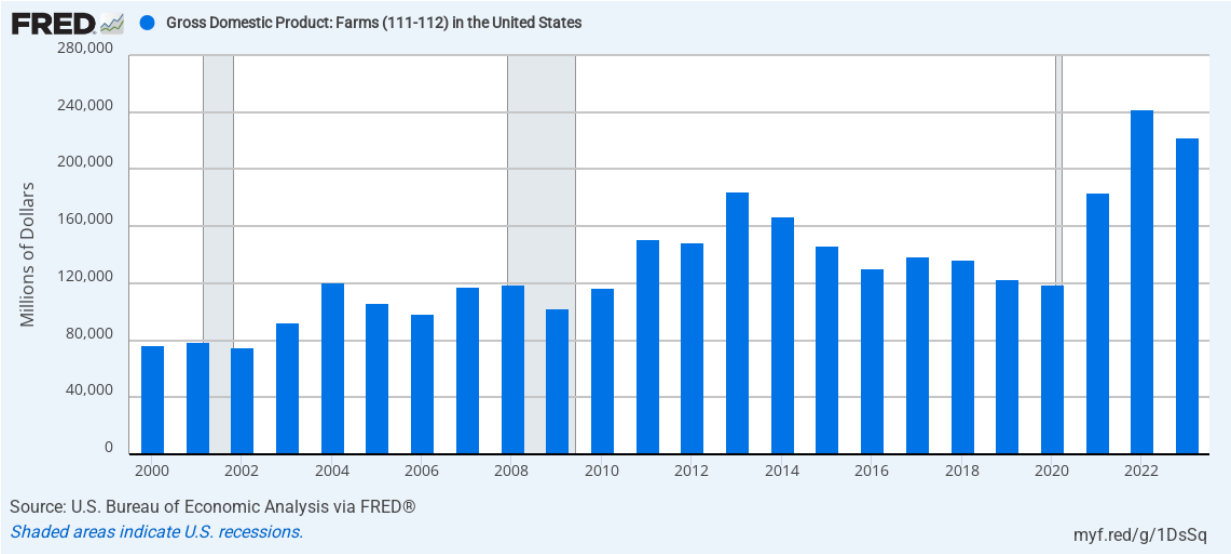


Figure 4. US Farm GDP

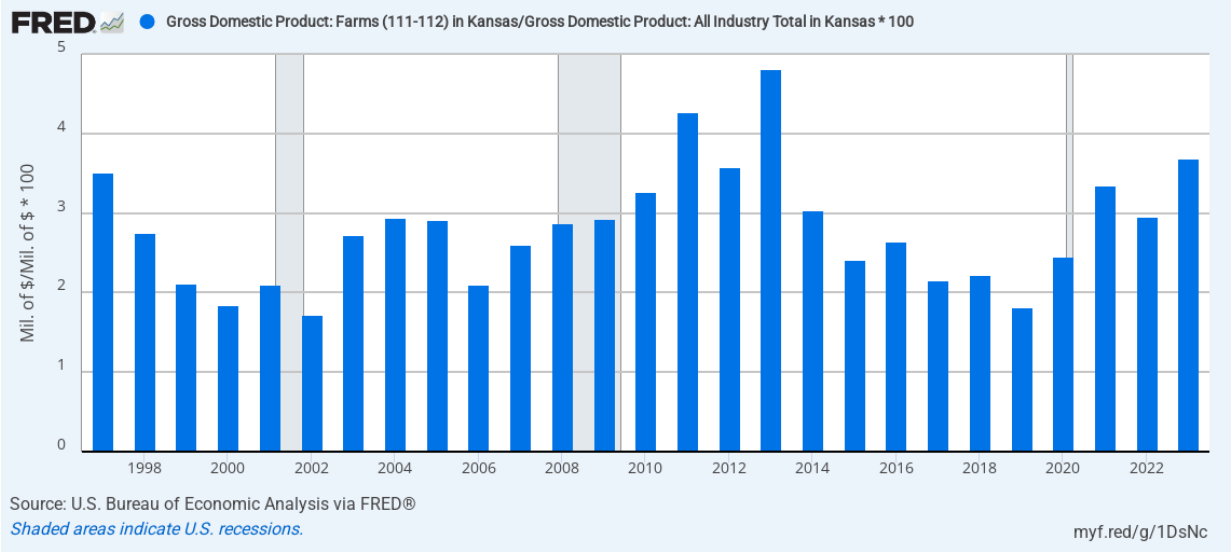


Figure 5. Kansas Farm GDP as a Percent of State GDP

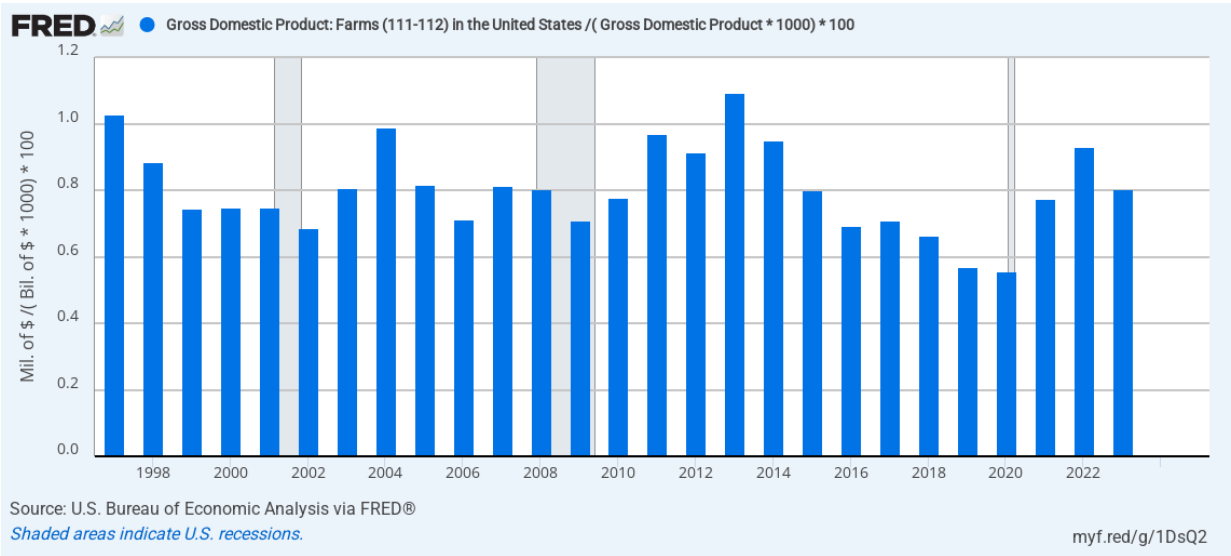


Figure 6. US Farm GDP as a Percent of US GDP

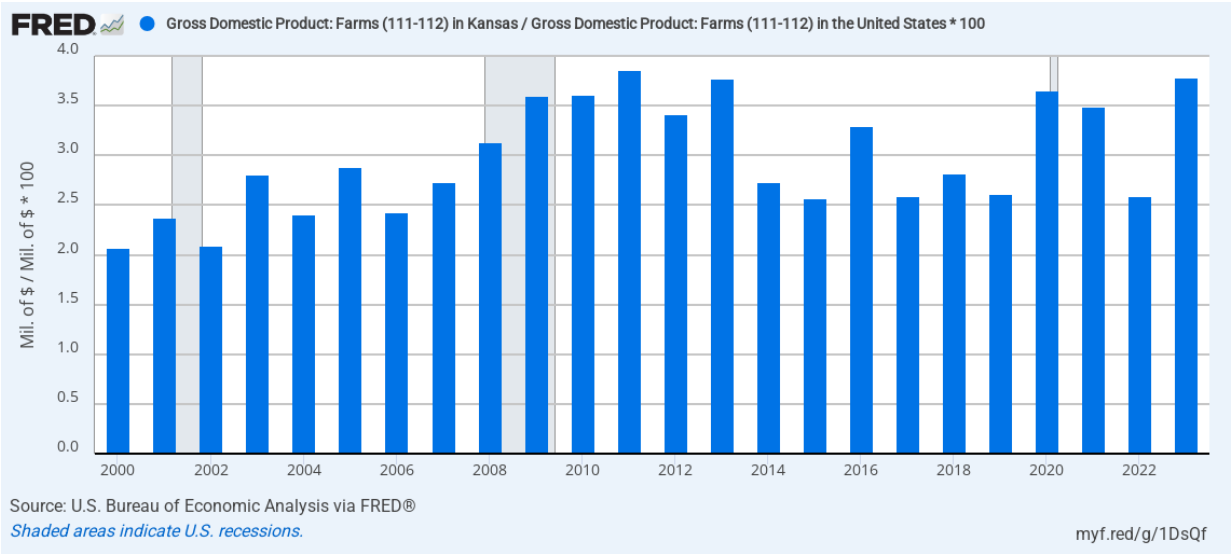
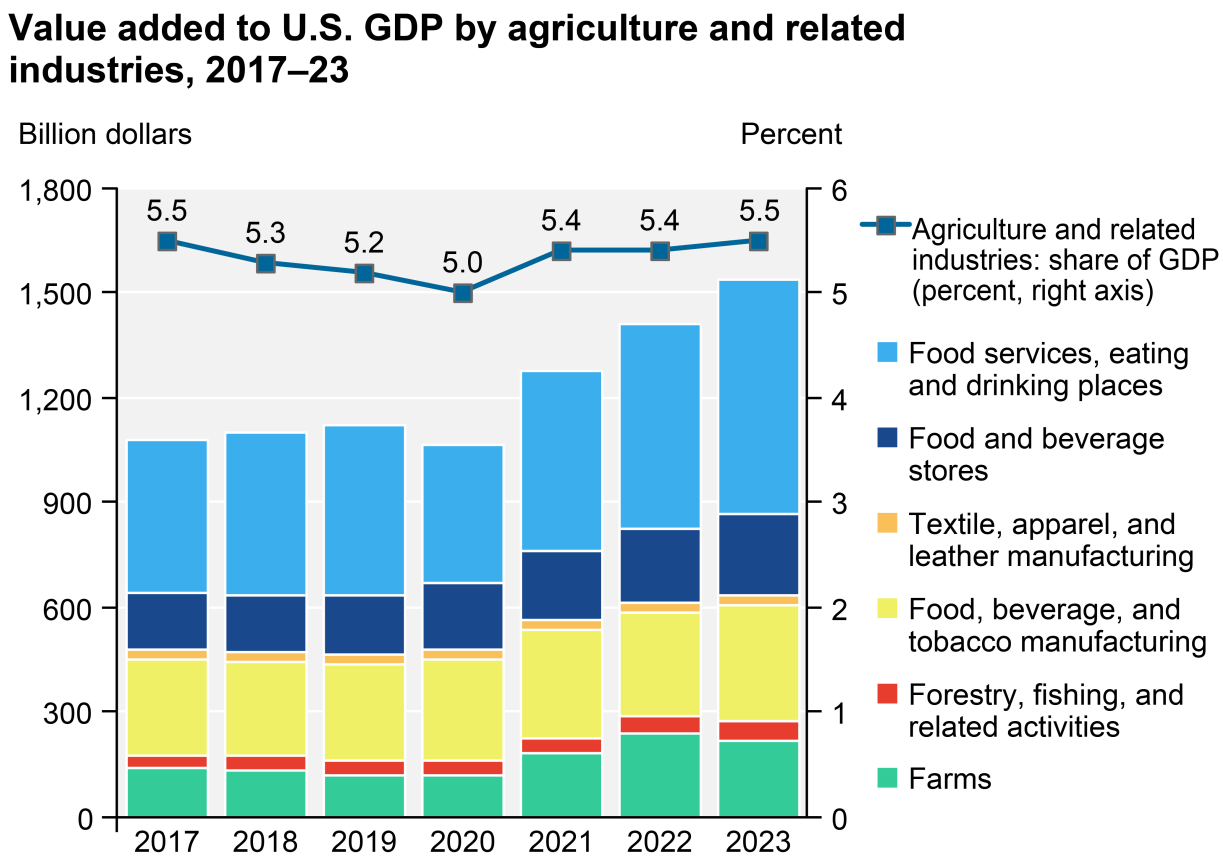


Figure 7. Kansas Farm GDP as a Percent of US Farm GDP



Note: GDP = Gross Domestic Product.
Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of Economic Analysis, Value Added by Industry, September 26, 2024 release.

Figure 8. Value added to US GDP by Agriculture and Related Industries

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   email: ibendahl@ksu.edu
   YouTube: https://www.youtube.com/\@little_pond_farm
   Substack: https://agricultural.substack.com
2. USDA-ERS (https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/ag-and-food-sectors-and-the-economy)