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AGRICULTURE'S ROLE IN THE SOUTH DAKOTA ECONOMY

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Agriculture has an important, longstanding place in the South Dakota economy. Is agriculture the state's largest industry? How has agriculture grown compared to other industries? Such questions are difficult to answer concisely. In this article, common measures of economic activity related to agriculture are considered.¹

A sector as diverse as agriculture can be apportioned in multiple ways. Highlights are shown in Box 1. Measurement of agriculture's economic footprint necessarily includes participants like farm and ranch operations, input suppliers, and first handlers. These, however, are invariably yoked to supporting activities that may be reflected elsewhere. Since its adoption in 1997, the North American Industry Classification System (NAICS) has divided economic activity into 440 industries, which are allocated to 20 different industry groups. This enables consistent reporting and reliable analysis of economic data. The industry group for agriculture is shared by forestry, fishing, and hunting. Thus agriculture, here, is specifically the production portion – or farming and ranching. For simplicity,

this analysis will not break down industry groups for individual evaluation.

Overall Economy

Various indicators are used to gauge the overall condition of the national economy, of particular geographic divisions, and of distinct sectors and industries. Computed as the value of all goods and services produced by an economy during a specific time period, Gross Domestic Product (GDP) is used to measure aggregate economic activity for an area.

Box 1. South Dakota Agriculture: Key Measures

- Agriculture contributed \$4.6 billion of South Dakota's \$45.9 Gross State Product in 2014.
- State personal income for 2014 was \$39.5 billion. Farm income was \$2.8 billion and farm proprietor income was nearly \$2.6 billion.
- Total employment in South Dakota for 2013 was 575,548. This included 26,108 farm proprietors and 6,538 other farm employees.

The Bureau of Economic Analysis (BEA) is responsible for publishing this information for the U.S. economy as a whole, and for each state's contribution to GDP.² The state-level measurement, often referred to as Gross State Product (GSP), is published annually by the BEA. In 2014, South Dakota GSP was \$45.9 billion; agriculture's share was \$4.6 billion. Figure 1 displays GSP from 1998-2014, adjusted for inflation. The statewide measure steadily grew from \$22.9 billion to \$39.8 billion (in 2009 dollars) during these years. Between 1998 and 2014, agriculture's contribution to GSP expanded from 9.3% to 10.0% of the total (11.4% in 2013). The finance, insurance, real estate, rental, and

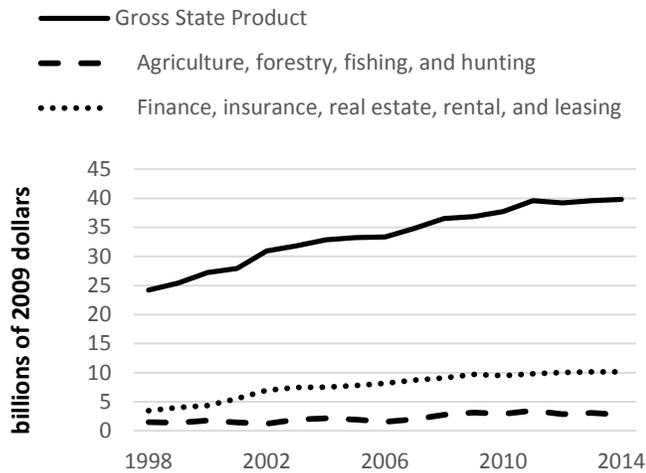
¹ This effort was partially funded by the South Dakota Farmers Union.

² BEA reports and statistics are available at www.bea.gov.

leasing (FIRE) industry group is included for comparison. The share credited to FIRE increased from 15.0% to 25.6%.

These two industry groups comprise a much higher share of the South Dakota economy than their respective categories do within the national economy.

Figure 1. South Dakota Real GDP



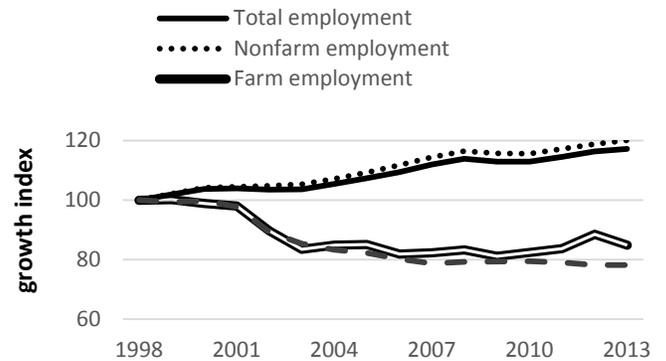
Source: Bureau of Economic Analysis

Employment

As the U.S. economy recovers from the great recession (2008-2009), much focus remains directed at creating jobs and reducing unemployment. Though the employment situation continues to improve both nationally and statewide, the increasing mechanization of production agriculture – particularly of grain farming – could mean that employment will not be directly tied to growth in the agricultural sector. If producers continue to use labor-saving technology and realize economies of scale, improvement in employment numbers may be transferred to the supporting sectors that provide these enhancements. In the same way, food-processors may invest in equipment that utilizes fewer employees. As South Dakota agriculture evolves, conventional roles and classifications become more difficult to identify.

Figure 2 shows growth in employment (number of jobs) from 1998 to 2013. Total employment, farm employment, nonfarm employment, and the number

Figure 2. South Dakota Employment Growth



Source: Bureau of Economic Analysis

of farm proprietors are indexed to provide a comparison for each of these measures. This arrangement emphasizes patterns of overall stability or change. The base year of 1998 is the earliest that the current NAICS configuration was used for this statistic. As represented by the indices, total employment within the state, over the sample period, has steadily risen by 17.3% – from 490,481 in 1998 to 575,548 in 2013. South Dakota’s population grew 13.2% during this same period. The total employment trend matches that of nonfarm employment. FIRE, government, educational and healthcare services, retail trade, and manufacturing were the industry groups with the highest share of GSP throughout the period from 2009-2013.

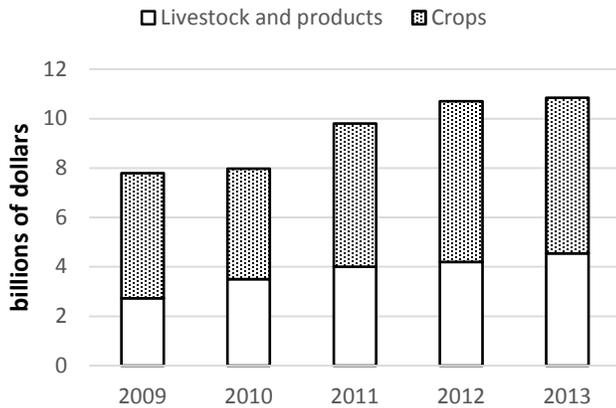
The employment growth experienced statewide has not been shared by farm employees and proprietors. Farm employment and farm proprietorship have decreased 15.1% and 21.8%, respectively, between 1998 and 2013 (Figure 2). This is instructive, but does not necessarily mean that agriculture has brought a negative contribution to total employment. After the initial drop, these measures have been fairly stable for the last decade, with farm employment growing during 2012. Additionally, this trend may be explained by the increase in nonfarm employment, as other industries like manufacturing and finance have responded to the growing demand for farm technology and services.

Income

While farm employment levels gradually declined and then stabilized, income is more vulnerable to the

dynamic influences of weather, commodity prices, and interest rates. Cash receipts from marketing agricultural commodities, the largest component of farm income, topped \$10.66 billion in 2013 (Figure 3).

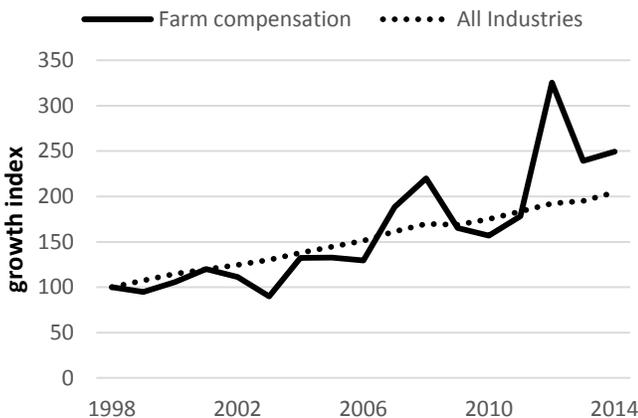
Figure 3. Cash Receipts from Ag Marketings



Source: Bureau of Economic Analysis

Personal Income is the value of all income accrued by participants of a particular area or industry. It is a leading indicator of consumer spending, which is a major component of GSP and the overall economy. Both GSP and personal income are tied to changes in population and inflation. Per capita figures are used to produce comparable assessments of economic data. Likewise, inflation-adjusted numbers permit useful year-to-year analysis.

Figure 4. South Dakota Personal Income Growth



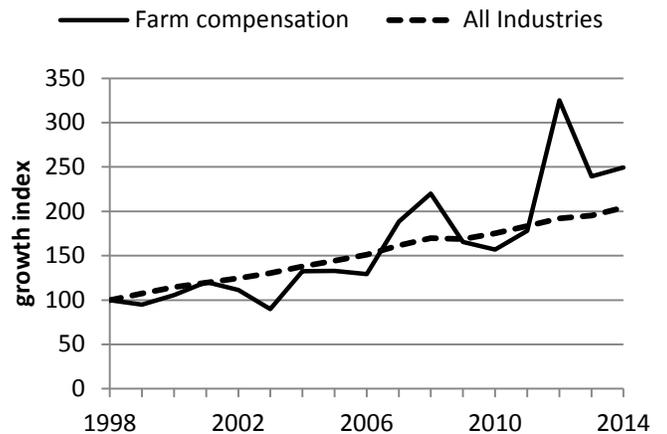
Source: Bureau of Economic Analysis

In conjunction with state personal income figures, the BEA releases a tabulation of activity-specific data that economists, business leaders, and policymakers use to make decisions. Figure 4 shows annual aggregate personal income growth for South Dakota between 1998 and 2014, and consistent with the NAICS sample interval, the data has been indexed to 1998 levels. The relatively steady rise in state personal income is driven by nonfarm earnings. Farm earnings accounted for \$2.9 billion of South Dakota's \$39.5 billion personal income in 2014.

Employee Compensation

Indicators of prosperity for agriculture and the overall economy do not follow measures of individual operators. Likewise, individual tabulations of operator income and wealth may not sufficiently reflect the strength of the farm sector. For a better evaluation of how an industry's employees are compensated, the BEA collects data of annual total income, which includes an individual's wages, salary, and supplemental income (including noncash benefits). Farm compensation is the sum of farm wages and salaries and supplements to farm wages and salaries. Figure 5 depicts the growth of farm compensation, along with combined growth of all categories, indexed to 1998. Although agriculture has frequently exceeded the combined measure, income is subject to the ebbs and flows of commodity production.

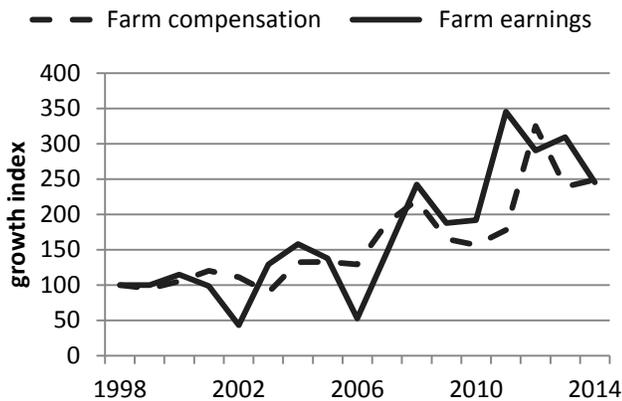
Figure 5. South Dakota Employee Compensation



Source: Bureau of Economic Analysis

Figure 6 presents the growth of annual farm compensation and farm earnings since 1998. Farm earnings, the agriculture sector's share of personal income, is comprised of the net income of sole proprietors, partners and hired laborers arising directly from the current production of agricultural commodities, either livestock or crops. The relationship in Figure 6 reveals how compensation has cyclically led and lagged earnings. This seems to suggest that farm income fluctuations are not immediately passed to farm labor.

Figure 6. SD Farm Compensation and Farm Earnings



Source: Bureau of Economic Analysis

This pattern may be caused by a number of factors – the long-run aspect of salary and wage agreements, the prevalence of debt-funded operations, and

differences produced from cash accounting and income tax planning are all possibilities. This dynamic is largely unexplained, and would be a valuable topic for future research.

Summary

The above measures of economic performance are frequently used to objectively compare industries and industry groups that are intrinsically different. Though inexact, each provides a sense of scale and scope of the specific activity and timeframe represented.

Production agriculture is a key component of South Dakota's economy. The diverging trends of farm employment and nonfarm employment point to the influence technology and innovation have had on modern agriculture. Though the industry continues to grow and to modernize, farm earnings and farm employee compensation are inherently variable, and will continue to change with natural and market forces.

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