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ECONOMIC IMPACT OF THE PORK INDUSTRY ON SOUTH DAKOTA

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The pork industry in South Dakota makes a significant contribution to economic output and development in the state. As of January 1st, 2012 there were 368,000 sows in South Dakota. These sows produced a pig crop of 3,782,000 head. There were also 636,000 head of hogs imported for either breeding or feeding. This excludes hogs brought into the state for immediate slaughter. In addition, there were 4,499,000 head of hogs marketed in 2012. The pork industry in the state produced an estimated gross income of \$621,419,000 in 2012 (South Dakota Agriculture 2013).

Analysis of the Pork Sector

The IMPLAN Pro3 model is used to estimate the impact of the pork industry on the South Dakota economy. In the model each industry is represented by an internal production function. Each of these functions provides an estimate of an industry's economic contribution to the State's economy. Each industry's economic contribution is broken down into three different categories: the direct, indirect, and induced. The direct effect is the \$621.4 million of gross revenue generated by the pork sector in 2012. The indirect effect consists of the business

to-business activity--the impact of the businesses supplying inputs into the pork industry. The induced effect comprises household spending as a result of the economic activity in the pork industry. These three effects are added together to provide an estimate of the total impact of the pork industry on the State's economy. The output impacts are detailed in Table 1.

Table 1. Pork Industry Output Impact

Direct	\$621,419,007
Indirect	\$154,525,648
Induced	\$135,881,646
TOTAL	\$911,825,294

In nominal 2012 dollars

The direct impact, or the gross income in 2012, is more than \$200 million greater than the most recent previous analysis of the industry, based on 2008 data. This increase is the result of significantly higher output prices--\$71.13/cwt in 2012 versus \$46.80/cwt in 2008-- and was also due to producers in the state marketing 74.8 million more pounds of pork than in 2008 (South Dakota Agriculture 2013).

The multiplier for the pork industry is 1.47. This means that for every dollar of economic activity generated in the pork industry \$.47 of economic activity is created in the rest of the South Dakota economy.

The total impact of the pork industry may be broken down in order to make it more understandable or relevant to stakeholders in the pork industry. If we divide the total output by the total number of sows farrowed in 2012 we come up with an economic impact of \$2,477.78 per sow. The impact per head marketed would be \$202.67 and the impact per pig farrowed was in 2012 was \$241.09.

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Employment

The employment effects are very similar to the output effects. The direct effect is the number of people employed in the pork production industry. The indirect effect is the number of people employed in the industries that supply inputs to the pork industry, and the induced effect is the employment resulting from the general economic activity in the state that the pork industry generates. The employment numbers are calculated internally by the production functions within the IMPLAN Pro3 program and are expressed as full-time equivalents (FTEs). These numbers may be different than those that can be observed in the industry. The employment effects are shown in Table 2.

	Employment (#FTEs)	Taxes on Production and Imports (Nominal \$)
Direct	4,090	(\$9,460,090)
Indirect	784	\$2,909,427
Induced	1,206	\$7,902,421
TOTAL	6,080.50	\$1,351,758

The output and employment impacts are directly comparable to previous estimates. However, due to a methodology change in the IMPLAN system, the impact on taxes is not directly comparable. Specifically, in the most recent version of the IMPLAN software, taxes on production and imports has replaced indirect business taxes. The taxes included are sales and excise taxes, customs duties, property taxes, motor vehicle licenses, severance taxes, other taxes and special assessments. The net tax results are shown in Table 2. Non-tax payments are excluded. The major change in this calculation is that subsidies are netted out of the numbers (IMPLAN Glossary). That is, IMPLAN only lists the net of taxes and subsidies. Due to the high rate of government subsidies received by the agricultural sector in 2012, \$565,925,721, as reported by the Environmental Working Group website, the pork industry has a positive net tax impact of \$1,351,758 in 2012. This high subsidy receipt rate was in part due to the severe drought that occurred in 2012.

These results differ greatly from previous analyses and make it difficult to compare the current tax impacts to past results. The tax results are also shown in Table 2.

The distribution of the impact of the pork industry shows that equal amounts of the economic impact stay in the pork production sector and other animal food manufacturing, both at 22%. The industries that comprise the top ten in rank order, except for the Other category, are in Table 3. (See Table 3 on next page.)

Feed Consumption

Another significant impact of the pork industry is supplying a local market for the corn and soybeans produced in the state. The 2012 sow herd consumed 11,135,680 bushels of corn and 66,240 tons of soybean meal. The 4,499,000 hogs marketed in 2012 consumed 44,990,000 bushels of corn and 269,940 tons of soybean meal. These numbers are calculated from the same information obtained from a personal communication with Dr. Robert Thaler on 6/1/10 that was used to calculate consumption in the last impact analysis published in 2010.

The Pork Processing Sector

The major pork processor in the state is the John Morrell plant in Sioux Falls. This plant accounts for 5,510 jobs and an additional \$1,916,839,355 in direct output. The output in the pork processing sector is approximately three times the total output in the pork production sector, and there are 8,722 more people employed in the processing sector than in the production sector. The processing sector results are in Table 4.

	Output	Employment	Taxes on Production and Imports
Direct	\$1,916,839,459	5,510	\$455,511
Indirect	\$1,820,239,485	6,104	\$3,362,927
Induced	\$376,242,260	3,188	\$21,846,122
TOTAL	\$4,113,321,203	14,802	\$25,664,560

Table 3. Distribution of the Economic Impact of the Pork Industry in South Dakota

	Million \$	(% of Total)
Animal production, except cattle, and poultry and eggs	\$34.10	22.1
Other animal food manufacturing	\$34.10	22.1
Cattle ranching	\$14.00	9.1
Monetary authorities and depository credit intermediation activities	\$11.50	7.4
Wholesale trade businesses	\$9.50	6.2
Real estate establishments	\$6.80	4.4
Electric power generation, transmission and distribution	\$6.60	4.3
Grain Farming	\$5.50	3.5
Maintenance and repair of non-residential structures	\$5.00	3.2
Truck transport	\$4.50	2.9
Other	\$22.90	14.8
	\$154.50	100

Total Indirect Impacts in million nominal 2012 dollars

Concluding Remarks

The pork industry in South Dakota is a major contributor to economic activity in the state. The direct impact of the pork production sector is \$621,419,007 and it produces a total impact of \$911,825,294. In addition, the production sector accounts for 6,080 jobs and \$1,351,758 in taxes on production and imports. If the total impact of the pork processing sector is added the total economic impact of the pork industry rises to \$5,025,146,497, the employment number increases to 20,883.5, and the tax on production and imports total is \$27,016,318. The data comes from the IMPLAN Pro 3 data base and does not include any adjustments from the 2012 Census of Agriculture

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