12-17-2010

Economic Impact of the Pork Industry in South Dakota; Economic Impact of the Dairy Industry in South Dakota

Gary Taylor
South Dakota State University, Gary.Taylor@sdstate.edu

SDSU

ECONOMICS COMMENTATOR

South Dakota State University No. 525 December 17, 2010

ECONOMIC IMPACT OF THE PORK INDUSTRY IN SOUTH DAKOTA

by

Dr. Gary Taylor
Associate Professor

The pork industry in South Dakota makes a significant contribution to economic development in the state. There were 339,000 sows farrowed in 2008 producing a pig crop of 3,297,000 head. There were also 951,000 head imported into South Dakota in 2008. This resulted in gross income for the industry of $394,808,000 (South Dakota Agriculture 2009).

Analysis of the Pork Sector

The IMPLAN model breaks down the effects of the pork sector into three categories, direct, indirect, and induced. The direct effect is the value of the products produced in the pork industry, in this case, market hogs and cull animals. The indirect effect is the economic activity that results from industries supplying inputs into the pork sector (business to business activity), and the induced effect is the increase in household spending resulting from the increased economic activity in the state. These dollar values for 2008 are shown in Table 1.

Table 1. Pork Industry Output Impact

Direct	$394,808,000
Indirect	$98,766,496
Induced	$26,613,162
Total	**$520,187,658**

In nominal dollars

The multiplier for the pork industry is 1.32, meaning that one dollar of output in the industry generates an

(Continued on p.2)

ECONOMIC IMPACT OF THE DAIRY INDUSTRY IN SOUTH DAKOTA

by

Dr. Gary Taylor
Associate Professor

The dairy industry in South Dakota makes a significant contribution to economic development. The 94,000 dairy cows in the state, as of January 1, 2009, produced $344,564,000 worth of milk (South Dakota Agriculture 2009). In addition, $17,360,000 of cull animals were sold in 2008, a 33% cull rate, with a 1,400 lb. average weight, sold at $0.40/lb. (Scheibe).

Analysis of the Dairy Sector

The IMPLAN model breaks down the effects of the dairy sector into three categories, direct, indirect, and induced. The direct effect is the value of the products produced in the dairy industry, in this case, milk and cull animals. The indirect effect is the economic activity that results from industries.

supplying inputs into the dairy sector (business to business activity), and the induced effect is the increase in household spending resulting from the increased economic activity in the state. These dollar values are in Table 1B.

Table 1B. Dairy Industry Output Impact

Direct	$361,924,000
Indirect	$123,519,757
Induced	$23,216,893
Total	**$508,660,650**

In nominal dollars

(Continued on p.3)

Contact the author at gary.taylor@sdstate.edu or 605-688-4141.

(Cont'd from p.1…….Impact of Pork)
additional thirty-two cents of economic activity in the South Dakota economy. This total impact, when divided by the 339,000 sows in the state would result in $1,534.48 in economic activity per sow from the pork production sector of the economy. This impact can also be examined different ways. If we look at the 4,245,000 head that were marketed in 2008 the impact would be $122.54 per hog marketed, or $157.78 per pig farrowed in 2008.

The employment effects are similar to the output effects. The direct effect is the number of people employed in the pork production industry. The indirect effect is the increase in the number of people employed by the industries supplying inputs to the pork industry, and the induced effect is the additional employment resulting from the additional economic activity in the state. The employment effects are shown in Table 2.

Table 2. Employment and Indirect Business Tax Effects

	Employment	Taxes
Direct	3,562.3	$11,875,484
Indirect	548.7	$3,883,770
Induced	260	$1,640,782
Total	**4,371**	**$17,400,036**

The indirect business taxes are all of the taxes collected (sales, property, excise, etc.). The direct effect is the tax revenue generated by the pork industry, the indirect effect results from the increased business to business activity, and the induced effect is from the increased consumer activity associated with pork production in the state. The relative amount of taxes paid at each level is representative of the changes in the type of taxes paid by agricultural producers, supply industries, and consumers. The tax results are shown in Table 2.

The distribution of the impact of the pork industry shows the majority of the impact remains in the agricultural sector of the economy (80%) (Table 3). However, significant impacts are also observed in the manufacturing sector (5%) and in FIRE (4.5%).

Feed Consumption

Another significant impact of the pork industry is supplying a local market for the corn and soybeans produced in South Dakota. The sow herd will consume 10,258,140 bushels of corn and 61,050.5 tons of soybean meal annually. The 4,245,000 head of hogs marketed in 2008 would consume an additional 42,450,000 bushels of corn and 254,700 tons of soybean meal (Thaler).

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

Ag & Forestry	415,551,027
Construction	2,301,571
Services	9,826,706
Accom, Food. Arts	3,554,706
Government	2,606,536
Miscellaneous	9,158,747
Trans & Utilities	7,144,890
Finance, Insurance, Real estate	23,373,242
Manufacturing	28,298,400
Whsle & Retail Trade	10,994,939
Mining	7,376,909

The Processing Sector

The major meat processor in the state is John Morrel in Sioux Falls. The meat processing sector would account for an additional $1,667,222,400 in output, 3,547 more jobs and $2,070,683 in additional indirect business taxes would be credited to the pork industry. The output in the processing sector is more than three times the impact of the production side and the employment is approximately the same as the production sector.

Caveats

It should be noted that pork prices have risen significantly since 2008. This price increase of approximately 45% would result in a significant increase in the dollar value of the impact for 2010.

References

South Dakota Agriculture 2009. South Dakota Agricultural Statistics Service. Bulletin No. 69, June, 2009.

Personal communication from Bob Thaler 6/1/10.

****

(*Continued from p.1 … Impact of Dairy)*
The multiplier for the dairy industry is 1.41, meaning that one dollar of output in the industry generates an additional forty-one cents of economic activity in the South Dakota economy. This total impact, when divided by the 94,000 dairy cows in the state would result in $5,411.28 in economic activity per cow from the dairy production sector of the economy.

The employment and tax effects are similar to the output effects. (Table 2B)

Table 2B. Employment Impacts and Indirect Business Taxes

Direct	1089.9	$4,695,208
Indirect	521.3	$4,859,519
Induced	227.2	$1,435,002
Total	**1838.4**	**$10,989,729**

In nominal dollars

The majority of the economic activity generated by dairy stays in the agricultural sector of the economy, approximately 74% (Table 3B). Approximately 10% of the impact is in the manufacturing sector and there are lesser impacts in the other sectors.

Table 3B. Distribution of the Impact of the Dairy Industry in South Dakota

Ag & Forestry	375,664,143
Construction	1,422,948
Services	6,013,406
Accom, Food. Arts	2,672,091
Government	2,709,532
Miscellaneous	8,667,064
Trans & Utilities	7,288,505
Finance, Insurance, Real estate	22,877,779
Manufacturing	52,215,443
Whsle & Retail Trade	21,031,833
Mining	8,097,910

Value Added Agriculture

In order to obtain a more accurate estimate of the total impact of the dairy industry in South Dakota the elements from the manufacturing/processing sector that can be clearly linked to the industry should be included in the analysis. These sectors would be fluid milk and butter manufacturing, cheese manufacturing, dry, condensed, and evaporated milk, and ice cream and frozen dessert manufacturing. Outputs from these sectors are listed in Table 4B.

Table 4B. Output of Dairy Related Sectors

Fluid milk & butter manufacturing	$76,653,912
Cheese manufacturing	$579,557,120
Dry, condensed, & evaporated dairy product manufacturing	$101,423,760
Ice cream & frozen dessert manufacturing	$11,550,764
Total	**$769,185,556**

These sectors add an additional 887 employees and $849,090.62 in indirect business taxes. These additional outputs would push the total impact of the dairy industry to $1,277,842,206 or $13,594 per cow. Every fifty additional dairy cows will also support 1.44 additional jobs in the economy and each additional cow will also produce $125 in state and local tax revenue.

Including the milk manufacturing industry more than doubles the impact of the production sector alone. The additional $769,185,556 in output is approximately $260,000,000 more than is produced in the production sector. The impacts also become less concentrated in the ag sector with about 40% of the impact remaining in the ag sector.

Feed Consumption

Another significant impact of the dairy industry is supplying a local market for the corn, soybeans, and hay produced in South Dakota. A typical lactating cow ration would contain 5.4 lbs of alfalfa hay, 19.6 lbs of haylage, 40 lbs of corn silage, 18.2 lbs of corn, 5.4 lbs of DDG, and 2.25 lbs of soybean meal (Extension Extra 4035). If we just look at the 300 day lactation period for the 94,000 cows in the state, the dairy industry would account for consumption of 76,140 tons of alfalfa hay, 276,360 tons of haylage, 564,000 tons of corn silage, 9,165,000 bushels of corn, 76,140 tons of DDGs, and 31,725 tons of soybean meal. Dry cows consume approximately 14 lbs of forage and approximately 7 lbs of grain daily. This would add another 39,480 tons of forage, either corn or hay based, and another 705,000 bushels of corn to the consumption numbers (Feeding the Dairy Herd). If we assume the same 1% of bodyweight of forage consumption daily and .5% bodyweight of grain daily the 33,000 replacement heifers would consume another 42,157 tons of forage and 752,812 bushels of corn annually.

References

South Dakota Agriculture 2009. South Dakota Agricultural Statistics Service, Bulletin No. 69. June, 2009.

Roger Scheibe. Personal communication. 5/17/10

Extension Extra 4035. High Priced Corn and Dairy Cow Rations. Alvaro Garcia, Kenneth Kalscheur, Arnold Hippen, and Rebecca Schafer. South Dakota State University Cooperative Extension Service. 2007.

Feeding the Dairy Herd. University of Minnesota Extension, WW-00469, Reviewed 2008.

Caveats

The numbers produced by the IMPLAN Pro software are highly dependent on the price levels and production amounts. Both of these factors are extremely variable and can lead to output values and tax amounts that can vary greatly from year to year. It should also be noted that the estimates in this analysis come from the production functions in the IMPLAN 3 database.

****

ECONOMICS COMMENTATOR

****

Department of Economics
South Dakota State University Phone: 605-688-4141
Box 504 Scobey Hall Fax: 605-688-6386
Brookings, SD 57007-0895 E-Mail:Penny_Stover@ sdstate.edu

75 copies of this newsletter were produced at a cost of less than $100

SDSU
SOUTH DAKOTA STATE UNIVERSITY
Economics Department
Box 504
Brookings, SD 57007-0895

Change Service Requested