Impact Of Livestock Production On Local Economies

Summary Of Literature

Seanicaa Edwards
Ray Massey

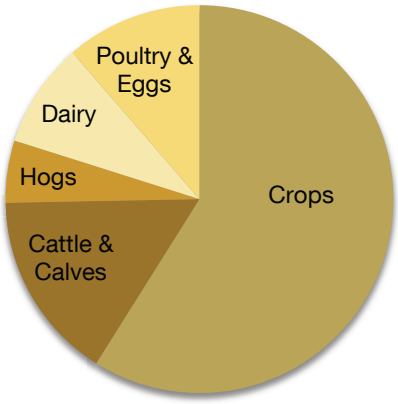
The purpose of this study is to review the economic impact of animal feeding operations on national, state, and local economies. The studies reviewed focused on the economic impacts of swine, beef, and dairy production. Other measures are discussed such as farm efficiency, tax burdens of residents and labor requirements.

U.S. Livestock Production

Livestock production is an important part of the national economy as well as an integral component of state and local economies. The production of livestock, as well as other commodities, cause ripple effects throughout the economy in the form of employment, production in allied industries, taxes paid locally to the state and federal municipalities, indirect impacts from purchases of input supplies, and induced impacts from household spending throughout the state.

Based on the 2007 Census of Agriculture, U.S. livestock sales accounted for 52% ($153,562,563,000) of the nation's total market value of products. In 2009, US livestock receipts accounted for 42 % ($119,751,629,000) of total farm receipts. Figure 1 shows that the majority of livestock receipts were from cattle and calves followed by poultry and eggs, dairy, and hogs (Figure 1).

Figure 1. 2009 U.S. Farm Receipts



Source: Economic Research Service, U.S. Department of Agriculture

To help illustrate the impact that livestock production contracts could have on a county's economy, a two county comparison was conducted in Ohio. The two counties were similar in the amount and quality of land in agricultural production was well as crop receipts. However one of the counties also had a large number of contract producers of swine, turkeys, broilers and laying hens. The county with animal production had a much higher total value of agricultural products, a result of animal production in the county[1]. A similar study was also conducted in Missouri. The study measured the effects of livestock production in three Missouri counties. The study indicated that the two counties with increased livestock production had a larger value of agricultural products sold and a larger tax base[19].

Overall Impacts of Livestock Production

The following studies provide economic impact information pertaining to all livestock production as opposed to single species impact results.

A Virginia study quantified the economic impact of animal agriculture from 1999-2009. Economic impact models were estimated for all states, however, for the purpose of this review we will only look at the national results. Results indicated that the 2009 total economic output impact of animal agriculture across all states was $252 billion. Labor income exceeded $40 billion with creation of over 1.8 million jobs. Approximately $6.2 billion was paid in property taxes and over $10 billion was paid in federal, state, and employment taxes. This study also evaluated the economic impact of change from 1999-2009. Overall the value of animal agriculture increased by $18.5 billion creating over 112,000 jobs while increasing household incomes by $3 billion dollars. Tax dollars also increased by $817 million [14].

A similar study was conducted in Illinois (2007) that looked as the total impact of livestock production on the state. The results of the study showed a $3.2 billion total economic impact, 29,400 jobs, and $256.8 million of total tax contributions. Hog production was the leading species group with a $1.7 billion of total output impact, and 7,833 jobs created[7]. This study also quantified the economic impact of

meat and dairy processing in the state. There were approximately 326 meat and dairy processing firms in Illinois, with 40% located in one county. Meat and dairy processing created a $19.7 billion total economic impact and over 90,000 jobs. The total economic impact of livestock production and meat and dairy processing combined are a $21.1 billion industry and are equal to 2.1% of the total personal income in Illinois and 1.4 % of the state's jobs[7].

The results of a Dixon County, Nebraska (2007) study indicated that the total economic impact from livestock production and products was approximately $66.8 million, of which $59.9 million was attributed to the production of cattle, poultry, swine and other animal products. Approximately 348 jobs were created as a result of livestock production and products. Value added impacts are also an important indicator of the economic significance of livestock production. Value added impacts represent the contribution to gross domestic product made by an individual, producer, industry, or sector. Value added impacts include employee compensation, proprietors' income, property taxes, indirect business taxes. Total value added impacts exceeded $15.8 million, 75% ($11.8 million) of which was a direct result of livestock production[10].

Lastly, a Missouri study evaluated the effects of concentrated animal feeding operations (dairy, poultry, and swine) on an individual county, Vernon County. This study is unique because it also evaluated the economic impacts from livestock taxes paid to the county government. The results of the study indicated that the total annual impact of livestock receipts exceeded $132 million, while the total annual impact from livestock tax receipts was approximately $200,000. The study also provided insight on local cost of production impacts. Cost of production data indicates that approximately 2/3 or $58 million is spent on expenses that will directly impact the local economy, such as feed, labor income, utilities/fuels/repair, and veterinarian expenses. Jobs created as result of livestock production in the county was 392[3].

Species Specific Impacts

The following sections provide more specie specific information on the economic impact livestock production

Swine Operations

* An Indiana study (2007) found that the total economic impact of pork production exceeded $2.9 billion. The pork industry employed over 13,200 jobs. Labor income (salaries) were approximately $446 million. The average salary for all jobs related to pork production was approximately $33,700[11].

* An Iowa study (1998) found that 150-sow operation would create 1.4 direct and 2.7 total jobs with $62,348 in employee income. A 3,400-sow operation would create 21 direct jobs and 40 total with total employee income of more than $1 million. The 300-sow operation would pay $1,327 in local property taxes and the 3,400-sow operation would pay $27,972 [13].

* According to an Illinois study (1997), adding a 2,400-sow farrow-to-finish operation to the state would generate more than $5 million in direct sales and over $9.6 million in total output[6].

* In Colorado, farrowing operations add 3-4 jobs per 1,000 sows (1995). Employee salaries begin at $14,000-18,000 with the mean reported salaries for farrowing operations being $20,000-22,000 [15].

* A Missouri study (1994) estimated that an 80,000-sow farrow-to-finish complex would create 2,739 permanent jobs during the operation phase and provide $199 million in personal income. The increase in annual output for Missouri would be almost $655 million dollars[2].

* In Virginia (1993), a 72,000-sow complex would create 450 direct and 1,035 total jobs during operation. The complex would add $18 million in retail trade to the region during operation[16].

* A Virginia study (1993) estimated that a 5,000-sow contract arrangement would create 73 total permanent jobs and would raise personal income by $1.5 million during operation. A 5,000-sow independent arrangement (owned by several local producers) would create 83 permanent jobs and increase personal income by $2.4 million during operation[17].

* A Minnesota study (1991) estimated the impact of a 1,200-head sow operation finishing 24,000 hogs per year in Redwood County. The total value added would be $1.5 million dollars in the county and $1.9 million in the state. The operation would create 18 jobs in the county and 26 in the state[9].

Dairy Operations

* Indiana dairy industry's (2007) total economic impact for 2004 was $986 million. The dairy industry created over 7,300 jobs and $229 million paid in salaries. The average salary for the industry was approximately $31,000 (2007)[11].

* Adding a 400-cow dairy operation in Illinois (1997), would add an additional $1.4 million in total output to the economy[6].

* Another Illinois study (1992-2000) compared dairies with intensive grazing, traditional production with and without purchased feed and a concentrated operation with purchased feed. Results indicate that, based on enterprise budgets, intensive grazing had the minimum cost per cow input and the highest net return per cow followed by the concentrated feeding system and finally the traditional system. Based on a percentage of receipts, the intensive grazing system had the highest returns followed by the traditional dairy system that grew the majority of the feed[5].

Beef Operations

* Indiana's beef industry (2007) had a total economic impact for 2004 of $317 million. Jobs created and salaries paid were 2,100 and $65 million respectively. The average salary for the beef industry jobs was approximately $30,000 [11].

* An Illinois study (1997) estimated the economic impact of the addition of a 2,400-head beef feeding operation to be $1.5 million in direct sales and a total $2.5 million in total output to the states economy[6].

Poultry Operations

* The total economic impact of the Indiana poultry industry (2007) in 2004 was $1.7 billion. There were approximately 12,000 jobs associated with the industry. Salaries paid exceeded $368 million with average salaries equal to $30,000[11].

Tax Impacts

Since modern livestock production concentrates more animals on less land and increases capital investment in buildings and equipment, the tax base increases relative to other forms of agricultural production. This causes increased property taxes associated with confinement production because livestock, buildings, and equipment involved in production are subject to property taxes[3].

Sales tax can also be used as an indicator of increased or decreased economic activity in an area. A Virginia study showed that the tax burden to citizens decreased after the construction of a 72,000-sow operation, relative to the tax burden prior to the construction of the complex[16]. Another study in Virginia estimated the difference in tax burden between independent and contract hog production of a 5,000-sow business. The study found that tax burden on the original tax base (tax base before the construction of the facilities) would decrease more with contract facilities than with independent operations; however both systems would result in a decreased burden on the original tax payers[17].

Labor Requirements

One difference between contract and independently owned operation is the requirement and employment of labor. In the contract operations more jobs will be within the operation (feed handling, transportation, etc.) whereas independent operators will tend to purchase these services from the local community[17].

One Missouri study compared figures from a contract operation to information from Missouri Information Record (independent operations). It found that with independent operations 12.6 employees were necessary to produce slightly less value in hogs than 4.5 employees in contract production. However part of difference in employment is due to the fact that independent producers often produce the feed products used, requiring more labor, whereas contract production operations purchase feed[8].

Efficiency

The efficiency of animal production continues to increase. One study found that farms with above average overall efficiency were relatively larger farms and they received a higher percent of their income from dairy and swine production. These larger farms have significantly higher profit margins and lower expense ratios[12].

Risk and Access to Capital

Authors of an Ohio study stated that lenders are more willing to lend money to low-income contract producers with a set year production contract who are constructing facilities than to larger independent producers who are subject to annual market instability[1].

References

[1] Council for Agricultural Science and Technology. "Vertical Coordination of Agriculture in Farming-Dependent Areas." Task Force Report No. 137, March 2001.

[2] DiPietre, D. and C. Watson. "The Economic Effect of Premium Standard Farms on Missouri." CA144, University extension, Commercial Agriculture Program, University of Missouri, 1994.

[3] Edwards, Seanicaa and Ray Massey. "Economic Impact of Concentrated Livestock Production in Vernon County." University of Missouri Extension. Commercial Agriculture Program. May 2010.

[4] Edwards, Seanicaa and Ray Massey. "A Case Study of Three Missouri Counties: The Impact of Livestock Production." University of Missouri Extension. Commercial Agriculutre Program. December 2010. MP747.

[5] Eberle, P. R., W. C. Peteron, C. M. Rendleman and M. Ruwali. "Economic Impacts on the Illinios Economy of Alternative Dairy Production Systems." Selected paper presented at the Southern Agricultural Economics Association Annual Meeting, Mobile, AL, February 2003.

[6] Goldsmith, P. and H. Idris. "The Economic Impact of Illinois's Livestock Industry." Special Publication 94, College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Champaign-Urbana, November 2001.

[7] Goldsmith, Peter and Durga Saripally. "The Economic Impact of Illinois's Livestock Industry." College of Agricultural, Consumer and Environmental Sciences, University of Illinois Urbana-Champaign. 2007.

[8] Ikerd, J. E. "Sustainable Agriculture: An Alternative Model for Future Pork Producers." In The Industrialization of Agriculture Vertical Coordination in the U.S. Food System. Ashgate Publishing Company, Brookfield, VT, 1998 (pp 265-291).

[9] Jahae, I. and L. van Staalduinen. "Applications of Input-Output Methodologies for Local Community Impact Analysis: Swine Production in Redwood County Minnesota." Staff Paper P92-12, Department of Agricultural and Applied Economics, University of Minnesota, May 1992.

[10] Lemke, Kenneth M. "Economic Importance of and Economic Impacts Associated with Livestock Production in Dixon County" Nebraska Public Power District. July 2007.

[11] Mayen,C. and K. McNamara."The Economic Impact of the Indiana Livestock Industries." Purdue Extension, Purdue University, 2007. http://www.extension.purdue.edu/extmedia/ID/cafo/ID-354.pdf

[12] Morgan, J. D. and M. R. Langemeier. "Impact of Farm Size and Type of Competitive Advantage." Selected paper presented at the Southern Agricultural Economics Association Annual Meeting, Mobile, AL, February 2003.

[13] Otto, D., P. Orazem, and W. Huffman. "Community and Economic Impacts of the Iowa Hog Industry." In Iowa's Pork Industry-Dollars and Scents, pp. 25-28. Ames, IA: Iowa State University, 1998.

[14] Promar International. "Animal Agriculture Economic Analysis: 1999-2009" Prepared for United Soybean Board. Alexandria, VA. June 2010.

[15] Seidl A. and J. Gannis. "Community and Natural Resource Economic Issues and the Swine Industry." Agricultural and Resource Policy Report, APR98-04. Department of Agriculture and Resource Economics, Colorado State University, October 1998.

[16] Thornsbury, S., S. M. Kambhampaty and D. Kenyon. "Economic Impact of a Swine Complex in Southside Virginia." Rural Economic Analysis Program Report 17, Department of Agricultural and Applied Economics, Virginia Tech, 1993.

[17] Thornsbury, S., S. M. Kambhampaty and D. Kenyon. "The Economic Impact of Increased Swine Production in a Rural Virginia County." Rural Economic Analysis Program Report 12, Department of Agricultural and Applied Economics, Virginia Tech, 1993.