

# Animal Agriculture and the Environment

## Economic Impacts of Hog Operations

For some time there has been concern over the net economic impact on rural communities of new and expanding livestock production facilities. As with many controversial issues, there are often “winners” and “losers” associated with local changes in the livestock industry. The purpose of this fact sheet is to succinctly summarize the current literature regarding associated economic impacts.

Often the first question raised is how new livestock facilities affect local property values. This question is difficult to answer easily or universally because each situation will have a significant number of unique factors involved that ultimately drive resulting property valuation adjustments. Similarly, extrapolating the results from site-specific studies is complicated because the characteristics of various locations and livestock facilities vary widely. Nevertheless, recent research has provided some evidence about property value impacts of livestock operations.

- Analyses of residential sales in rural Pennsylvania between 1998 and 2002 and in southeastern North Carolina in 1992-1993 suggest that the impact of livestock operations on property values declines with distance from livestock facilities (Ready and Abdalla; Palmquist, Roka and Vukina).
- Ready and Abdalla found livestock operations exhibit negative impacts on residential property values. Property valuation reductions are estimated to be 6.4 percent and 1.6 percent for homes within 500 and 1,200 meters, respectively, of livestock facilities. The study of property valuations in rural Pennsylvania also found that the size of negative property value impacts does not necessarily increase as livestock operations increase in size.
- Research on residential property sales during 1992-2002 in Iowa concludes that moderately sized operations negatively affect neighboring property values and that the moderate-sized operations have a greater impact than larger operations. The authors hypothesize that management, facility age and types of manure handling systems of larger operations may mitigate negative effects. The estimated average property valuation decrease was 8 to 9 percent for introduction of a moderately sized livestock facility 1/2 mile upwind from a home previously located at least 3 miles from the nearest livestock facility (Herriges, Secchi and Babcock).
- An evaluation of residential property sales during 1993-1994 in rural Minnesota revealed that the existence of nearby livestock facilities positively affects property values. The estimated average property value increase was 6.6 percent (Taff, Tiffany and Weisberg).
- Examination of 1979-1999 Illinois farmland transactions reveals that the more swine operations increase in size, the more positive influence they have on nearby farmland values. Higher concentrations of farms (more farms in a given geographic area) exhibit negative impacts on farmland valuation (Huang, Miller, Sherrick and Gomez).
- Mixed evidence exists of differences in impacts across livestock species. In a Colorado study, Park, Seidl and Davis found the existence of nearby beef and dairy cattle operations to be positively correlated with residential sales prices, but swine and sheep operations were negatively correlated. However, the Ready and Abdalla assessment of impacts in Pennsylvania suggests no significant difference in impacts across species.

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A second issue of importance is how the broader local community is economically affected by introduction of a new livestock operation. It is important to appreciate that the hog industry consists of a series of activities, from production of feed inputs through actual hog production to the processing and distribution of pork products. Hence the total economic effect of the hog industry is much larger than direct employment and activity on swine farms. Local economies that are more heavily involved in the various stages of the industry; for example, growing the feed inputs, raising the hogs and operating slaughtering faci-

ties stand to reap a higher portion of the total economic benefits than communities that are less involved in the cumulative industry activities. It is important to note again that each case tends to have a significant number of unique factors involved that ultimately drive resulting economic impacts. Some main points available from current research include:

- A study of hog operations in Iowa suggests that wages per worker (Table 1) and net fiscal benefit to local communities increase with operation size (Table 2) (Otto, Orazem and Huffman).

**Table 1. Employment and Earnings Summary**

	Size of Operation			
	150 Sows	300 Sows	1,200 Sows	3,400 Sows
Direct Employment (jobs)	1.4	3.0	10	21
Employee Income	\$40,750	\$87,100	\$294,686	\$709,097
Earnings/Worker	\$29,107	\$29,033	\$29,496	\$33,767
Earnings/Worker/Sow	\$194	\$97	\$25	\$10
Secondary Employment (jobs)	1.3	2.7	9	19
Employee Income	\$21,598	\$46,163	\$156,183	\$375,821
Earnings/Worker	\$16,614	\$17,097	\$17,354	\$19,780
Earnings/Worker/Sow	\$111	\$57	\$14	\$6
Total Employment (jobs)	2.7	5.7	19	40
Employee Income	\$62,348	\$133,263	\$450,869	\$1,084,918
Earnings/Worker	\$23,092	\$23,379	\$23,730	\$27,123
Earnings/Worker/Sow	\$154	\$78	\$20	\$8

*Source: Otto, Orazem, and Huffman*

**Table 2. Fiscal Impact Summary**

	Size of Operation			
	150 Sows	300 Sows	1,200 Sows	3,400 Sows
County Revenue	\$1,474	\$3,435	\$13,032	\$30,522
City Revenue	\$1,964	\$2,108	\$7,024	\$14,414
All Revenues to Local Schools	\$3,062	\$4,168	\$13,891	\$32,028
Total Local Revenue	\$6,501	\$14,336	\$50,944	\$112,902
County Expenditures	\$998	\$6,732	\$24,021	\$50,353
City Expenditures	\$1,344	\$2,792	\$9,301	\$18,592
Total Local Expenditures	\$5,405	\$11,631	\$40,346	\$83,358
Net Benefit	\$1,096	\$2,704	\$10,598	\$29,544
Net Revenue to State Gov't	\$2,401	\$5,157	\$17,512	\$43,720
Estimated Local Property Taxes Paid by Operators	\$1,327	\$2,806	\$12,516	\$27,972

*Source: Otto, Orazem, and Huffman*

- Thompson and Haskins suggest that operation of one 3,400-sow unit employs 11 fewer people than twenty-three 150-sow units would employ. However, this analysis incorrectly assumes that operation size has no impact on firm competitiveness or likelihood of survival in the future.
- In an examination of swine operations in Minnesota, Lazarus et al. found that more than 85 percent of the inputs purchased by producers surveyed were purchased within the state. Construction supplies were found typically to be purchased from outside the state and 99 percent of complete feeds and 89 percent premixes were found to be purchased in the state.

A third issue that may arise in evaluating the impact of new livestock facilities is the characteristics of employees likely to be involved in the new operation. A comparison between educational levels of employees in the swine industry and the general U.S. population suggests that swine industry employees are more likely to have completed high school and to have obtained college degrees (Table 3). Using data from a national survey of both pork producers and employees, Hurley, Kliebenstein and Orazem found that larger operations pay higher wages, offer more generous benefit packages and have better work environments. The researchers note that this possibly reflects the need for more skilled labor to couple with the newer technology and the higher costs of turnover relative to smaller operations.

## References

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**Table 3. Education Comparison**

Highest Completed Education	Swine Industry Employees	U.S. Population
No High School	4.2%	19.6%
High School	36.7%	28.6%
Some College	24.8%	27.4%
College Degree	34.2%	24.4%

Sources: Hurley, Kliebenstein, and Orazem USDA-ERS