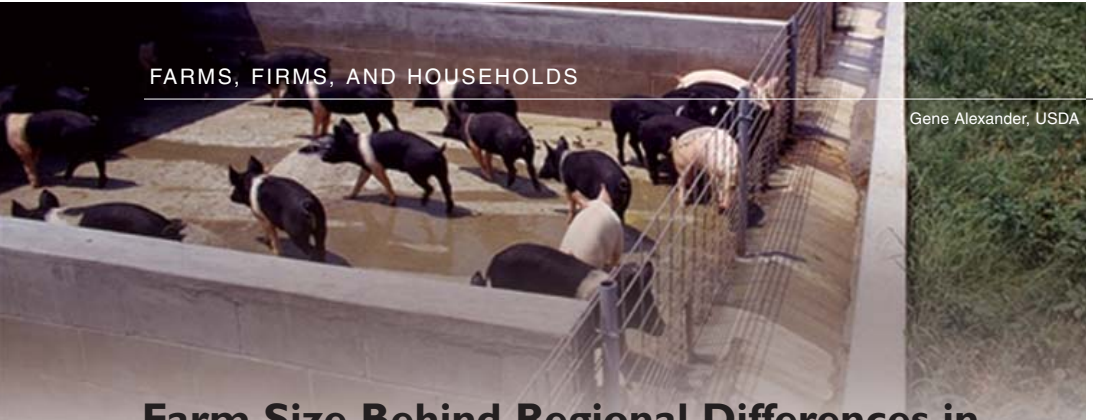

Gene Alexander, USDA

Farm Size Behind Regional Differences in Hog Output and Productivity

In recent years, there have been substantial geographical shifts in hog production and differences in hog farm productivity growth rates. ERS research indicates that changes in farm size explain much of this regional variation.

The Heartland and Southeast regions (see table footnotes for definitions) together account for three-quarters of U.S. feeder pig-to-finish hog production. Between 1992 and 1998, hog farms in the Southeast and other regions grew at a faster rate than farms in the Heartland. As a result, hog production shifted from the Heartland to the Southeast and other regions. Between 1998 and 2004, the average size of hog farms in the Heartland doubled, while farms in the Southeast grew at a slower rate (though starting from a larger base). As a result, the Heartland's share of hog output grew 10 percentage points while the Southeast's share declined.

Policy changes at the State level help explain the Southeast's decline in output share and farm size growth rate. Farms in North Carolina produce, on average, over 90 percent of hog output in the Southeast. In 1997, North Carolina passed the Clean Water Responsibility and Environmentally Sound Policy Act, which imposed a moratorium on the construction or expansion of new or existing hog operations with 250 or more head. Exceptions included new construction using "innovative animal waste management systems that do not employ an anaerobic lagoon." North Carolina extended the moratorium several times through 2007 and passed legislation that strictly regulates manure management systems.

Regional changes in feed productivity (hog output per unit of feed) display a similar pattern to output share. From 1992 to 1998, farms in the Southeast attained larger increases in average feed productivity than did farms in the Heartland. Between 1998 and 2004, this pattern reversed, with average feed productivity in the Heartland more than doubling.

ERS research indicates that trends in total farm productivity, which aggregates the productivity of all major inputs, mirrored trends in farm output and feed productivity. Productivity increased more in the Southeast between 1992 and 1998 and more in the Heartland between 1998 and 2004. These regional differences in productivity growth since 1992 are explained mostly by different rates of growth in farm size (larger farms operate at a more efficient scale of production) rather than different rates of technical innovation. Consequently, policies to regulate hog enterprise expansion, like the North Carolina moratorium, can have an indirect, but adverse effect on productivity growth.

Hog farm size explains regional differences in productivity growth

	1992	1998	2004
		Percent	
Share of feeder pig-to-finish output			
Heartland	58	35	45
Southeast	20	32	25
Other regions	22	32	30
		Hundredweight (cwt) gain per farm	
Average farm output			
Heartland	1,700	5,400	11,300
Southeast	2,300	20,800	25,100
Other regions	1,100	10,500	13,000
		Cwt gain per cwt feed	
Feed productivity			
Heartland	0.29	0.31	0.76
Southeast	0.28	0.44	0.63
Other regions	0.24	0.31	0.63

Note: Regions are defined by States: Heartland (IA, IL, IN, KY, MO, and OH); Southeast (AL, AR, GA, NC, SC, and VA); and other regions (CO, KS, MI, MN, NE, OK, PA, SD, TN, TX, UT, and WI). Hundredweight gain equals hundredweight of hogs sold or removed under contract less hundredweight of hogs purchased or placed under contract, plus hundredweight of inventory change each year.
Source: USDA, Economic Research Service, using data from USDA's 1992 Farm Costs and Returns Survey and the 1998 and 2004 Agricultural Resource Management Surveys.

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This article is drawn from . . .

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