

Change in U.S. Livestock Production, 1969-92

William D. McBride

Introduction

The trend toward fewer and larger farms that has characterized agricultural production was most dramatic in the livestock industry during the 1970's and 1980's. The total number of U.S. farms fell from about 2.73 million in 1969 to about 2.26 million in 1978 and to about 1.93 million in 1992, a total decline of nearly 30 percent (U.S. Dept. of Commerce, *Census of Agriculture*).¹ However, the decline in farm numbers was much more prominent in sectors of the livestock industry (fig. 1). The number of farms with hog or dairy operations was down by more than 70 percent from 1969 to 1992, while farms producing eggs dropped 85 percent. Likewise, the number of farms selling broilers was about 35 percent lower in 1992 than in 1969, and cattle feeding operations declined 40 percent from 1978 to 1992.

Despite fewer livestock farms, animal sales and inventories were generally stable among the major livestock commodities from 1969 to 1992. Only in broiler production did sales increase sharply, up more than 100 percent, in response to an increased demand for poultry meat products (fig. 1). Hog sales rose about 23 percent between 1969 and 1992. Fattened cattle sales and beef cow inventories declined somewhat due to the strong demand for other meat products relative to beef. The milk cow inventory was also lower, but milk production increased as productivity improved (Perez). Likewise, the layer hen and pullet inventory declined from 1969 to 1992, but egg production was up as output per bird increased (USDA ERS, 1995b). With stable production spread over fewer farms, the average size of livestock opera-

tions increased and production became increasingly concentrated among larger producers.

Reimund, Martin, and Moore characterized structural change in agriculture using a model that describes change as a four-stage process: (1) technological change, (2) shift in location of production, (3) growth and development, and (4) adjustment to risks (fig. 2). According to this model, the initial stages of change involve the development of new technologies that increase capital requirements, improve productivity, and result in economies of size. The new technologies are employed in nontraditional production areas and producers in these areas gain a competitive advantage. Innovation causes growth and development of the industry as production becomes more specialized and concentrated among larger units, productivity increases, and sources of risk are amplified. Finally, adjustments to risk are made, such as through the coordination of production and marketing, and all stages become more industrialized. This conceptual model will be used, along with supporting data, to characterize change in major livestock production sectors.

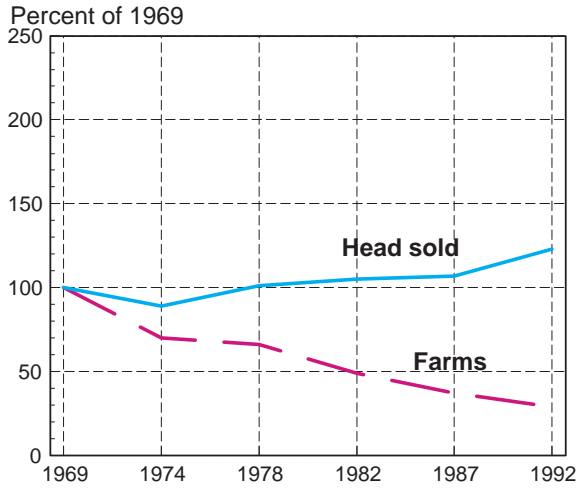
This report examines change in the U.S. livestock production industry during the period from 1969 to 1992 from the standpoint of industry concentration and structure. Livestock sectors examined in this report include hogs, dairy, beef (cow-calf and fed cattle), and poultry (broilers and layers). Concentration of production refers to the size distribution of livestock operations and the relative share of production provided by various groups of operations. The structure of production refers to the number and size of livestock operations in each of the various sectors. In this report, the extent of changes in industry concentration and structure are presented as geographic patterns of change during the 1969-92 period.

¹Names in parentheses refer to sources listed in the References section.

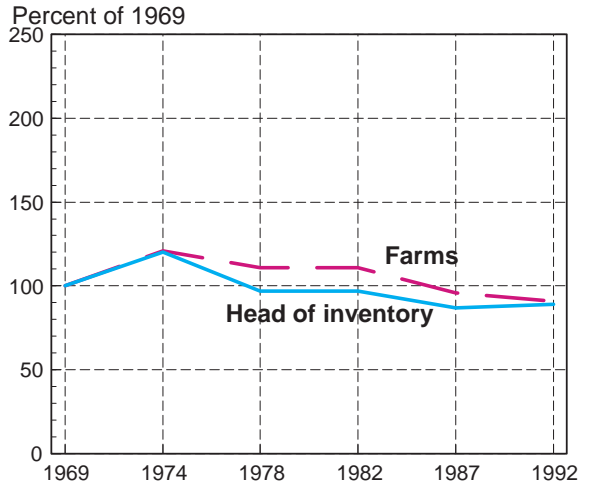
Figure 1

Livestock farms and head sold or inventory for major commodities in each census of agriculture, 1969-92

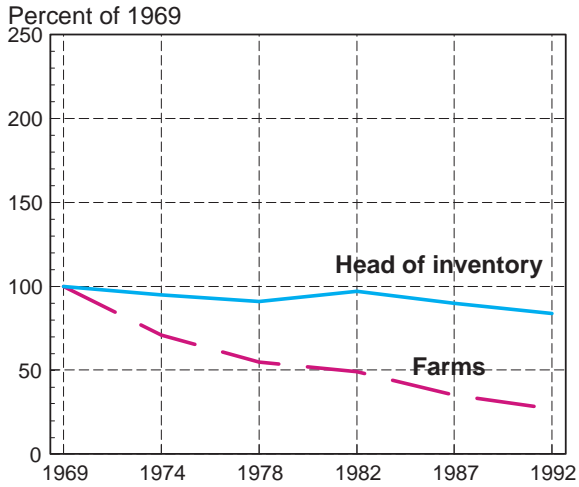
Hog and pig farms and sales



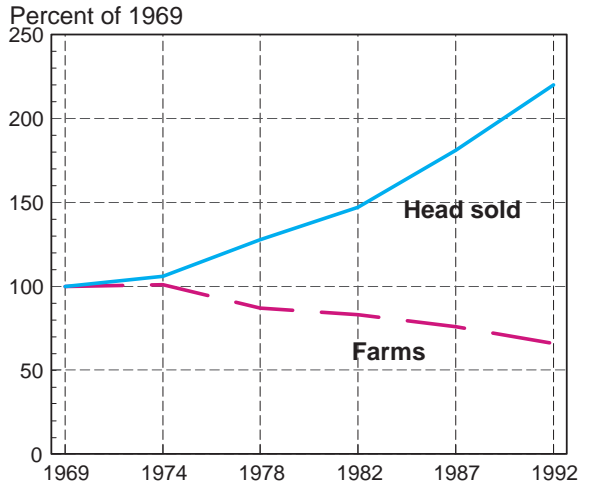
Beef cow farms and inventory



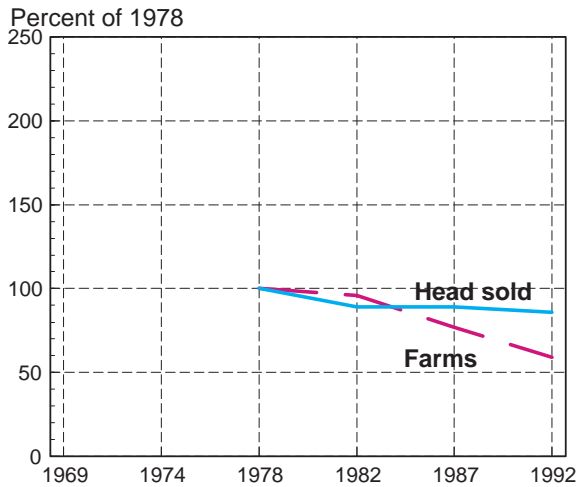
Milk cow farms and inventory



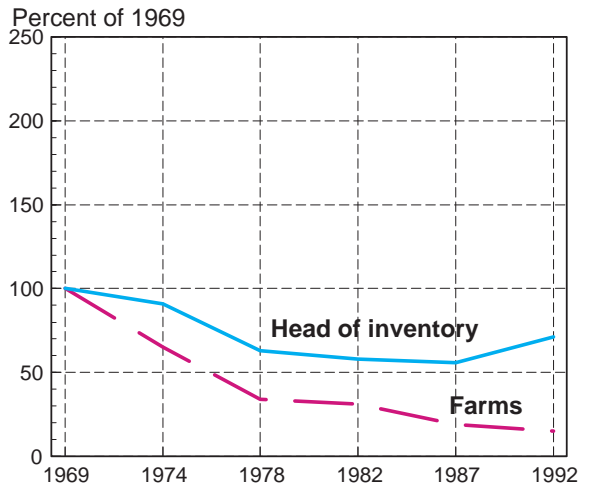
Broiler farms and sales



Fattened cattle farms and sales 1/



Layer hen and pullet farms and inventory



1/ Data on fattened cattle farms and head sold were available from only 1978 to 1992. Source: Compiled by ERS using census of agriculture data.

The process and implications of structural change are more closely examined in the hog and milk production sectors. Forces behind structural change in these industries are identified by examining economic incentives for change. Also, implications for future change are discussed with regard to these economic

incentives. Both the hog and milk production sectors experienced major changes during 1969-92 and the availability of detailed data on these industries provides a unique opportunity for studying the forces of change in livestock production.

Figure 2

A conceptual structural change model

Stages of structural change			
I. Technological change	II. Shift in location of production	III. Growth and development	IV. Adjustment to risks
New technology is developed and employed by some large producers and early adopters	New producers and new capital and other resources enter the subsector in new producing areas	Innovative and aggressive entrepreneurs develop larger farms as new production technology is extended	New risk aversion strategies are developed New types of coordinating procedures are established
Capital requirements increase	Interregional competitive balances change in favor of new producing areas	Specialization and concentration of production occurs	The use of forward sales and production contracts increase
Output per unit of land and labor increase	Production begins to concentrate spatially in new areas	Market economies develop in all stages of the subsector in new growth areas	More coordination develops Control of product flows and characteristics shift from producers to nonfarmers or other stages of the food and fiber sector closer to the final consumer
Economies of size develop The value of resources increase in new producing areas	Producers employ new production technology as they enter into production in new areas	Output per farm increases rapidly New information systems develop Rapid growth and concentration alters risks New producers are risk takers, aggressive and innovative High risks are associated with inefficient operations and coordination procedures Periods of overproduction amplify market risks	All stages become more industrialized

Source: Reimund, Martin, and Moore.