

Cornhusker Economics

Cooperative Extension

Institute of Agriculture & Natural Resources
Department of Agricultural Economics
University of Nebraska – Lincoln

The Impact of Publicly Funded Research on the Structure of U.S. Agriculture

Market Report	Yr Ago	4 Wks Ago	11/9/01
<u>Livestock and Products,</u>			
<u>Average Prices for Week Ending</u>			
Slaughter Steers, Ch. 204, 1100-1300 lb Omaha, cwt	\$71.34	\$68.20	\$64.39
Feeder Steers, Med. Frame, 600-650 lb Dodge City, KS, cwt	89.62	87.90	86.21
Feeder Steers, Med. Frame 600-650 lb, Nebraska Auction Wght. Avg	95.06	96.01	89.90
Carcass Price, Ch. 1-3, 550-700 lb Cent. US, Equiv. Index Value, cwt	107.97	108.48	100.22
Hogs, US 1-2, 220-230 lb Sioux Falls, SD, cwt	36.00	38.50	32.00
Feeder Pigs, US 1-2, 40-45 lb Sioux Falls, SD, hd	25.39	32.00	43.50
Vacuum Packed Pork Loins, Wholesale, 13-19 lb, 1/4" Trim, Cent. US, cwt	102.40	112.90	*
Slaughter Lambs, Ch. & Pr., 115-125 lb Sioux Falls, SD, cwt	61.75	*	45.75
Carcass Lambs, Ch. & Pr., 1-4, 55-65 lb FOB Midwest, cwt	149.00	122.99	*
<u>Crops,</u>			
<u>Cash Truck Prices for Date Shown</u>			
Wheat, No. 1, H.W. Omaha, bu	3.15	2.79	2.95
Corn, No. 2, Yellow Omaha, bu	1.95	1.78	1.85
Soybeans, No. 1, Yellow Omaha, bu	4.50	4.05	4.20
Grain Sorghum, No. 2, Yellow Kansas City, cwt	3.43	3.37	3.41
Oats, No. 2, Heavy Minneapolis, MN, bu	1.21	2.06	2.25
<u>Hay,</u>			
<u>First Day of Week Pile Prices</u>			
Alfalfa, Sm. Square, RFV 150 or better Platte Valley, ton	115.00	115.00	115.00
Alfalfa, Lg. Round, Good Northeast Nebraska, ton	75.00	77.50	77.50
Prairie, Sm. Square, Good Northeast Nebraska, ton	82.50	105.00	105.00
* No market.			

In recent years, there has been a substantial increase in the concentration of agricultural production in the United States as the number of farming and ranching operations has declined and the average size of those operations has grown. This increased concentration has been accompanied by increased coordination of production and marketing activities through contracting, consolidation and vertical integration. Although independent family farms and ranches have been responsible for most of the nation's agricultural production historically, small and medium-sized operations are finding it difficult to compete in today's increasingly industrialized food and agricultural sector.

Given these changes, concerns have been raised about the role publicly funded agricultural research has played in determining the structure of agriculture. In particular, these concerns have focused on whether public research has contributed to the increase in the concentration of agricultural production and encouraged industrialization of the food and agricultural sector. In response to these concerns, the U.S. Department of Agriculture (USDA) asked the Board on Agriculture and Natural Resources of the National Research Council to assemble a panel of experts to assess the situation. The panel was asked to evaluate existing theoretical and empirical evidence to assess the effect of publicly funded agricultural research on the size and number of farms, with particular attention to the growth of very large operations. The panel's report, funded by USDA's Economic Research Service, was released on October 3. A republication copy of the 148-page report, *Publicly Funded Agri-*



cultural Research and the Changing Structure of U.S. Agriculture, is available for viewing on the National Academy Press website at www.nap.edu.

In assessing the impact of public research on agriculture, the panel chose to focus on USDA-supported research and extension, including research by state-level partners funded by USDA, as well as other research by state and federally supported institutions, including land-grant universities, agricultural experiment stations and the cooperative extension service.

The panel concluded that public research has indeed been an important factor influencing structural change in U.S. agriculture and that the production and commodity orientation of public research has contributed to increased concentration in the sector. Although little empirical evidence exists on the effects of publicly funded research on agricultural structure, what exists suggests that public research is associated with increases in average farm size and the number and proportion of very large farms (farms of a thousand acres or more). The evidence also implies that some research, such as that focusing on mechanical innovation, is more likely to encourage concentration than research in other areas and that research on biological, chemical, managerial and environmental innovations may have mixed effects on structure.

The panel also concluded that public research and technology transfer are not always scale neutral, i.e., research results are adopted disproportionately by different sizes of farms and ranches. The results of publicly funded agricultural research are more apt to be utilized by larger farm operators who have greater access to financial capital and human resources than smaller operators. Indeed, larger operators are more likely to adopt the products of publicly funded research even when the research itself is scale neutral. Consequently, simply by developing new technologies and introducing change into the agricultural system, public research can favor larger farm operators and make it more difficult for smaller operators to compete.

Nonetheless, the panel affirms that publicly funded research is critical to maintaining a healthy and innovative agricultural sector and believes it can be an important part of an integrated strategy for dealing with distributional inequities and serving farmers who may be neglected by privately funded research programs. However, the panel cautions that public re-

search is not the only factor affecting agricultural structure and it cannot by itself be expected to offset the effects of other structural variables such as market forces and government policies.

The panel's report includes recommendations for developing future research and extension policies and for improving stakeholder access to the knowledge produced by publicly funded research. The panel admits some concern that adoption of its recommendations could result in reduced aggregate economic surplus but contends that the distribution of gains and losses from public research is an equally important issue.

Among its recommendations, the panel suggests that the goals of publicly funded agricultural research should be extended to include other objectives in addition to the traditional objectives of increasing productivity and efficiency. The panel believes that publicly funded agricultural research should be more accountable to the public and recommends increased public participation in setting research priorities in order to advance the needs of a diverse set of stakeholders. The panel contends, however, that the research agenda will continue to emphasize commodity production to the extent that public involvement focuses on existing commodity groups. Consequently, the panel recommends broader representation of stakeholders.

The panel recommends that public research institutions should take a more active role in assessing the heterogeneous research needs of a variety of producers, including under-served and minority groups, and in developing programs and strategies for better serving these groups. The panel also recommends that USDA place a greater emphasis on monitoring and analyzing structural variables and explaining how various factors, including government policies, affect structural change.

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