The Evolving Food System of the United States

Native Americans and the Europeans settlers who subsequently occupied the territory of the United States developed an agricultural and food production system that was largely self-sufficient. Most families produced, processed, and consumed their own food. Families made many of the tools and produced most of the seed they needed, and raised their own animal power. Few items were purchased for food production and processing, but there was very little surplus food or fiber to sell. The family controlled its food system from seed to plate—the ultimate integrated food system. The purpose of colonies, however, was to send raw materials including food and fiber products back to the mother country. The industrial revolution and the development of industrial cities, first in England and then in the United States, required that farmers produce a larger and larger surplus of food for the growing urban market. Government policy encouraged farmers to produce an ever greater excess of food and fiber and to do so with less and less labor. Thus agriculture evolved from a subsistence agriculture to a commercial agriculture in which the role of the farm family was to produce for the market.

In the evolving commercial agriculture system, farmers became separated from the consumers. Increasingly, farmers sold their products to firms which would process and transport the food and fiber to the distant populations. These firms were eager to serve the function of linking the farmer to the con-

William D. Heffernan is a professor of Rural Sociology at the University of Missouri in Columbia, Missouri.
sumer. Although relatively simple at the outset, the food system soon began to develop into many components, or stages, as a result of the specialization of function that is a characteristic of the industrialization model. As specialization evolved, the early “seed to plate” integrated food system developed into a multi-stage food system with hundreds of firms competing at the various stages. As the system developed more stages, the middlemen, as they were often called in the farmers’ movement literature, were not just the firms between the farmer and the public, but also included those enterprises that provided a growing number of inputs such as credit and farm equipment. As the food and fiber products moved from one stage to the next within the processing-distribution sectors, information was available on the price of the product. Many farm products were auctioned at public events where anyone could observe or bid. This was the agriculture and food system which was often held as a model of a competitive system in which 1) no firm bought or sold enough of the total goods or services to influence the price; 2) there was relatively easy entry and exit from any stage; and 3) information regarding the price of the goods and services along the total food chain was available to all. This food system in which the family farm structure was an important component was a good example of the early stage of capitalism. Later, the two processes of horizontal and vertical integration would begin altering the power relations between firms. This led to increased concentration of capital resources, and with it, increased concentration of control in the food system and the decline of the family farm structure.

Capital Concentration and Large Commercial Agriculture

Although elements of the above ideal type of a competitive food system could be found in parts of the United States at various times, it never did exist in many areas of the country. For an individual farmer, the question was not how many firms were involved in the different stages of the food chain across the country, but rather how much of this commodity chain was accessible to his (sometimes her) farm. As farmers moved west, one of their major problems was how to transport their products to markets in the eastern cities. The government, wishing to promote increased industrialization, also perceived the problem and subsidized the construction of transportation systems, especially railroads. This often made
the farmer dependent on a monopoly which could exploit him/her because of the unequal balance of economic power. If a farmer had access to only one railroad, the power relationship certainly favored the railroad. That farmer faced a monopoly regardless of how many other railroads existed in the country. Thus, many farmers faced the issue of monopoly control of capital from the time they became commercial farmers and began to be dependent on a single transportation system to move their products to the market.

Railroads in some parts of the country needed the business of farmers, but they had access to hundreds, if not thousands, of farmers. They were not dependent on any single farmer. Their only concern was that farmers might be successful in organizing a united stand against the railroads. Frank Norris’ agrarian populist novel, *The Octopus: A History of California* (1901), was about a handful of farmers who attempted such a united stand, rising up in direct rebellion, only to be dispatched by the railroads. The whole history of the farmers’ movement is largely about the unequal power balance between farmers and the railroads, and, more generally, between the farmers and all the “middlemen” they depended on for transportation, markets, and a host of inputs such as credit and farm equipment.

In southwestern Minnesota, for example, the selling of water fowl to cities to the East and later the selling of agriculture products, especially grain, all depended on the railroad for transportation. In the case of grain, the farmers also depended on the elevators (large silos) to store and to transfer it from farmers’ wagons to the train. Many of the transnational corporations (TNCs) of today, like Cargill, exercised economic power in many of the local markets in which they began operating. Most farmers’ movements were not successful in establishing alternative economic systems or firms which benefited the farmers, but with the help of legislation to encourage farmer cooperatives, there were some successes. For example, Farmland Industries and Gold Kist, listed on Table 1, are cooperatives. However, other cooperatives, like GrowMark, which has been bought by Archer Daniels Midland (ADM), exist today only as purchasing subsidiaries of TNCs.
Horizontal Integration

Most food firms started as relatively small, local firms, but as they became profitable they expanded their operations into other geographic areas. The expansions occurred through building new facilities, acquisitions, and mergers. The expansion of a firm within the same stage of the food system as their original operation is called horizontal integration. For example, the increase in size and decrease in the number of farms in the United States during most of this century is an example of horizontal integration. Horizontal integration also occurs at each of the other stages of distribution and processing. Although there are great variations among the different commodity sectors regarding the ways concentration of ownership and control have occurred in processing and distribution stages, the same general pattern of fewer and larger firms in each stage has been underway during the last half of the twentieth century in the United States and has become most obvious during the last decade at the global level.

In some commodity sectors, one can point to significant concentration of the processing firms in even the first half of the century. For example, pork and beef slaughtering and processing were dominated by Wilson, Armour, and Swift as we entered the twentieth century. Opposition to their practices in the Chicago stockyards inspired Upton Sinclair’s The Jungle (1906) and led to the passage of the first Food and Drug Act that same year. And their collusion to set monopoly prices was largely responsible for the creation of the Packers and Stockyards Agency of the U.S. Department of Agriculture (USDA) in 1921 to monitor predatory practices. The Swift and Armour brand names exist today, but the firms were bought by ConAgra, which also bought Miller and Monfort. Some would argue that the fact that these firms do not exist today suggests that even firms with significant economic power can themselves be eliminated. But the important point is that they were absorbed within the larger agglomeration of capital. Still it is true that with the continuing trend toward concentration and centralization of capital no firm is safe from takeover or elimination in other ways. (This is often used as justification for why no government action should be taken to interfere with the free market.) The extent of the concentration of the processing stage of selected major meat and crop commodities is shown in Table 1 (see page 50).
TABLE I
The Four Largest Commodity Processing Firms and Percent of U.S. Market Share They Control

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Processing Firms</th>
</tr>
</thead>
</table>
| Broilers (meat Chickens) | 55% of production  
Tyson Foods, Gold Kist, Perdue Farms, ConAgra                                |
| Beef            | 87% of slaughter  
IBP, ConAgra (Armour, Swift, Monfort, Miller), Cargill (Excel),  
Farmland Industries (National Beef)                                            |
| Pork            | 60% of slaughter  
Smithfield, IBP, ConAgra, Cargill                                              |
| Sheep           | 73% of slaughter  
ConAgra, Superior Packing, High Country, Denver Lamb                            |
| Turkey          | 35% of production  
ConAgra (Butterball), Wampler Turkeys, Hormel (Jennie-O),  
Rocco Turkeys                                                                |
| Flour Milling   | 62% of milling  
Archer Daniels Midland, ConAgra, Cargill,  
Cereal Food Processors                                                         |
| Soybean Crushing| 76% of processing  
Archer Daniels Midland, Cargill, Bunge, Ag Processors                            |
| Dry Corn Milling| 57% of milling  
Bunge, Illinois Cereal Mills, Archer Daniels Midland,  
ConAgra (Lincoln Grain)                                                         |
| Wet Corn Milling| 74% of milling  
Archer Daniels Midland, Cargill, Tate and Lyle, CPC                             |

Source: W. Heffernan, "Concentration of Agricultural Markets," Unpublished paper, Department of Rural Sociology University of Missouri-Columbia (October, 1997).

Forty percent or more of the processing of all agricultural commodities in the Midwest are controlled by the four largest firms. Although debate continues in the United States and in other countries on what constitutes an oligopolistic or near oligopolistic market, much of the economic literature suggests that when four firms control 40 percent of the market, they are able to exert influence on the market unlike that in a competitive system. In the meat sectors 87 percent of the beef cattle are slaughtered by the four largest firms (81 percent by the largest
three) and 73 percent of the sheep are processed by the four largest firms. The control of hog slaughtering by the four largest firms increased from 37 percent in 1987 to 60 percent today. Over one half (55 percent) of the broilers (chickens produced for meat) today are produced and processed by the four largest firms, with Tyson now producing and processing almost one third of the broilers in the United States. In the crop sectors, the four largest firms process from 57 percent to 76 percent of the corn, wheat, and soybeans in the United States.

Like the narrow opening of an hour glass which controls the flow of sand from the top to the bottom, the processing firms are positioned between the thousands of producers and millions of consumers in the United States and the world. These firms have a disproportionate amount of influence on the quality, quantity, type, location of production, and price of the product at the production stage and throughout the entire food system. The only stage in which a set of firms begins to equal the economic power of the food processors is the retail stage, which is also becoming more horizontally integrated. The interface between the processing and retail stages is currently where the giants of the food system interact. Certainly, it is not an area characterized by easy entry and exit. How many firms in the world have sufficient capital to face the economic power of these two sets of firms?

Advantages of Cross-subsidization to Concentrated Capital

In the food system, horizontal integration usually refers to expansion in the same stage of the same commodity sector. However, if one considers the sector to be meat, then horizontal integration would include the total meat sector. The data in Table 1 indicate that some firms are active in several different parts of this sector. For example, ConAgra ranks in the top four firms in the processing of beef, pork, broilers, sheep, turkeys, and seafood (which is not on the list). Spokespersons for the industry frequently highlight the competition for the public's dollar between different meats, such as the competition between beef and poultry. They frequently use the competition between meats to argue that the producers must make certain changes in their practices. This competition between commodities is also frequently used to justify the check-off system in which a per-animal fee paid by farmers is used primarily to support product promotion and research. The cost of the check-off system is borne by the producers, but there is growing
concern as to who is benefiting. Currently the Livestock Marketing Association is leading a petition drive to force a beef producer recall referendum on the check-off programs. Their argument is that “after $1 billion spent in promotion and research over the first 10 years of the program, beef demand is still declining” (Feedstuffs, March 2, 1998, p.5). They suggest the check-off funds are being spent directly or indirectly on projects that benefit processors and retailers rather than beef producers, and that the results are increased concentration and integration of the industry. One can ask how much competition exists between the different meat products when key decision-makers are involved in more than one part of the meat sector.

The movement of firms into the processing of several commodities may at one level be an extension of horizontal integration, but it also represents a major qualitative change in the economic power relationships. When a firm has a dominant position in several commodity systems, it can cross-subsidize. Firms operating in more than one commodity system gain economic power because they can survive a major loss in one commodity system over a long period of time if they are making significant profits in other systems. If a loss continues very long in a single-product firm’s only commodity, it faces serious financial difficulty.

Lane Poultry was the largest broiler producer and processor in the United States following its purchase of Valmac Industries in 1980, but it was still a single-product producer. Lane lost Valmac Industries and then was itself purchased by Tyson Foods because of its economic losses in nine of eleven consecutive quarters in the late 1970s and early 1980s. Being the largest firm in a commodity sector, but a single product producer, does not assure enough economic power to survive. Larger firms with profits in other sectors or systems have more economic power and may overtake them. Information we obtained from executives of a couple TNCs involved in broiler production at the time indicated that the goal of their firms was to obtain a larger share of a growing market. (This was a time when per capita consumption of poultry was increasing rapidly while beef consumption was decreasing in the United States)

Planned overproduction and selling below cost of production also occurred in the farm-raised catfish sector early in the 1980s. Two major catfish cooperatives, Southern Pride and Delta Pride, experienced the problem of competing against ConAgra, Cargill, and Chiquita, the parent company of Morril
(now owned by Smithfield). The three TNCs were able to cross-subsidize. The cooperatives survived despite the fact that the annual report of one of the TNCs showed a loss in the catfish division for two years because of “overproduction” in the sector. Conversations with some of the TNC’s personnel indicated the firm was prepared to extend this loss for another year or two. We concluded that because the five firms absolutely dominated the production and processing of farm-raised catfish at the time, the low prices were the result of overproduction and an effort on the part of the TNCs to gain market share at the expense of the members of the cooperatives. In fact, Cargill, which has now exited the sector, entered the catfish sector during the time of negative profits with plans to increase catfish production. Like the broiler and catfish sectors in the past, the hog sector is currently involved in a large increase in production even when prices are low and are predicted to stay low. The issue is market share, not efficiency. Large firms that can cross-subsidize can operate in this arena, but smaller, nondiversified firms cannot survive. Economic power, not efficiency, predicts survival.

Vertical Integration

The second major strategy of monopoly capital is vertical integration. Vertical integration occurs when a firm increases ownership and control of a number of stages in a commodity system. Just like diversifying into different commodity sectors (horizontal integration), this structure gives the firm more economic power. Data in Table 1 provide some indication of the extent of vertical integration when one notes that feed grain is very important in livestock production. A firm like Cargill is one of the three major global traders of grain (the major ingredient in animal feed), the second largest animal feed producer, and one of the largest processors of hogs and beef. Many livestock producers purchase their feed from the same firms to which they sell their animals.

Another example of the extent of vertical integration in the food system comes from ConAgra’s annual report. ConAgra indicates that it is the largest distributor of agricultural chemicals in North America, one of the largest fertilizer producers, and in 1990 it entered the seed business. (Since then it has formed a joint venture with DuPont and formal relationships with some of the seed companies involved in biotechnology). ConAgra owns 100 grain storage elevators, 2,000 railroad cars, and 1,100 barges. ConAgra is the largest turkey producer and
second largest broiler producer. It produces its own poultry feed, as well as other livestock feed. It also owns and operates hatcheries. ConAgra hires growers to raise its birds and then it processes the birds in its own facilities. This broiler meat can then be purchased as fryers under the name of Country Pride or in further processed foods such as TV dinners and pot pies under the labels of Banquet and Beatrice Food. From the basic raw materials for agricultural production to the retail store, a significant proportion of the food system is owned and controlled by ConAgra. ConAgra is the second largest food firm in the United States (behind Philip Morris) and the fourth largest in the world, with operations in thirty-two countries.

In the subsistence food system, the family controlled its food from seed to plate. In the emerging vertically integrated food system, a few food companies are gaining control of the country's food system by controlling it from seed to shelf. This system is being extended around the world by many of the firms that are headquartered in the United States.

Starting in the 1950s and 1960s, when feed companies and others started hatching their own baby chicks, hiring growers to provide labor, buildings, and land, and constructing their own processing facilities for broilers, the farm press and farm community began to focus on contract production. Contract production is very different from forward contracting of a commodity product. Forward contracting is a sales agreement between a farmer and a buyer that involves an agreed upon price and other terms of the sale to be carried out at some future date. Contract production is an industrial model in which the integrating firm outsources a needed ingredient—the agricultural raw product.

In contract production, the growers are required to provide the land and the buildings, and equip the buildings to the integrating firm's specifications while providing all of the labor for the production stage of the system. The growers are thus hired workers paid on a piece rate basis. They never own the birds or the feed, and have no knowledge of the genetics or the feed ration. The integrating firms provided the birds, feed, and medication (see Lewontin article, this issue). All of the major decisions are made by the integrating firm. The growers mortgage their land to raise the capital to build the buildings, which cost over $100,000 each. Typically their repayment schedule extends over a ten- to fifteen-year period, while the contract with the integrating firm goes from one batch of chickens to the next—a period of about six weeks. By the time the buildings are
almost paid off, the equipment needs to be replaced and the buildings need to be modernized. As a consequence, few growers ever get out of debt. It is estimated that although about one half of the capital in the broiler sector comes from the growers, all of the major decisions are made by the integrating firms. The growers are well aware that they can be cut off at any time.

In the early stages of vertical integration in the broiler industry, most growers had access to several integrating firms, but over time the numbers were reduced. For example, in 1969 in Union Parish, Louisiana, there were four integrating firms. Two were locally owned feed operations, and two were operations based out of state. By 1982, the two local firms were no longer integrating firms; they were now growers. The two outside firms were owned by ConAgra and Imperial Foods, one of the largest food companies of England. Within the following year, ConAgra bought the Country Pride broiler facilities from Imperial Foods. The growers report that they have had no price increase since 1982.

Two processes occur that alter the growers' opportunities. First, as the integrating firms in a given geographic area become fewer, the power relationships between growers and the firms become more unequal. Because of transportation and other costs, most integrating firms will send trucks out only about 25 to 30 miles from the processing site to deliver feed and to pick up poultry for processing. Today there are about 40 firms producing about 97 percent of the broilers in this country. In total, they operate about 250 processing facilities. Thus, there are very few growers who live close enough to more than one processing facility to even have an option to choose between integrating firms.

The second process that limits options for growers is that as the number of firms operating in the same geographic area declines to two or three, an informal agreement evolves between integrating firms that they will not raid their competitors' growers. If a grower gets cut off from one integrating firm, they cannot enter into a contract with another. My thirty years of observing the poultry sector suggest that in early capitalism when the growers have access to several integrating firms, the growers experience financial success, but when the system moves to monopoly capital the growers find themselves in financial crisis. The courts have also found that the growers are at the mercy of the integrating firms in other ways. Errors in the weighing of both feed and poultry have become so well documented that
legislation has recently been introduced to address this issue. The USDA has also made a commitment to study this problem.

Globalization and Monopoly Capital

A third way TNCs can cross-subsidize and gain economic power is by operating in many different countries of the world. A firm like Cargill, which has operations in seventy countries, can absorb a loss in one or two countries over a few years as long they have good rates of return in other countries. It is easy to see how TNCs can gain footholds in new countries. They begin by producing or processing a commodity and thus increase the supply of the product which, assuming a given demand, drives the price down. In so doing, the price can drop below the cost of production. A local firm, especially if it is a single product producer, can’t absorb such a loss for long, but a TNC can absorb the loss for a relatively long time.

The food systems of the world are becoming so integrated by the TNCs that it makes little sense to speak of a food system in a single country. For example, not only do IBP, Cargill, and ConAgra process 81 percent of the beef in the United States, they also now have feedlots and slaughtering facilities in Canada and about the same market dominance there. With the passage of the North American Free Trade Agreement, beef can easily travel back and forth across the border. It is possible for a 450-pound calf to be purchased by one of the three firms on one side of the border and sent across the border to be grown to 800-pounds in a contract arrangement with a rancher. The firm may then decide to move the animal across the border again to be finished in their feedlot. If the firm does not have sufficient capacity in their slaughtering facility in that country, it may move the animal across the border again to be slaughtered. The meat may once again be moved across the border to be consumed. The question then is, in what country was the animal produced?

These same firms have beef operations in many other countries, including Australia, Mexico, Brazil, and Argentina. In such a system, the opportunity for governments to control their food system is diminished and the role of TNCs is increased. As global trade barriers are reduced, it becomes increasingly difficult for relatively small local firms to compete with the economic power of the TNCs. Maple Leaf Foods, Canada’s largest food processor, is currently struggling to survive in the pork sector. In order to survive, Maple Leaf has
lowered wages, leading to labor strikes, in an effort to compete with the low wages paid by the U.S. slaughtering plants that have been obtaining live hogs from Canada (Feedstuffs 3/23/98). Smithfield, the largest hog slaught erer in the United States, has indicated an interest in buying the Maple Leaf facility in Ontario, one of the facilities with major labor discord.

Many TNCs involved in the global agriculture/food system are conglomerates. Cargill, which is such an important player in meat and grain processing, also makes barges, operates barge and shipping lines, and processes pig iron, scrap iron, and other metals and petroleum products. Philip Morris, which most people associate with tobacco and cigarettes, is the largest food corporation in the United States and second largest in the world. It sells Kraft General Foods products (including Kraft cheese), Maxwell House coffee, Miller Beer, and Oscar Mayer meats. In 1996, Philip Morris had over $16 billion in revenues within the United States from its North American Food Division (Richmond Times-Dispatch, April 19, 1997). Many of the conglomerates regularly buy and sell various divisions. Purina Mills, the largest animal feed firm in the United States (with 10 percent of the market), has changed hands several times. Wishing to focus on its pet food segment, Ralston Purina (now the world's largest manufacturer of dry dog and cat food and of batteries and flashlights), sold its Purina Mills Division in 1986 to British Nutrition, the largest livestock feed producer in Europe, which is owned by British Petroleum. In 1993 British Petroleum sold Purina Mills to the Sterling Group of the United States. Then in early 1998, the Sterling Group sold Purina Mills to Koch Agriculture Company, a subsidiary of Koch Industries. Koch Industries is a diversified energy and industrial firm ranked the second largest privately held company in the United States. Vertical integration, horizontal integration, integration among various segments of the food systems, conglomeration, and global integration all lead to increased economic power for the TNCs.

Community Consequences of Absentee Corporate Ownership

Capital that comes from outside the local community has major economic consequences for the local community. In small, locally owned businesses, such as family farms, family clothing stores, and family grocery stores, the family subtracts its annual expenses from its income to determine profits that are then allocated among labor, management, and capital. For
the economic well-being of the family and the rural community, it makes little difference how the profits are allocated among the three costs of production, because the family spends much of the profit in the local community. In the past, when family businesses were the predominant systems in rural agriculture communities, researchers talked about “multiplier effects” of three and four. Money generated in the agricultural sector would circulate in the community, changing hands from one entrepreneurial family to another three or four times before leaving the rural community. This greatly enhanced the community's economic viability.

Giant corporations headquartered in distant places see labor as just another input cost to be purchased as cheaply as possible. Their profits are usually immediately taken out of the local rural community. They go to the firms' headquarters and on to stockholders or, if the corporation is a TNC, the profits are very likely invested in the food system somewhere else in the world. Only the return to labor, which was bought as cheaply as possible, remains in the rural community. Rural mining towns in Appalachia and the West show the adverse consequences of absentee ownership under a regime of concentrated capital. Today, the economic impacts of agricultural production on communities are perceived to be so small that few rural economic development specialists see any hope in expanding the economic base of a rural community by focusing on the production stage of the food sector. In some areas, attention is focused on the processing sector that is referred to as "value added."

These economic outcomes have major social consequences for communities, especially when combined with the social consequences coming from changing the workers' relationship to their work setting. Fifty years ago, Walter Goldschmidt's famous study in California showed a strong relationship between the structure of the food system and the social condition of the community, revealing that the well-being of communities dominated by large-scale, absentee-owned, corporate farms was greatly inferior to that of communities in which family farms predominated. A host of studies building on Goldschmidt's work have confirmed these results. But the social costs, usually called externalities, are of no concern to TNCs, which see increasing the wealth of their stockholders as their major goal.
Perhaps the ultimate political power these giant food firms have is that—like some saving and loan associations, banks, automobile and airplane manufacturers—they are perceived to be so vital to the country that their bankruptcy would lead to major social disorganization. Given that food is a necessity, is there any doubt that the federal government would provide the resources to keep these firms from collapsing?

Monopoly capital does not behave differently in the food system than in any other segment of the economy. Agriculture is unique primarily because it took monopoly capital so long to dominate the sector. The fact that agriculture is losing its uniqueness is perhaps best revealed by the fact that Mitsubishi, among the largest automakers and the second largest bank in the world, is now one of the world’s largest beef processors. The “mainstreaming” of the food system into the larger capitalist system is also revealed by the fact that Pioneer Hi-Bred, DeKalb, Mycogen, and other seed companies which own the property rights to the new varieties created through the use of biotechnology are now forming new organizational relationships with chemical firms (e.g., Novartis, Monsanto, DuPont, Dow) and with firms which ultimately process the genetically modified new varieties (e.g., ConAgra, Cargill). One can predict that up against such power, the yeoman crop farmer will soon resemble the broiler grower.

To give an idea of how rapidly the situation is changing, during the month following completion of this manuscript, Monsanto announced the purchase of Delta and Pines Land Company and DeKalb seed companies and now controls 85 percent of the cottonseed sales as well as the patent for the terminator gene (that allows a company to sell seeds that farmers can plant and get a crop, but seed saved from the crop will not grow the following season—for implications, see Lewontin’s article, this issue). Further, Monsanto developed a joint venture with Cargill to further integrate the input and processing stages for grains and then announced a merger with American Home Products to form a $96 billion firm with expected sales of $23 billion in 1998.