Structural Characteristics of Farm Operations

Farm structure is variously defined, but discussions of the topic frequently cover:

- Number and size of farms (in terms of sales or acres)
- Specialization in production
- Ownership and control of productive farm resources, including (but not limited to) land
- Legal organization (individual operation, partnership, or corporation)
- Contractual linkages with other farm and non-farm businesses
- Geographic location of production
- Concentration of production
- Characteristics of farm operators and their households.[1]

Farm structure can be defined as how resources are organized to produce farm products, which includes all the points listed above. This section focuses on the structural characteristics of the farms themselves, or all the points except the last. Separate sections deal with operators and their households.

Number of Farms

U.S. farms numbered 2,063,300 in 1993. This estimate did not differ by a statistically significant amount from the 1992 estimate of 2,090,700 farms reported in the previous Family Farm Report (Kalbacher and Oliveira, 1995).[2] Both numbers, however, are down dramatically from the peak of 6.8 million in 1935 (U.S. Dept. Agr., Stat. Rep. Serv., 1962). Of course, farms were much smaller in 1935, averaging 155 acres (U.S. Dept. Comm., Bur. Cen, 1975, p. 457), compared with 436 acres in 1993. The remaining U.S. farms are diverse, as shown in the rest of this section.

Sales Class

One measure of the size of farms is the level of their gross sales. The sales classes used in this report are:

- Noncommercial farms (less than $50,000 in sales)
- Commercial (at least $50,000 in sales):
  - Small ($50,000 to $99,999 in sales)
  - Lower medium ($100,000 to $249,999 in sales)
  - Upper medium ($250,000 to $499,999 in sales)
  - Large ($500,000 to $999,999 in sales)
  - Superlarge ($1,000,000 or more in sales)

On average, noncommercial farms operated fewer acres, received smaller amounts of gross cash income, and produced a much smaller volume of gross sales than commercial farms (table 1). And, within the commercial category, average gross cash income and average volume of sales increased with sales class.[3]

Although 73 percent of U.S. farms were noncommercial in 1993, they accounted for a very small share of agricultural activity (fig. 1). Noncommercial farms received only 13 percent of gross cash income and accounted for only 10 percent of production, as measured by gross sales. At the other extreme, superlarge farms alone accounted for only 0.7 percent of all farms but received 23 percent of gross cash income and accounted for 26 percent of gross sales.

Most operators of noncommercial farms have an occupation other than farming. Only 29 percent of noncom-

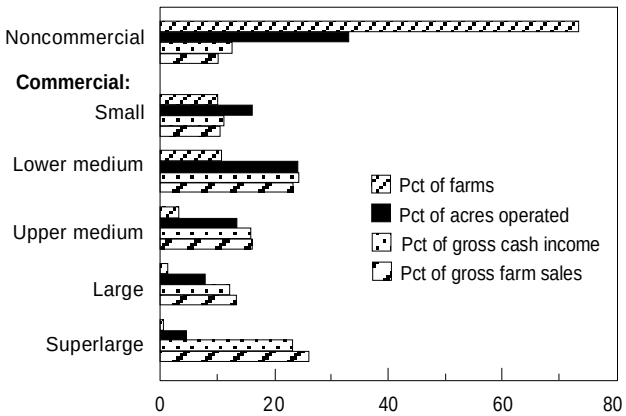
[1]This list was drawn from Penn (1979), Babb (1979), and Stanton (1993a).

[2]FCRS-based estimates discussed as different in the text differed from each other at the 95-percent (or higher) level of statistical significance, unless noted otherwise. For more information, see the box on sources of data or appendix B.

[3]Not all the increases in average acres operated were statistically significant.

Figure 1
Distribution, by sales class, of farms, acres operated, gross cash income, and gross farm sales, 1993

Most farms are noncommercial, but commercial farms account for most gross cash income and gross farm sales



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey

Table 1—Farms, acres operated, gross cash income, and gross farm sales, by selected characteristics, 1993

Characteristic	Farms		Mean acres operated		Mean gross cash income		Mean gross farm sales	
	Number	*RSE*[1]	*Acres*	*RSE*[1]	*Dollars*	*RSE*[1]	*Dollars*	*RSE*[1]
All farms	2,063,300	2.3	436	3.7	68,891	3.3	73,694	3.7
Sales class								
Noncommercial	1,514,476	3.1	198	5.4	11,922	3.1	10,225	3.0
Commercial	548,824	2.1	1,094	4.4	226,096	3.0	248,835	3.5
Small	210,478	4.8	697	7.2	76,576	2.1	76,503	3.1
Lower medium	222,645	3.2	972	5.2	155,124	1.4	159,606	1.1
Upper medium	70,300	5.2	1,739	14.7	326,372	2.0	351,421	1.2
Large	30,575	7.3	2,342	13.5	571,882	5.0	669,175	1.5
Superlarge	14,825	6.7	2,941	12.5	2,226,139	8.4	2,682,215	9.8
Acreage class:								
1-49 acres	588,206	6.1	21	4.0	18,295	11.1	22,323	11.4
50-179 acres	629,906	4.4	104	1.6	28,761	6.6	31,248	7.2
180-499 acres	463,737	3.7	302	1.2	71,137	8.2	73,033	8.1
500-999 acres	200,545	4.2	691	0.9	144,301	4.8	171,031	9.1
1,000 or more acres	180,906	3.8	3,005	5.1	283,778	4.5	282,302	4.6
Farm type:								
Cash grains	351,275	3.9	635	3.8	91,047	3.8	95,121	3.9
Tobacco	91,787	13.5	147	10.4	32,032	13.5	34,524	13.9
Cotton	26,414	11.1	832	9.5	223,201	11.1	205,409	11.1
Other field crops	223,668	8.4	267	8.1	41,761	10.0	36,941	10.4
Veg., fruit, or nuts	111,304	11.9	157	15.0	133,525	15.5	123,278	16.4
Nursery or greenhouse	49,868	14.5	60	20.8	114,410	18.0	110,869	18.1
Beef, hogs, or sheep	962,900	3.7	512	6.4	42,673	7.6	47,673	9.3
Poultry	30,578	23.7	97	21.8	99,128	25.5	307,334	23.1
Dairy	140,022	4.9	328	4.1	173,326	4.3	173,629	4.4
Other livestock	75,484	13.1	256	26.3	40,095	23.9	38,649	25.6
Tenure:								
Full owner	1,123,922	3.6	225	6.9	34,714	8.1	41,092	9.5
Part owner	741,573	3.1	730	4.9	111,569	3.7	113,108	3.7
Tenant	197,805	7.4	534	9.2	103,084	7.7	111,171	7.9
Rental arrangements:								
No rentals	1,194,451	3.5	217	6.8	25,774	5.1	32,118	8.9
Land only	660,272	3.3	729	5.5	100,879	3.8	104,520	3.8
Land and other rentals	131,259	4.9	1,058	5.4	259,850	5.2	262,069	5.4
Other rentals only	77,319	13.1	278	15.6	137,636	27.4	132,939	28.1
Legal organization:[2]								
Individual	1,867,741	2.5	362	4.4	48,746	3.0	52,271	3.2
Partnership	125,171	6.9	850	9.5	182,049	7.2	196,001	10.7
Corporation	68,762	9.1	1,672	11.6	399,940	13.1	394,146	13.3
Family corporation	58,357	9.2	1,701	11.7	380,258	14.2	378,278	14.5
Nonfamily corporation	10,406	31.3	1,510	40.8	510,318	36.7	483,141	36.5
Farms, by type of sales:								
Cash sales only	1,837,992	2.5	409	4.3	51,050	4.2	49,967	4.3
Contracts (with or without cash sales)	225,308	4.7	661	5.4	214,432	4.6	267,248	6.4
Production contracts[3]	43,609	10.4	380	12.0	149,167	11.4	484,985	15.4
Marketing contracts[3]	185,736	5.2	730	5.8	235,181	5.1	225,691	5.3

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
[2]This classification excludes cooperative farms. Categories do not sum to all farms.
[3]The categories "production contracts" and "marketing contracts" are not mutually exclusive. Farms may have both types of contracts.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

mercial operators reported farming or hired farm manager as their major occupation. In contrast, about 90 percent of commercial farm operators reported those as their major occupations.

Among noncommercial farms, average gross cash income was larger than average gross sales (table 1). These smaller farms had miscellaneous sources of farm income (such as custom work, grazing fees, tobacco allotment rents, land rents, and sales of forest products) that are included in gross cash income but excluded from gross sales.

Among commercial farms, however, gross sales appeared to be greater than gross cash income, although the difference between the two measures was statistically significant only for the upper medium and large groups. Extensive contracting and share renting can result in lower gross cash income than gross sales. Gross cash income includes only the share of income received by the operation. Gross sales, in contrast, reflects the shares of output accruing to the operation, production contractors, and share landlords.

Commercial farms are more likely than noncommercial farms to share output with production contractors or share landlords. For example, consider production contracts in 1993. Hardly any noncommercial farms had production contracts, compared with 7 percent of all commercial farms and approximately 20 percent of the large and superlarge farms.

Acreage Class

While sales class generally is a better indicator of farm size, acreage class is also used. Sales class unambiguously measures economic activity in dollars, while acreage class simply measures land used, without any indication of the value of what is actually produced. The number of acres necessary to produce a given dollar amount of farm products varies with the characteristics of the land. For example, farms in a fertile area with adequate rainfall require less land to produce a given amount of a particular crop than similar farms in more arid areas.

In addition, farms producing high-value or high-margin products may require relatively little land, compared with other farms. For example, nursery or greenhouse operations averaged $110,900 dollars of gross sales, similar to the $95,100 average for cash grain farms and the $123,300 average for vegetable, fruit, or nut farms. But cash grain farms and vegetable, fruit, and nut farms used an average of 635 acres and 157 acres, respectively, compared with only 60 acres for nursery or greenhouse operations.

Nevertheless, acreage class data show that most farms are small (fig. 2), the same conclusion drawn from sales class data. About 29 percent of all farms had 49 or fewer acres, and another 31 percent had between 50 and 179 acres. These two groups together produced only one-fifth of either gross cash income or gross sales.

Like the superlarge farms discussed earlier, farms with 1,000 or more acres accounted for a disproportionate share of gross cash income and gross sales. Three-fourths of all farms with at least 1,000 acres were located in the Corn Belt, the Northern and Southern Plains, and the Mountain States (app. table 1). See appendix A for the States in each region.

Farm Type

Farm type was determined by the farm production specialty classification that accounted for the largest portion of gross sales from the farm operation. In this report, 10 farm types are used (table 1). For more information about crops or livestock included in each category, see appendix A.

Beef, hogs, or sheep was by far the most common specialization among U.S. farms. Approximately 963,000 farms (47 percent of all farms) specialized in those livestock species. The next largest specialization was cash grain, which included 351,000 farms (17 percent of all farms).

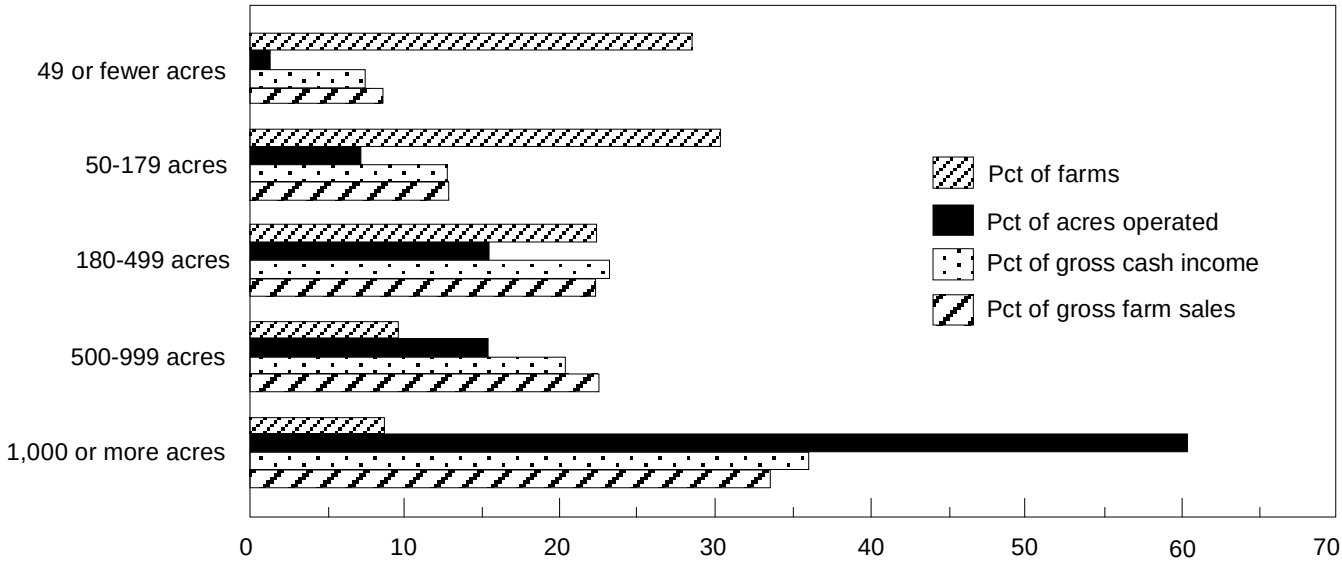
Farms specializing in beef, hogs, or sheep tended to be smaller than cash-grain farms. The average gross sales for beef, hog, or sheep farms was $47,700, compared with $95,100 for cash grain farms. About 86 percent of beef, hog, and sheep farms were noncommercial, compared with 51 percent of cash grain farms.

Farms specializing in beef, hogs, or sheep were also less likely to be operated by farmers reporting farming or hired manager as their major occupation. Sixty-six percent of the operators of cash grain farms reported that farming or hired manager was their major occupation, but only 36 percent of operators of beef, hog, or sheep farms reported those major occupations. The remaining beef, hog, or sheep operators either had another occupation (44 percent) or were retired (20 percent). The beef, hog, or sheep category is largely made up of cattle farms, and cattle farms often have relatively flexible labor requirements (Holcomb, 1982,

Figure 2

Distribution, by acreage class, of farms, acres operated, gross cash income, and gross farm sales, 1993

Small farms are more common, but larger farms produce more



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

pp. 6, 22-23) that can fit well with an off-farm job or retirement.

Nevertheless, beef, hog, and sheep farms averaged 512 acres, which was above the U.S. average. Farms in this category can be land extensive. About 46 percent of farms with at least 1,000 acres specialized in beef, hogs, or sheep. At the other extreme, nearly 50 percent of the farms with 1-49 acres or 50-179 acres also specialized in raising beef, hogs, or sheep.

About 69 percent of poultry farms had production contracts, which accounted for the large difference between their average gross sales ($307,300) and average gross cash income ($99,100). This is because the contract fee that poultry operations receive is typically very small compared with the total value of poultry produced. As explained earlier, gross cash income includes only the operation's share of cash income while gross sales includes both the operation's share and the contractor's share of production.

Tenure

Each farming operation must have access to assets in order to produce crop and livestock products. This access may be obtained through renting rather than outright ownership. Historically, analysts have been most interested in the ownership and rental of land, since it is the principal asset used by farmers. Three tenure classes are used here:

- Full owners, who own all the land they operate
- Part owners, who own some of the land they operate, but also rent additional land
- Tenants, who rent all the land they farm. Operations that own only a small portion of the land they operated (less than 1 percent) are also considered to be tenant operations.

Census of agriculture data show that farm operations rented more acres of land during the Great Depression than currently, but most rentals then were by tenants (U.S. Dept. Agr., Econ. Res. Serv., 1994a, p. 24). In 1935, about 71 percent of rented land was leased to tenants and 29 percent was rented to part owners. By the 1970's, the percentages had reversed.

Land leasing has changed from a way for beginning farmers to enter agriculture to a way of gaining access to additional land (U.S. Dept. Agr., Econ. Res. Serv., 1994a, p. 20). Farm operations now expand by renting land to avoid debt and the risks associated with ownership (Reimund and Gale, 1992, p. 8) and to be able to respond more quickly to changing market conditions.

In 1993, most operations were full owners, but part owners and tenants had larger farms in terms of average acres operated, average gross cash income, and average

gross sales (table 1). The shares of gross cash income and gross sales accounted for by part owners and tenants were disproportionately large relative to their share of farms (fig. 3).

Generating that much income and production required operators to devote most of their working hours to farming. About 61 percent of partly owned and 66 percent of tenant operations had operators who reported farming or hired manager as their major occupation. In contrast, only 32 percent of fully owned operations had operators who reported those occupations.

Tenure differs by sales class (fig. 4), with commercial farms less likely to be full owners. About 66 percent of noncommercial farms were full owners, compared with between 16 and 31 percent for the various commercial classes.

Other Rental Arrangements

Land (or real estate) is not the only asset that farms rent. Among other assets commonly rented are vehicles, machinery, equipment, and livestock. The motivation for renting these assets is the same as for renting land: renting allows operations to control and use additional assets without incurring additional debt or the risks of ownership.

Farms that rented both land and other assets were larger than other farms, whether size was measured as average acreage, average gross cash income, or average gross sales (table 1). With only 6 percent of all farms, this group accounted for about 23 percent of gross sales. Average age of operators in this group was 46 years, or 5-10 years less than the averages for the other groups. Farms renting both land and other assets were most likely to specialize in cash grain (40 percent); beef, hogs, or sheep (23 percent); or dairy (16 percent). They were most concentrated in the Corn Belt (26 percent), Lake States (18 percent), and Northern Plains (18 percent).

Renting was much more common among commercial farms than among noncommercial farms (fig. 5). A particularly large percentage of superlarge farms (9 percent) rented only assets other than land.

Legal Organization

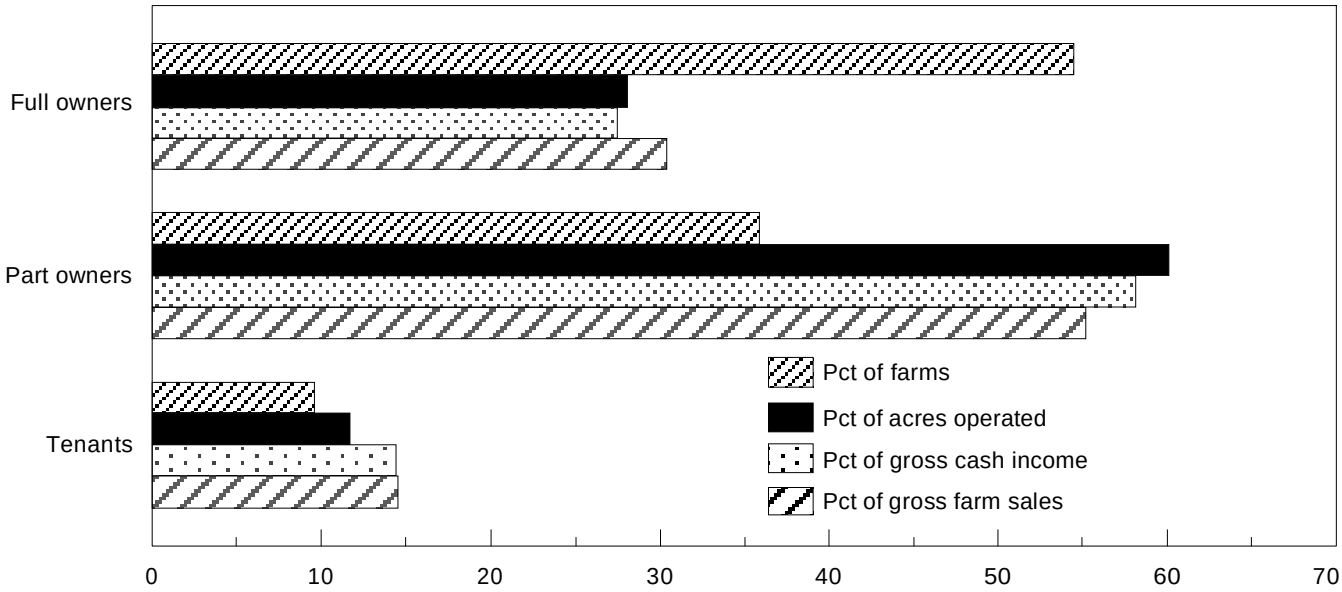
Farms are classified in the FCRS according to their legal organization using the following categories (U.S. Dept. Agr., Nat'l. Agr. Stat. Serv., 1993a, pp. M5114-M5115):

- Individual operations or sole proprietorships. Includes informal partnerships, such as those between spouses.

Figure 3

Distribution, by tenure, of farms, acres operated, gross cash income, and gross farms sales, 1993

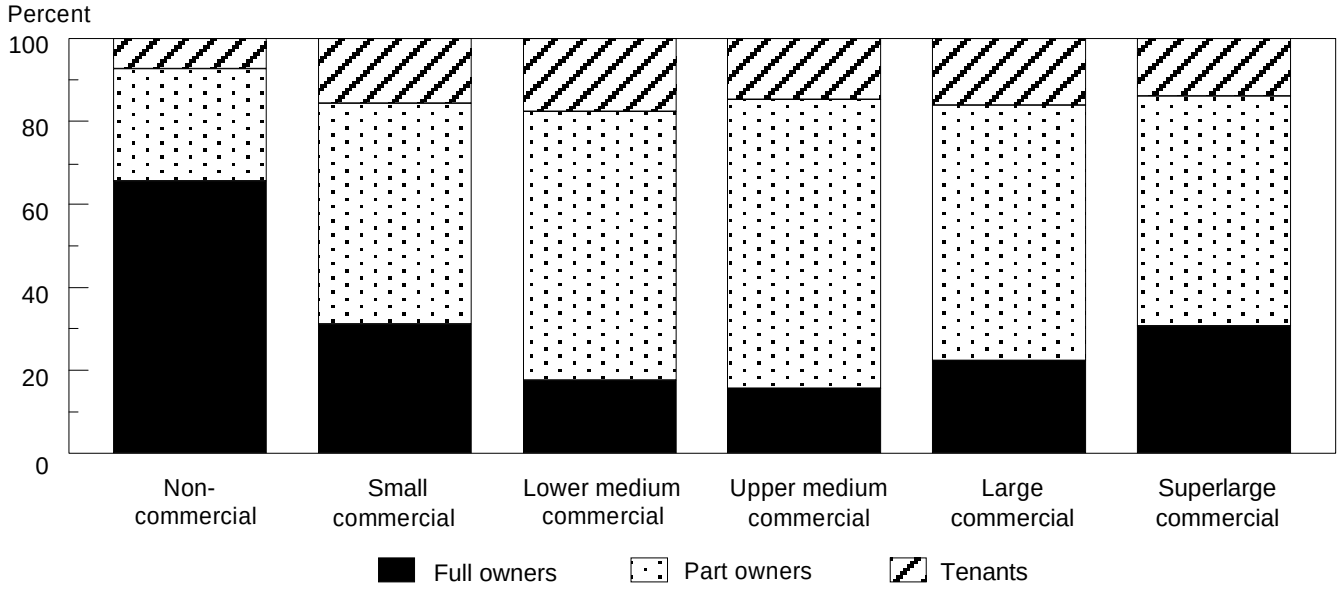
Part owners receive most gross cash income and generate most gross farm sales



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 4
Sales class by tenure, 1993

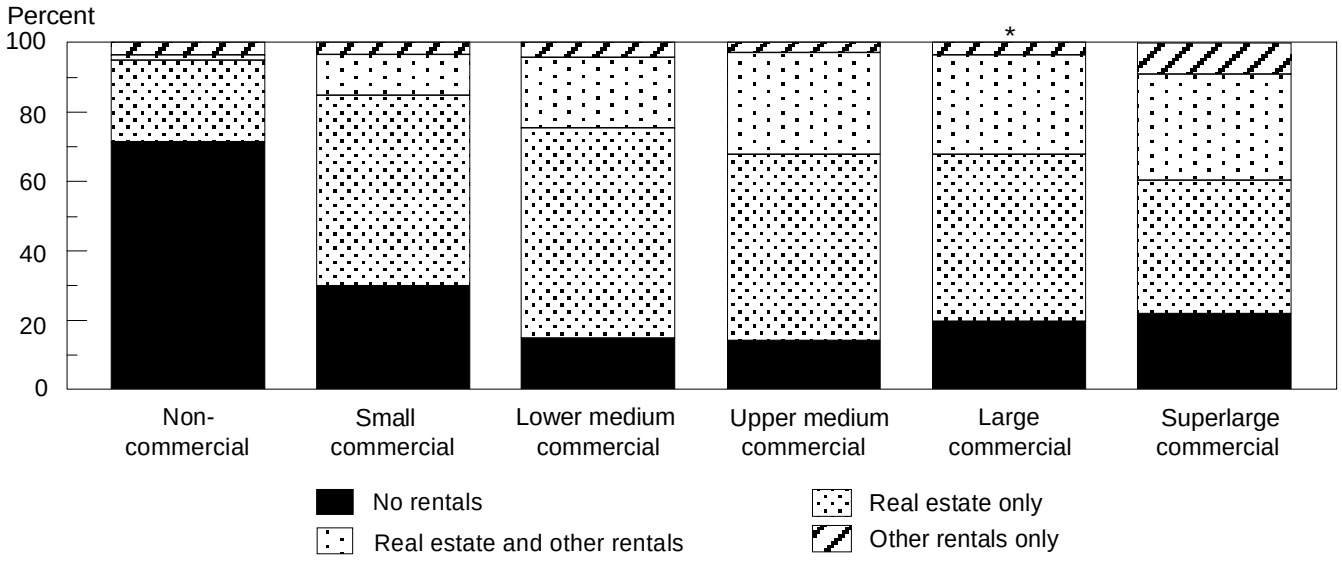
Noncommercial farms are more likely to be full owners



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 5
Sales class by rental arrangements, 1993

Renting is more common among commercial farms



*Relative standard error is greater than 25 percent.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

- Partnerships. Includes only partnerships established legally.
- Corporations:
  - Family corporations. More than 50 percent of the stock is held by people related by blood or marriage.
  - Nonfamily corporations. Corporations other than family corporations.
- Cooperatives. Voluntarily organized associations controlled by their members or patrons.

Because of the small number of cooperative farms (less than 1 percent of all farms), they are not presented separately in the tabulations pertaining to organization in table 1.

U.S. farms are most commonly organized as individual operations. Of the 2.1 million farms, approximately 1.9 million were individual operations in 1993 (table 1). Individual operations were more common among smaller farms. Approximately 94 percent of noncommercial farms were individual operations, compared with 82 percent of commercial farms. Within the commercial farm category, the share of individual operations was highest, 90 percent, for small commercial farms and decreased to 40 percent for superlarge farms.

Farms organized as legal partnerships and corporations are much larger than individual operations in terms of average acres, average gross cash income, and average gross sales. Farms organized as partnerships or corporations also produced a share of agricultural products disproportionate to their numbers. Partnerships made up only 6 percent of U.S. farms, but accounted for 16 percent of gross sales (fig. 6). Similarly, family and nonfamily corporations together were only 3 percent of U.S. farms, but accounted for 18 percent of gross sales.

Corporate farms were not, for the most part, run by large nonfarm businesses. In 1993, 58,400 farms were organized as family corporations, while only 10,400 farms were organized as nonfamily corporations (table 1). Family corporations also were responsible for a larger share of gross sales (15 percent) than nonfamily corporations (3 percent) (fig. 6).

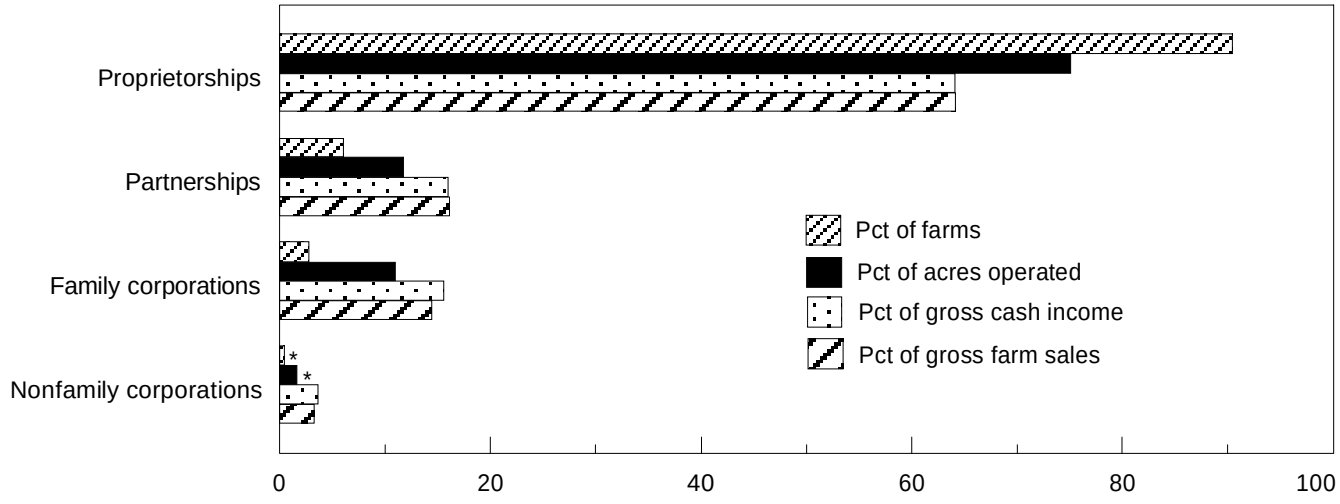
Data from the census of agriculture show that family-owned farms (individual operations, partnerships, and family corporations) are not losing their share of U.S. agriculture to nonfarm corporations (Reimund and Gale, 1992, p. 7; U.S. Dept. Comm., Bur. Cen., 1994a, p. 58). Nonfamily corporations' share of all U.S. farms remained relatively stable between 1978 and 1992. And, nonfamily corporations' share of total farm product sales actually fell slightly after 1978.

Family corporations, however, increased their share of both farms and sales during the 1978-92 period.

Figure 6

Distribution, by legal organization, of farms, acres operated, gross cash income, and gross farm sales, 1993

Partnerships and corporations generate a disproportionate share of gross cash income and gross farm sales



*Relative standard error greater than 25 percent.
Note: Data exclude cooperative farms.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Partnerships' share of farms fell slightly, while their share of sales grew. Shares of both farms and sales decreased only for individual operations.

Contracting

Although nonfamily corporations may not be taking over farming, some important changes have occurred in the way farm production and marketing are conducted. Over the past 40 years, farmers have become less dependent on terminal markets and spot pricing to market their goods, and more reliant on production and marketing contracts (O'Brien, 1994, p. 299). In addition, farm operations have become more vertically integrated.

In a vertically integrated operation, the same firm typically owns several farm-related businesses, such as hatcheries, feed mills, processing plants, and packing facilities. The integrator may also own farms or, more typically, contract with farmers to produce commodities. By the 1990's, contracting or vertical integration had become dominant modes of production and marketing in the broiler, turkey, egg, milk, and specialty crop markets (O'Brien, 1994, p. 302), as well as becoming increasingly common in hog farming (Hurt, 1994).

The increasing use of contracting and vertical integration in the food and fiber system is commonly identified with the industrialization of agriculture.[4] In part, industrialization arose as processors began to produce food products rather than food commodities (Drabenstott, 1994, p. 4). Processors need a steady supply of farm products of known quality and specifications to process (Council on Food, Agricultural and Resource Economics, 1994, p. 7). Contracting and vertical integration help provide these farm products, thereby reducing processor risk.

Contracting can also reduce marketing and production risks for producers. Because marketing contracts set a price in advance for output, they reduce marketing risk. Since production contractors own the commodity produced, make most of the production decisions, and supply most inputs, they assume a substantial part of the risk associated with production, as well as risks associated with marketing. The actual distribution of risk, of course, depends on the terms and conditions of the contract and the bargaining strength of the farmer and the contractor (Hoppe, 1996a).

To examine the prevalence of contracting in 1993, this report uses these categories:

- Cash sales only. Operation produced nothing under contract in 1993.
- Contracts (with or without cash sales). Operation had at least some of its 1993 production under a production or marketing contract.
  - Production contracts. Operation had at least some of its 1993 production under a production contract.
  - Marketing contracts. Operation had at least some of its 1993 production under a marketing contract.

The production contracts and marketing contracts categories are not mutually exclusive. Farms may have both types of contracts.

Most farms (89 percent) had only cash sales in 1993 (fig. 7). The remaining 11 percent of U.S. farms had at least one marketing or production contract, but these farms received 34 percent of gross cash income and accounted for about 40 percent of production, as measured by gross sales.

About 225,000 farms had a production and/or a marketing contract in 1993 (table 1). Regardless of the type of contract (marketing or production), contracting farms had larger sales and gross cash income than farms with only cash sales. But, farms with a production contract averaged only 380 acres per farm, about the same as farms with only cash sales (409 acres). Nearly half (49 percent) of the farms with production contracts were poultry farms, and poultry farms generally do not require large acreages. They averaged only 97 acres, which lowered the average acreage for farms with production contracts.

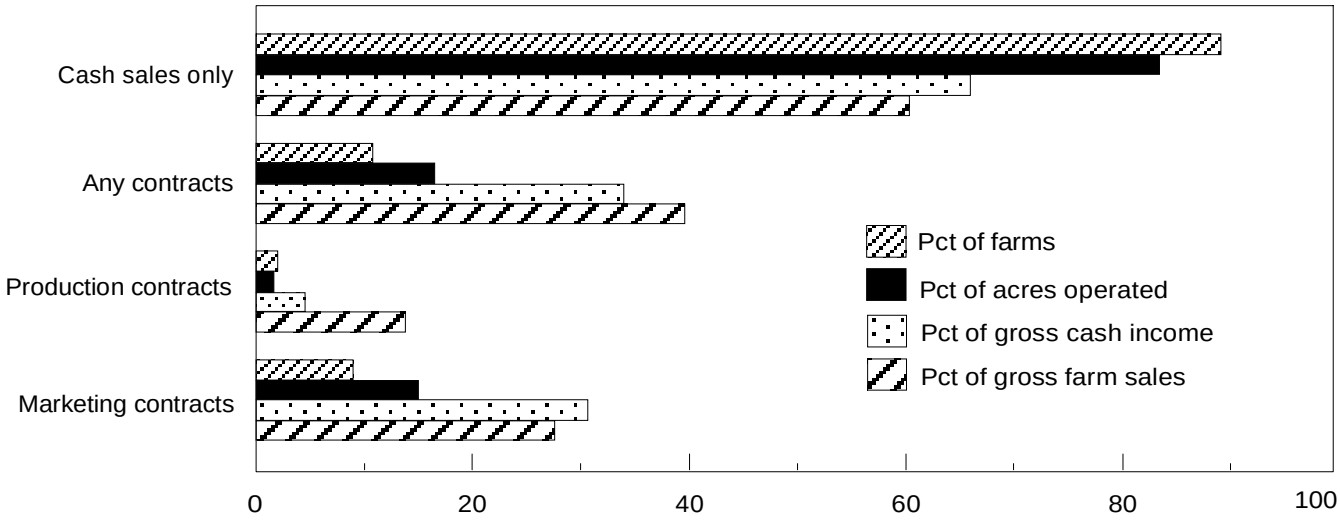
Only 44,000 farms had production contracts in 1993. But, these farms were large, averaging about $485,000 in gross sales, substantially more than their $149,200 gross cash income. Because gross cash income includes only the fee received by the operation, while gross sales includes the full value of the product removed, average gross sales was much larger than average gross cash income.

Marketing contracts were much more common than production contracts; about 186,000 farms had marketing

[4]According to the Council on Food, Agricultural and Resource Economics (1994, p. 1): "Industrialization in agriculture refers to the increasing consolidation of farms and to vertical coordination (contracting and integration) among the stages of the food and fiber system."

Figure 7
Distribution, by contracting arrangements, of farms, acres operated, gross cash income, and gross farm sales, 1993

Farms with contracts generated a disproportionate share of gross cash income and gross farm sales



Note: The categories "production contracts" and "marketing contracts" are not mutually exclusive. Farms may have both types of contracts.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

contracts in 1993. Three commodity specializations accounted for 75 percent of farms with marketing contracts: cash grain (36 percent); vegetables, fruits, or nuts (21 percent); and dairy (18 percent). Farms with marketing contracts had higher average gross cash income, but lower average gross sales, than farms with production contracts. Farms with marketing contracts produced less, on average, than farms with production contracts, but they kept more of the cash from their sales. Under marketing contracts, the farm receives a price reflecting the market value of the commodity (and typically provides the inputs).

Farms organized as individual operations are much less likely to have contracts than farms organized as partnerships or corporations. Only 10 percent of farms organized as an individual operation had a contract in 1993, compared with 20 percent of partnerships and 26 percent of corporations (family and otherwise). But, 10 percent of 1.9 million individual operations is still a substantial number of farms. Of the farms with contracts, 81 percent were individual operations.

Location of U.S. Farms

U.S. farms vary substantially according to their geographic location. For a brief discussion of the geographic units used here, see the box on the next page. This section of the report examines the characteristics of farms by region, metro-nonmetro status, and county economic specialization.

Major Production Regions. The Corn Belt had the largest number of farms in 1993, followed by the Appalachian Region[5] (table 2). Farms, however, were considerably smaller in the Appalachian Region than in the Corn Belt in terms of average acres, average gross cash income, and average gross sales. Farms in the Mountain Region had the largest average acreage, while those in the Pacific Region had the largest gross cash income and gross sales per farm.[6]

Farm production is concentrated in the Corn Belt, Pacific Region, and Northern Plains, which together accounted for about half of total U.S. gross sales (fig. 8). Farms in the various regions specialized in the production of specific commodities. The Corn Belt and Northern Plains contained 44 percent and 20 percent, respectively, of the Nation's cash grain farms

[5]The difference between the Appalachian Region and the Southern Plains in the number of farms was significant at the 90-percent level.

[6] The difference between the Pacific Region and the Northern Plains in average gross sales was significant at the 90-percent level.

Geographic Units

Previous editions of the Family Farm Report used major farming regions to discuss geographic variation in farming. There are 10 regions composed of groups of States with similar agriculture. (See appendix A for the States in each region.)

The current report provides additional information on geographic variation by also examining farming in metropolitan (metro) and nonmetropolitan (nonmetro) areas. Metro areas are defined by the U.S. Office of Management and Budget (OMB) as geographic areas with a large population nucleus (generally at least 50,000 inhabitants), plus adjacent communities that are socially and economically integrated with that nucleus (U.S. Dept. Comm., Cen. Bur., 1993, pp. A8-A9). Metro designations as of 1993, which identified 813 metro counties, are used in this report.

Metro areas are important to agriculture because they are not made up entirely of central cities and their heavily populated suburbs. For example, although Fresno County, California, is classified as metropolitan, it ranked first in the Nation in market value of agricultural products sold in 1992, according to the census of agriculture (U.S. Dept. Comm., Bur. Cen., 1994b, p. 28).

Nonmetro counties are a residual, the part of the Nation lying outside metro areas. Nonmetro counties are diverse, however, and the 2,276 nonmetro counties can be categorized into smaller groups with common characteristics. In this report, nonmetro counties are further sorted into two groups: those adjacent to metro areas (991 counties) and those that are not adjacent (1,285 counties) (Butler and Beale, 1994). One would expect urban influences to be stronger in adjacent counties than in non-adjacent counties.

Nonmetro counties can also be categorized according to their economic specialization. This report uses the ERS typology (Cook and Mizer, 1994), which sorts counties into mutually exclusive groups based on their economic base. The typology identifies six groups of counties:

- Farming-dependent (556 counties)
- Manufacturing-dependent (506 counties)
- Services-dependent (323 counties)
- Government-dependent (244 counties)
- Mining-dependent (146 counties)
- Nonspecialized (484 counties)

Geography is collapsed in some instances to make tables or graphs more readable. Some of the tables and figures use a three-way division of counties: farming-dependent counties, other nonmetro counties, and metro counties.

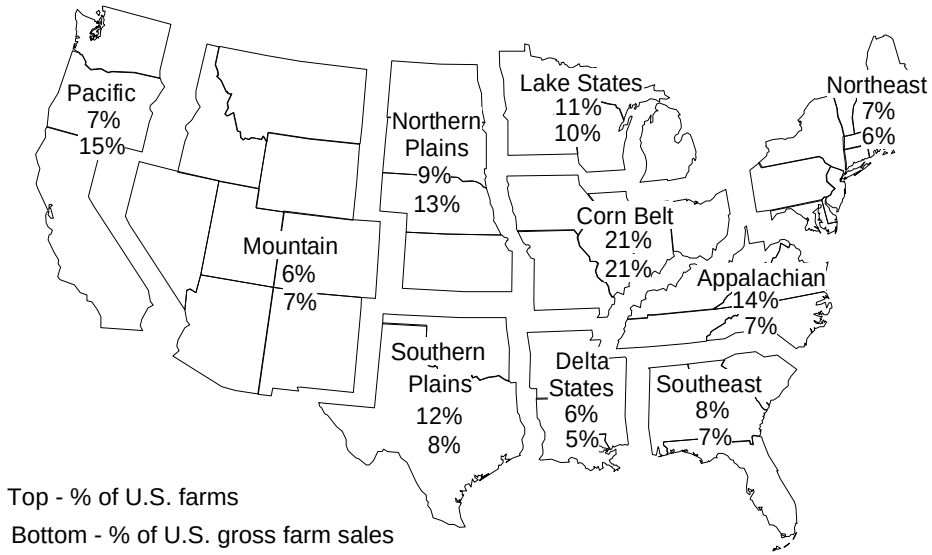
Table 2—Farms, acres operated, gross cash income, and gross farm sales, by selected characteristics, 1993

Characteristic	Farms		Mean acres operated		Mean gross cash income		Mean gross farm sales	
	Number	*RSE*[1]	*Acres*	*RSE*[1]	*Dollars*	*RSE*[1]	*Dollars*	*RSE*[1]
All farms	2,063,300	2.3	436	3.7	68,891	3.3	73,694	3.7
Major farming region:								
Northeast	142,900	6.3	183	5.7	59,411	7.3	61,760	7.5
Lake States	218,000	7.3	266	6.7	74,267	7.5	71,723	8.0
Corn Belt	425,000	4.7	275	4.6	69,736	5.5	75,945	5.5
Northern Plains	187,500	7.7	984	7.5	93,385	7.9	104,952	12.6
Appalachian	299,000	6.1	177	7.9	27,465	6.5	33,695	7.7
Southeast	155,300	6.8	230	8.3	57,129	11.4	65,401	11.0
Delta	114,000	9.5	282	8.7	47,356	9.5	70,118	13.0
Southern Plains	256,000	7.2	635	14.7	42,744	10.4	50,455	17.6
Mountain	116,600	9.1	1,472	11.6	97,977	10.9	96,937	11.7
Pacific	149,000	12.2	400	16.5	170,911	16.0	155,649	16.8
Metro-nonmetro status:								
Metro	639,640	4.7	229	5.5	76,544	7.5	76,698	7.6
Nonmetro	1,423,660	2.9	529	4.4	65,452	3.3	72,344	4.3
Adjacent	742,423	4.4	339	5.0	58,482	5.3	62,368	5.3
Not adjacent	681,237	4.0	737	6.3	73,049	4.3	83,216	6.5
County type:[2]								
Farming-dependent	311,594	6.3	903	7.7	102,119	7.1	107,599	8.9
Manufacturing-dependent	354,795	6.0	242	7.5	46,751	7.2	54,352	7.1
Services-dependent	209,136	7.7	494	8.1	66,576	8.5	66,266	8.7
Government-dependent	106,573	10.9	934	21.4	62,001	13.2	65,776	14.4
Mining-dependent	48,128	18.2	677	20.4	47,810	18.9	46,319	19.9
Nonspecialized	390,821	6.1	379	8.4	55,492	6.4	68,492	9.9

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
[2]This classification excludes 17 counties that could not be categorized due to data suppressions (Cook and Mizer, 1994, p. 30).
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 8
Distribution of farms and gross farm sales by major farming regions, 1993

The Corn Belt, Northern Plains, and Pacific account for nearly half of gross farm sales



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

(app. table 2). And, the Pacific Region had 53 percent of vegetable, fruit, and nut farms.

Other types of farms were more heavily concentrated in other regions. Most tobacco farms (85 percent) operated in the Appalachian Region. Nearly half (45 percent) of the cotton farms were in the Southern Plains, while dairy farms were more concentrated in the Lake States (40 percent) than elsewhere.

Some of these regional specializations are longstanding (Cochrane, 1993, pp. 91-92). For example, the specialization of the Corn Belt and Northern Plains in grain was established by the late 1800's. Also at that time, dairy specialization became established in the Lake States, and the Pacific Region began to specialize in high-value specialty crops.

Metro-Nonmetro. Most farms were located in nonmetro counties (69 percent), and the average acreage operated per farm was higher in nonmetro counties (529 acres) than in metro counties (229 acres) (table 2). Despite the smaller average acreage in metro areas, there were no significant metro-nonmetro differences in gross cash income or gross sales per farm, probably because metro counties tend to produce products of higher value (Ahearn and Banker, 1988; Heimlich and Barnard, 1992). Metro counties contained about 65 percent of the Nation's vegetable, fruit, and nut farms in 1993, as well as 70 percent of all nursery and greenhouse farms.

Farms also varied in their characteristics within nonmetro areas. For example, farms in nonmetro counties that were adjacent to metro areas operated fewer acres, received lower average gross cash income, and had lower average gross sales than farms in nonadjacent counties.

Compared with nonadjacent and metro counties, adjacent counties contained a particularly large portion of the Nation's dairy farms in 1993. About 43 percent of dairy farms were located in adjacent counties, compared with 27 percent in nonadjacent counties and 30 percent in metro counties. Dairy farms in nonmetro counties near metro areas may have an advantage over nonadjacent counties in transporting their highly perishable product to market. At the same time, they may face less competition for land than they would within metro areas.

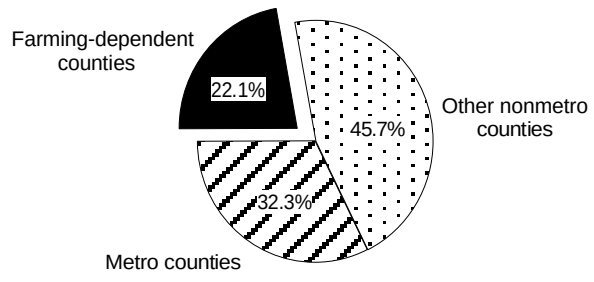
Economic Specialization. Of the 2,276 nonmetro counties, 556 (or 24 percent) depend on farming for at least 20 percent of their earned income. Farms in these farming-dependent counties had higher average gross sales and higher average gross cash income than farms in other nonmetro counties (table 2). However, only 15 percent of all U.S. farms and 24 percent of commercial farms were located in farming-dependent counties. Manufacturing-dependent counties alone had about as many farms as the farming-dependent counties, and nonspecialized counties had more.

In 1950, the Nation had 2,016 farming-dependent counties, approximately 3.6 times the current number. Growing farm productivity over the decades led to declining farm numbers and falling farm employment. At the same time, off-farm employment grew, often in the same communities where farmers lived. As a result, the number of counties depending economically on farming declined (Hoppe, 1994, p. 1). Some formerly farming-dependent counties were also absorbed into expanding metro areas.

But, farming did not disappear from most counties that are no longer farming-dependent (Hoppe, 1994, p. 3). In many of these counties, farming remained significant, although it no longer dominated the economies of the counties. In 1993, 78 percent of gross farm sales came from counties that were not farming dependent (fig. 9). Nonmetro counties (farming-dependent or otherwise), however, accounted for about two-thirds of the sales.

Figure 9
Distribution of gross farm sales in metro, farming-dependent, and other nonmetro counties, 1993

Most farm production occurs outside farming-dependent counties



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Concentration of Production

Concentration of production refers to the increasing share of agricultural output produced by fewer and fewer farms. In farm structure discussions, concentration now is a bigger issue than the declining number of farms (Stanton, 1993b, p. 46). Concentration can be measured by determining the smallest number of farms necessary to produce a particular amount of product. Less than 1 percent of U.S. farms produced 25 percent of total gross sales in 1993 (table 3). Only 4 percent of farms produced half of gross sales. These 4 percent of farms plus 9 percent more accounted for 75 percent of sales.

These FCRS estimates are consistent with the 1992 Census of Agriculture. According to the 1992 Census of Agriculture, 0.3 percent of farms accounted for 25 percent of the market value of sales, 3 percent of farms accounted for 50 percent, and 12 percent of farms accounted for 75 percent (U.S. Dept. Comm., Bur. Cen. 1994a, p. 47). The census data were within a percentage point of the corresponding 1993 FCRS estimates in table 3.[7]

Census of agriculture data show that farm production has become more concentrated over time. For example, 17 percent of U.S. farms produced 50 percent of farm sales in 1900 (Peterson and Brooks, 1993, pp. 3-5) compared with only 3 percent of farms in 1992 (U.S. Dept. Comm., Bur. Cen., 1994a, p. 47). On the other hand, the 17-percent figure for 1900 also indicates that some concentration already existed nearly 100 years ago. Production was not evenly distributed across all farms in 1900.

[7]Three factors help explain the slight differences between the two data sets. First, the data are for different years, 1992 for the census and 1993 for the FCRS. Second, the FCRS is a survey, but the census is a complete census. Third, sales are defined differently in the two data sources.

Table 3—Farms by concentration of gross farm sales, 1993

Item	All farms	Fewest number of farms to account for . . . 25 percent of gross farm sales	50 percent of gross farm sales	75 percent of gross farm sales
Number of farms	2,063,300	12,800	82,854	273,866
RSE[1]	2.3	7.5	4.7	2.5
Percent of farms	100.0	0.6	4.0	13.3
RSE[1]	0.0	7.9	5.1	3.3

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.