

Estimated Value Added

It is not possible with existing data to make precise determinations of productivity and returns for types and economic classes of commercial farms. There are several important limitations. Foremost of these is that the specified farm expenses obtained in the Census of 1954 are not equally representative of total expenses for different types and economic classes of farms. An additional limitation is that data on farm sales obtained by the Census are not complete, largely because of omissions by farmers in the reporting of sales of livestock and livestock products. Still another limitation relates to the fact that the classifications of farms by type and by economic class are based on the value of farm products sold in the particular year 1954. Thus, a farm's type or economic class is affected by any abnormalities in yields or sales from inventories as well as the relative price relationships between commodities in 1954.

Notwithstanding these limitations, an attempt has been made here to estimate differences between types and economic classes of farms in the value of farm products sold minus the cost of the material and contract services used in producing the products. This is an approximation of the value added by agriculture and will be referred to hereafter as value added.

The estimate of value added was made in order to provide additional insight into the structural differences in farming. Technological changes in farming have brought about a substantial increase in farm production but this has been accompanied by larger cash costs in farming. Farmers now purchase many materials for use in further production that they formerly produced for themselves. The value of products sold is not a satisfactory measure of the relative productivity of a given type or size of farm because only a part of this value is actually created within the farm. Value added, as used here, attempts to correct for the widely different input-output relationships that exist in respect to types and sizes of farms. It is thought that the estimate of value added may be useful for a broad appraisal of productivity differentials within the various segments of commercial agriculture.

In developing the estimate of value added, the Census specified expenses (excluding cash wages) were expanded to reflect several additional expense items. The expansion was made on the basis of data from the Farm Expenditure Survey, discussed previously. The adjusted expenses for each type and economic class of farm were then subtracted from the total value of farm products sold.

The Census expense items—machine hire, feed for livestock and poultry, gasoline and other petroleum fuel and oil, and commercial fertilizer and liming materials—were expanded to include expenditures for the following items: Livestock and poultry, seeds, plants and trees, and repairs and other operating costs for motor vehicles and farm machinery. The factor used in expanding the Census expense items was the percentage the former 4 items comprised of the larger category of 7 items as determined by data from the Farm Expenditure Survey. These percentages for each type of commercial farm are as follows:

Type of farm	Expansion factor	Type of farm	Expansion factor
	Percent		Percent
All commercial farms.....	62.5	All commercial farms—Con.	
Cash-grain.....	56.8	Livestock other than dairy	52.6
Cotton.....	61.8	and poultry.....	62.3
Other field-crop.....	64.9	General, primarily crop.....	71.0
Vegetable.....	60.2	General, primarily livestock.....	62.1
Fruit-and-nut.....	67.7	General, crop and livestock.....	42.7
Dairy.....	74.3	Miscellaneous.....	
Poultry.....	80.4		

The totals of the Census expense items (excluding cash wages) for each type of farm by economic class were divided by the percentages shown in the previous table. The expanded expenditure data were then subtracted from the value of farm products sold.

It will be noted that the farm expenses, as adjusted, do not include several items commonly included in current cash expenses; namely, marketing charges, interest, taxes, and other miscellaneous expenses. Interest and taxes are quite properly excluded from the value added concept. These are charges to capital and do not represent materials used in further production. Marketing cost and other miscellaneous farm expenses would normally be deducted.

Marketing costs were omitted because of the possible duplication of this expense in the value of farm products sold. The total value of farm products, as reported by the Census, has some of the marketing charges deducted. Farmers, in reporting their sales of farm products are likely to report the value received after freight, handling, and commission charges have been deducted. Under the procedure employed by the Census of Agriculture, each farmer was asked to report the value of livestock, livestock products, vegetables, horticultural specialties, and forestry products sold. It is believed that the values reported for these products tend to have a large part of the marketing costs deducted. On the other hand, for field crops and fruits and nuts, each farmer reported the quantity sold and the market value was computed as part of the office procedure by applying average unit prices. Values computed on this basis would more nearly represent market values before any deduction.

Miscellaneous farm expenses (not included elsewhere) were excluded from the estimate because this category is composed of a large variety of minor items. Some of these include expenses not attributable to the farm business; others are capital and management services whose inclusion would be questionable. It was believed that exclusion of this category would not affect greatly the comparability of the estimates between types and economic classes of farms.

The value added per farm is shown in table 50. Value added, as estimated here, amounted to \$4,088 per commercial farm in 1954. This was 56 percent of the gross value of farm products sold. By type of farm, value added was highest for vegetable and fruit-and-nut farms, averaging about \$12,000 per farm. These types were also highest in the average value of farm products sold. (See table 26 for comparisons.) Poultry farms, also among the highest in the average value of farm products sold, were lowest in the value added, averaging only \$1,300 per farm. Most other types ranged between \$3,000 and \$5,000 in value added.

TABLE 50.—ESTIMATED VALUE ADDED PER FARM BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	4,088	37,155	8,347	3,760	1,837	817	217
Cash-grain.....	5,392	34,601	10,010	4,431	2,015	709	96
Cotton.....	3,536	52,864	10,906	4,726	2,373	1,168	421
Other field-crop.....	3,090	45,018	10,408	4,888	2,651	1,317	501
Vegetable.....	11,553	76,956	10,561	4,336	1,960	739	160
Fruit-and-nut.....	12,146	57,036	13,510	6,273	3,146	1,421	417
Dairy.....	3,303	26,531	7,493	3,679	1,819	765	210
Poultry.....	1,324	9,432	1,966	604	151	114	(¹)
Livestock.....	3,936	32,230	7,309	2,813	943	144	(¹)
General:							
Primarily crop.....	4,742	47,787	8,716	3,909	1,814	769	250
Primarily livestock.....	2,556	19,128	7,568	3,606	1,506	576	135
Crop and livestock.....	3,297	30,729	8,164	3,812	1,607	606	142
Miscellaneous.....	10,749	62,101	12,051	4,873	2,079	849	164

¹ Expenses exceeded the value of farm products sold.