CHANGES IN SELECTED CHARACTERISTICS OF U. S. FARMS DURING THE 1970s AND EARLY 1980s: AN INVESTIGATION BASED ON CURRENT AND CONSTANT DOLLAR SALES CATEGORIES

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Abstract

Changes since 1970 in the distribution of selected farm characteristics among constant and current dollar farm sales categories were examined. In general, the same trends emerged but changes were less dramatic after adjusting for inflation. The increasing concentration of net farm income among farms with sales exceeding $500,000 was attributed in part to their continuing high ratio of gross farm income to expenses (approximately 145 percent). Farms with sales between $10,000 and $500,000 became more dependent on nonfarm income. This dependency is postulated to result from a farm income treadmill and use of nonfarm income to cope with the treadmill.

Key words: deflated farm sales, farm size, concentration, nonfarm income.

CHANGES in the structure and other characteristics of United States agriculture have received considerable attention over the past decade. Historical trends have been investigated (for example, Harrington and Manchester; Peterson; Schertz; Stanton; Tweeten et al.; U. S. Department of Agriculture, 1979; van Blokland, March 1984). Causes and implications of these trends for agriculture and agricultural policy have been debated (for example, Bullock; Lee; Lin et al.; O'Rourke; Tweeten; U. S. Congress, Office of Technology Assessment). Also, the need for a new definition of a farm has been discussed (for example, Strickland; van Blokland, February 1984).

Most investigations have based part of their discussion on United States Department of Agriculture's (USDA's) data which classifies farms by dollar value of farm sales. However, USDA's sales categories have generally remained the same over time except for the addition of categories at the upper end of the sales distribution. For example, data for the $200,000 - $499,999 sales category begin only with 1969 (USDA, September 1984). Consequently, inflation (deflation) in prices received by farmers may move a farm into a higher (lower) sales category even though its physical structure of production or input-output ratio has not changed. Therefore, changes in data classified by USDA's farm sales categories may more nearly reflect the effect of inflation rather than the effects of technology, economies of size, or other "real" factors.

Despite the inflation in prices received by farmers since 1970, until recently few studies have attempted to correct for the effect of this inflation upon the distribution of farm characteristics among farm sales categories. Harrington and Manchester, Lin et al., Peterson, Schertz, and a study by the United States Congress-Office of Technology Assessment found that inflation accounted for much of the change in the distribution of farm numbers. Harrington and Manchester and the Office of Technology Assessment study also examined changes in the distribution of other characteristics, including cash farm sales and net farm income. Both found increased concentration of cash farm sales and especially net farm income among farms with sales exceeding $500,000.

This study extends the analysis of inflation adjusted sales categories. It examines changes,

not only in the distributions of farm numbers and net farm income, but also in the distributions of gross farm income and farm expenses as well as changes in the ratio of gross farm income to farm expenses and of nonfarm to total farm family income. As a comparison, changes in the distribution of these characteristics for current dollar sales categories are also examined.

PROCEDURE

To account for the effect of inflation in the prices received by United States farmers, the end points of the following sales categories were adjusted to a 1983 base using USDA's index of annual prices received by United States farmers: less than $10,000, $10-19,999, $20-39,999, $40-99,999, $100-199,999, $200-499,999, and $500,000 plus. These are the same categories used by USDA except that the less-than-$10,000 category is subdivided into less-than-$2,500, $2,500-$4,999, and $5,000-9,999 categories. In this study, the three categories were treated as one because trends for the characterisitics investigated did not differ substantially among them when adjusted to 1983 dollars. Nineteen eighty-three was chosen as the base year because it is the latest year for which the USDA has reported data by farm sales.

The period of analysis was limited to post 1968. This limitation was necessitated by a change, beginning with 1969 data, in the method used by USDA to distribute farm expenses and, therefore, net farm income among sales categories. The method used for data before 1969 yields substantially different results from the method used for 1969 and later data (compare the distributions reported by USDA in September 1981 with these reported in September 1984). While restricted, the period investigated does cover the most recent period during which changes in the structure and other characteristics of United States agriculture became topics of national debate. Previous periods of national debate include those highlighted by the Country Life Commission of 1908-09 (U. S. Congress, 1909), the New Deal programs of the 1930s (Baldwin), and the President's National Advisory Commission on Rural Poverty of 1966-67.

To prorate the data reported by USDA for a given year among the inflation adjusted categories for that year, a decumulative polynomial function was estimated using the

data reported by USDA. This function was used by Lin et al. and can be stated as follows:

$$(1) \quad FY(s) = \alpha \, exp \, \sum_{n=1}^{N} \beta_n \, (ln \, s)^n,$$

where $FY(s)$ = the number of farms, gross farm income, farm expenses, net farm income, or nonfarm income accounted for by farms with sales in excess of s;
s = the upper end of a farm sales category;
n = degree of the polynominal functional; and
α, β_n = parameters of the function.

Except for net farm income at the lowest sales categories, $FY(s)$ declines as the end points of the sales categories increase. The signs on the coefficients are determined by the rate of change, skewness, and other moments of the decumulative function. This function, which reflects the distribution of characteristics among the USDA reported sales categories, differs for each characteristic and each year.

Use of equation (1) is based on the assumption that the unknown decumulative function of the continuous distribution of a characteristic by farm sales follows the same general form as the decumulative function based on the known distribution of the characteristics across sales categories. For example, since the number of farms is skewed toward the smaller sales categories, use of equation (1) is based on the assumption that the distribution of farm numbers within each sales category is skewed toward the lower end of the sales category.

To estimate the decumulative function, all nine USDA's sales categories were used, including the three under $10,000. Except for nonfarm income before 1970, a fifth degree polynomial was estimated for each characteristic with the choice of polynomial degree being based on mean square error. A third degree polynomial degree was estimated for nonfarm income before 1975 because nonfarm income was only reported for all farms with sales in excess of $100,000.

The end points of the sales categories adjusted to 1983 dollars for a given year were used along with the estimated decumulative functions for that year to obtain the distribution of characteristics among the 1983 dollar equivalent sales categories. The av-

erage index of prices received by farmers was 60 in 1970, 101 in 1975, and 134 in 1980 and 1983 (1977 = 100) (USDA, 1984). For example, $10,000 in sales in 1983 is equivalent to $4,475 in 1970 (($10,000 x 60) /134). This value was substituted into the decumulative function estimated for 1970 to obtain the number of farms with sales in excess of $4,475. This number was then subtracted from the total number of farms estimated by the decumulative function to obtain the estimated number of farms with farm sales less than $4,475 during 1970; that is, the number of farms with farm sales of less than $10,000 in 1983 equivalent dollars during 1970.

In this article, data are presented only for 1970, 1975, 1980, and 1983 to allow a compact diagrammatical presentation. Data for other or all years studied could have been presented, but the trends would not differ appreciably.

NUMBER OF FARMS

Between 1970 and 1983, the number of farms declined from 2,949 to 2,370, tables 1 and 2. For both the current and constant dollar categories, the greatest decline in numbers occurred in the less-than-$10,000 sales category. On the other hand, number of farms in all categories over $100,000 increased. While the changes were in the same direction, the magnitude of the changes was substantially less when inflation in the price received by farmers was taken into account. For example, number of farms with sales over $500,000 increased by 20,000 when measured in current dollars but only by 10,000 when measured in constant dollars. One difference between the two distributions was the change in number more than doubled, but measured in constant dollars little change occurred.

The proportion of farms with sales of less than $10,000 in current dollars declined from 70 to 49 percent, Figure 1, compared with a decline from 56 to 49 percent when the sales category was measured in constant dollars, Figure 2. In contrast, the proportion of farms with sales over $100,000 in current dollars increased from 1.8 to 12 percent and when measured in constant dollars the proportion increased from 6.4 to 12 percent.

Thus, in general, the same patterns of change emerge in the distribution of farm numbers whether the sales categories are measured in current or constant dollars. However, when inflation in the prices received by farmers is taken into account, the trend toward larger farms became less dramatic and more progressive. This conclusion is similar to that reached by Lin et al., Peterson, and Schertz for the United States and Ehrensaft et al. for Canada.

Further examination of the proportional distributional of farm numbers by farm sales categories reveals a bimodal distribution in the early 1980s. The bimodal categories are farms with sales less than $10,000 and farms

TABLE 1. NUMERICAL DISTRIBUTION OF SELECTED FARM CHARACTERISTICS BY CURRENT DOLLAR FARM SALES CATEGORIES, UNITED STATES, 1970, 1975, 1980, AND 1983

Characteristic and year	Less than 10,000	10,000- 19,999	20,000- 39,999	40,000- 99,999	100,000- 199,999	200,000- 499,999	500,000+	All farms
Number of farms:				1,000				
1970	2,067	362	302	165	36	13	4	2,949
1975	1,431	314	315	316	96	38	11	2,521
1980	1,188	286	279	388	179	84	24	2,428
1983	1,154	279	272	381	177	83	24	2,370
Gross farm income:				Billion $				
1970	10.00	7.13	10.99	12.17	5.92	4.55	8.07	58.83
1975	8.46	5.92	11.10	23.48	15.38	12.87	20.01	97.20
1980	10.08	5.85	10.25	29.85	28.60	27.70	43.38	155.72
1983	11.05	6.20	10.97	32.26	30.28	28.79	43.62	163.16
Farm expenses:				Billion $				
1970	9.17	5.22	7.85	8.89	4.43	3.36	5.54	44.45
1975	8.96	5.10	9.03	18.06	11.37	9.10	13.42	75.04
1980	10.79	5.84	9.78	26.79	24.19	22.18	29.18	128.95
1983	11.51	6.12	10.17	28.19	25.56	23.64	30.14	135.32
Net farm income:				Billion $				
1970	0.83	1.91	3.14	3.28	1.49	1.19	2.53	14.38
1975	-0.50	0.82	2.06	5.42	4.01	3.76	6.59	22.16
1980	-0.70	0.01	0.47	3.06	4.41	5.32	14.21	26.78
1983	-0.46	0.07	0.80	4.06	4.73	5.15	13.49	27.84

Source: USDA, September 1984.

TABLE 2. NUMERICAL DISTRIBUTION OF SELECTED FARM CHARACTERISTICS BY CONSTANT DOLLAR FARM SALES CATEGORIES, UNITED STATES, 1970, 1975, 1980, AND 1983[a]

Characteristic and year	Farms sales($)							All Farms
	Less than 10,000	10,000- 19,999	20,000- 39,999	40,000- 99,999	100,000- 199,999	200,000- 499,999	500,000+	
Number of farms:				1,000				
1970	1,640	354	396	376	124	50	14	2,954
1975	1,303	300	334	364	141	61	17	2,520
1980	1,188	286	279	388	179	84	24	2,428
1983	1,154	279	272	381	177	83	24	2,370
Gross farm income:				Billion $				
1970	5.26	3.58	7.57	13.35	9.18	8.22	11.76	58.92
1975	6.83	4.25	9.39	20.84	17.15	15.98	22.76	97.20
1980	10.08	5.85	10.25	29.85	28.60	27.70	43.38	155.72
1983	11.05	6.20	10.97	32.26	30.28	28.79	43.62	163.16
Farm expenses:				Billion $				
1970	5.45	2.88	5.48	9.61	6.72	6.10	8.27	44.51
1975	7.47	3.87	7.75	16.30	12.87	11.49	15.31	75.06
1980	10.79	5.84	9.78	26.79	24.19	22.39	29.18	128.95
1983	11.51	6.12	10.17	28.19	25.56	23.64	30.14	135.32
Net farm income:				Billion $				
1970	−0.19	0.69	2.09	3.74	2.46	2.12	3.49	14.40
1975	−0.63	0.38	1.64	4.56	4.28	4.48	7.45	22.16
1980	−0.70	0.01	0.47	3.06	4.41	5.32	14.21	26.78
1983	−0.46	0.07	0.80	4.06	4.73	5.15	13.49	27.84

[a] End points of sales categories were adjusted by prices received by farmers and are in 1983 dollars.
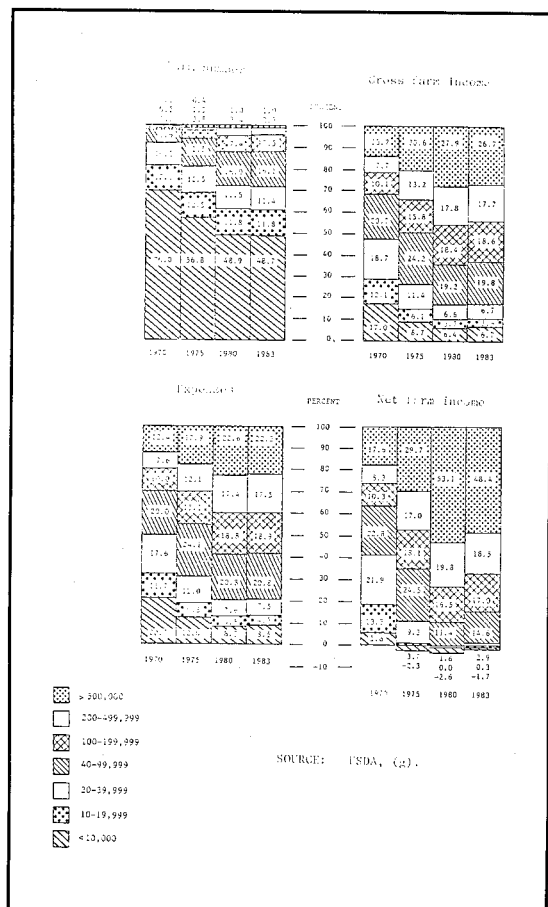Source: USDA, 1984 and September 1984.

Figure 1. Percentage Distribution of Selected Farm Characteristics by Current Dollar Farm Sales Categories, U. S., 1970, 1975, 1980, and 1983. Source: USDA (g).
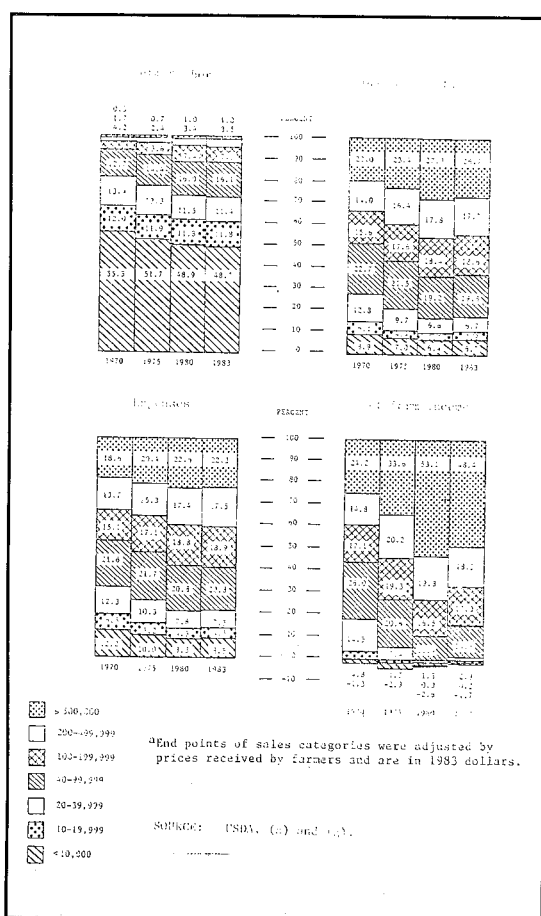

Figure 2. Percentage Distribution of Selected Farm Characteristics By Constant Dollar Farm Sales Categories, U. S., 1970, 1975, 1980, and 1983. Source: USDA, (a) and (g).

with sales between $40,000 to $99,999, figures 1 and 2.

The bimodal distribution developed in part because the proportion of farms with sales between $40,000 and $99,999 increased during the 1970s, even when sales are measured in 1983 dollars. This result is important because of the concern that medium size farms are disappearing. Farms with sales in this category are often considered medium size farms. Thus, the data suggest that medium size farms are not disappearing as a proportion of all farms. It is important to note that the number of these farms has not increased since 1970 when the sales categories are measured in constant dollars. Therefore, the increase in proportion of farms with sales between $40,000 and $99,999 in 1983 dollars has resulted from a decline in overall farm numbers not from an increase in number of farms with this value of sales.

GROSS FARM INCOME, FARM EXPENSES, AND NET FARM INCOME

Amount of gross farm income earned by farms with sales of less than $40,000 in current dollars changed little between 1970 and 1983, but increased substantially for each sales category over $40,000. In contrast, gross farm income increased for each category measured in constant dollars. The percentage increased was generally greater the larger the constant dollar sales category.

Dollar value of farm expenses increased for all current and constant dollar sales categories. The increase was smaller for the current than for the constant dollar categories of less than $40,000 but was larger for the current than for the constant dollar categories over $40,000.

Similar to farm numbers, the proportion of gross farm income and farm expenses accounted for by farms in all current and constant dollar categories with sales of less than $40,000 declined while the share accounted for by farms in all categories with sales exceeding $100,000 increased. A majority of the changes in the proportions fell between 8 and 10 percentage points for current dollar sales categories and between 2 and 4 percentage points for constant dollar sales categories. The share of gross farm income and expenses for farms with sales between $40,000 and $99,999 changes less than 1 percentage point excluding a 2.9 percentage point decline in share of gross farm income for constant dollar sales.

Total net farm income, before inventory adjustment, earned by farms in each sales category of less than $40,000 declined, whether sales were measured in constant or current dollars. The decline was greater for the current dollar sales categories. Net farm income declined the most for the $20,000-39,999 category, to 0.8 billion in 1983 from 3.14 billion (current dollars) and 2.09 billion (constant dollars) in 1970. Note that when adjusted for inflation in the prices received by farmers, farmers with sales of less than $10,000 in 1983 dollars had negative net farm income as a group in all 4 years.

Net farm income earned by farms with sales between $40,000 and $99,999 increased slightly for both current and constant dollars sales categories. In contrast, net farm income earned by farms having sales over $100,000 increased substantially. The largest percentage and absolute increase occurred in the $500,000 plus farm sales category whether measured in current or constant dollars.

During the period analyzed, net farm income became much more concentrated in a single farm sales category. Specifically, the share accounted for by farms having sales of $500,000 or more in 1983 dollars increased from 24 to 48 percent between 1970 and 1983. Conversely, the proportion earned by farms with sales of less than $100,000 in 1983 dollars decreased for 43 to 16 percent. The same general changes occurred when the current dollars sales categories are examined but the changes were greater, an increase from 18 to 48 percent and a decrease from 64 to 16 percent. A similar trend in concentration of net farm income was found by the United States Congress, Office of Technology Assessment study.

Compared with the current dollar analysis, the constant dollar analysis yields a somewhat different picture of the concentration in net farm income during the 1970s and early 1980s. For the current dollar categories, share of net farm income earned by farms with sales greater than $100,000 increased from 36.2 to 83.9 percent between 1970 and 1983. Farms with sales more than $500,000 accounted for 65 percent of the increased share. In contrast, for constant dollar categories, share of net farm income earned by farms with sales greater than $100,000 increased from 56.4 to 83.9 percent, with farms having sales over $500,000 accounting for 88 percent of the increase. Thus, when corrected for inflation in the prices received by farmers,

the concentration of net farm income on farms with sales exceeding $100,000 becomes even more a function of farms with sales exceeding $500,000.

One reason for the increased concentration of net farm income on farms with sales exceeding $500,000 was the increase in the proportion of farms with sales this large. Another reason is suggested by examining the ratio of gross farm income to farm expenses by farm sales categories, Table 3. This ratio represents the relative amount of gross farm income available for unpaid operator and family labor, management, and equity capital and thus, is a proxy for profit margin.

The same general trends emerge whether current or constant dollar categories are examined. Therefore, only the constant dollar numbers are discussed.

In 1970, the ratio of gross farm income to farm expenses was approximately the same for all farm sales categories in excess of $20,000 in 1983 dollars, ranging from 135 to 142 percent. Even for the $10,000-19,999 sales category, the ratio was 124 percent. By the early 1980s, substantial declines had occurred in the ratio for all categories except $500,000 plus. Everything else constant, these trends translate into an increasing share of net farm income accounted for by farms with sales in excess of $500,000 in 1983 dollars.

A reason for the continuing high ratio of gross farm income to farm expenses for the largest farms is suggested by the data in figures 1 and 2: cost containment. Since the trends are again the same whether current or constant dollar sales categories are ex-

amined, data for only the constant dollar sales categories are presented.

Between 1970 and 1983, the share of farm expenses paid by farms with sales greater than $500,000 in 1983 dollars increased by 3.7 percentage points. In contrast, their share of gross farm income increased 6.7 percentage points. For no other category with $40,000 or more in sales did the share of expenses increase (decrease) less (more) than the share of gross farm income.

The cost effectiveness of farms with sales greater than $500,000 may be due to economies of size in purchasing inputs (Faris and Armstrong; Krause and Kyle; Tew et al.) and/or to vertical integration between input suppliers and larger farm units (Smith et al.). Associated with these explanations is the possibility that the largest farms may be large enough to possess oligopsony market power, especially in their local input markets. This power may not be explicitly used by the managers of the largest farm operations, but may be implicitedly acknowledged by input suppliers, who recognize the size and importance of purchases by these farmers and accordingly pass along higher input discounts. To understand the on-going change in United States agriculture, additional research is needed to verify if these three and/or other factor(s) explain the continuing high returns for farms with sales exceeding $500,000. Should the research find that market power exists, then one of the basic economic tenets underpinning farm price and income support programs, pure competition (Houthakker), would be violated for the largest farms.

TABLE 3. GROSS FARM INCOME BEFORE INVENTORY ADJUSTMENTS AS A PERCENT OF FARM EXPENSES BY FARM SALES CATEGORIES, UNITED STATES, 1970, 1975, 1980, AND 1983

Characteristic and Year	Farm sales ($)							All farms
	Less than 10,000	10,000-19,999	20,000-39,999	40,000-99,999	100,000-199,999	200,000-499,999	500,000+	
	Percent							
Sales categories in current dollars:								
1970	109	137	140	137	134	135	146	132
1975	94	116	123	130	135	141	149	130
1980	93	100	105	111	118	124	149	121
1983	96	101	108	114	118	122	145	121
Sales categories in constant (1983) dollars:								
1970	97	124	138	139	137	135	142	132
1975	92	110	121	128	133	139	149	130
1980	93	100	105	111	118	124	149	121
1983	96	101	108	114	118	122	145	121

Source: USDA, September 1984.

NONFARM INCOME

For the farm sector in 1970, nonfarm income was 55 percent of total farm operator family income before farm inventory adjustments, Table 4. Reflecting the export boom, this proportion decreased to 44 percent in 1973, USDA, September 1984. It then resumed its pre-1970 increase, reaching 52 percent in 1975, 58 percent in 1980, and 60 percent in 1983.

Turning to the individual sales categories, share of farm operator family income accounted for by nonfarm income changed little between 1975 and 1983 for farms with sales under $10,000 or more than $500,000, whether constant or current dollar sales categories are examined. In contrast, for the other sales categories the relative importance of nonfarm income increased by at least 9 percentage points for both current and constant dollars sales categories between 1975 and 1983.

By the early 1980s, nonfarm income had on an average become the only source of income for farms with $10,000-19,999 in sales (because net farm income was essentially zero), the dominant source for farms with sales of $20,000-39,999, the majority source for farms with sales of $40,000-99,999, about 30 percent of farm family income for farms with sales of $100,000-199,999, and approximately 20 percent of farm family income for farms with sales of $200,000-499,999. Generally, for these categories the absolute percentage point increase in dependence on nonfarm income declined as farm sales increased, but the percent increase in dependence on nonfarm income increased as farm sales increased. This

result reflects in part the fact that a given absolute change will result in a higher percent change the smaller the initial value.

The growing importance of nonfarm income for even larger farmers deserves an explanation. Schultz (pp. 279-80) and Houthakker (pp. 5-8) have shown that economic growth and its associated technological change, working through Engel's Law, will cause income per hour of labor input in the farm sector to decline relative to income per hour of labor input in the nonfarm sector. While labor returns in the two sectors will equate over time if no new technology is developed, the continued development of new technology associated with economic development and the pervasive influence of Engel's Law will likely result in a recurring surplus of human (and probably physical) capital and therefore a recurring farm income problem.

Individual farmers may respond to this income problem by either becoming larger or leaving agriculture. In addition, Barlett, Gladwin and Zabawa, Kada, and Salent have found that off-farm employment can increase the survivability of a farm during a period of farm financial stress. This effect of off-farm employment can probably be extended to nonfarm income, whatever it source. Thus, in response to a farm income problem, individual farmers may either become larger, find off-farm work (more broadly, nonfarm income), or exit farming (Gladwin and Zabawa).

The impact of nonfarm income on the farm sector does not, however, stop with increasing the survivability of a farm. Nonfarm income permits farm families to hold onto their

TABLE 4. PERCENT OF TOTAL FARM FAMILY INCOME EARNED AS NONFARM INCOME BY FARM SALES CATEGORIES, UNITED STATES, 1970, 1975, 1980, 1983

Characteristic and Year	Farm sales ($)								All farms
	Less than 10,000	10,000-19,999	20,000-39,999	40,000-99,999	100,000-199,999	200,000-499,999	500,000+	100,000	
Sales categories in current dollars:					Percent				
1970	94.4	44.3	24.5	16.7	a	a	a	7.3	55.1
1975	103.1	75.2	47.0	22.8	14.7	8.5	2.0	7.6	51.9
1980	103.3	99.7	87.7	55.6	29.2	16.3	3.9	12.5	58.4
1983	101.9	98.6	82.1	51.4	30.6	19.0	4.8	14.5	59.6
Sales categories in constant (1983) dollars:									
1970	101.7	73.3	43.4	27.0	a	a	a	10.4	55.1
1975	104.2	87.3	56.0	30.0	16.5	10.1	2.7	8.8	51.9
1980	103.3	99.7	87.7	55.6	29.2	16.3	3.9	12.5	58.4
1983	101.9	98.6	82.1	51.4	30.6	19.0	4.8	14.5	59.6

aNonfarm income was not available for these categories until 1975.
Source: USDA, September 1984.

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farm production resources even though the farming operation is not large enough to provide an "adequate" or "desired" income level. Thus, farmers who need to expand their farming operations to meet the economic pressures of maintaining net farm income levels, including farmers who earn most of their income from the farm, must bid for the remaining farm resources not only against each other, but also against new entrants and existing farmers who are using nonfarm income to finance expansion. Some farmers with relatively little or no nonfarm income, especially the smaller ones who probably have the greatest financial difficulty, will opt for or be forced to acquire nonfarm income to solve their income problem. Thus, non-farm income results in even more farm resources being denied farmers who attempt to earn most of their income from the farm. Note that the nonfarm income could come from a decision to voluntarily invest accumulated past cash surpluses from the farm into nonfarm investments which yield higher returns than farming. However, given the farm income treadmill, a voluntary decision today to invest in nonfarm opportunities or, more broadly, voluntarily seek nonfarm income whatever its source may increase the farm's survival probability tomorrow.

Continuing economic development will continuously lower labor returns in agriculture vis-a-vis labor returns in the nonfarm sector, perpetuating this scenario. The farm sector, therefore, appears to be on a treadmill with respect to farm income. This treadmill is driven by technological change and Engel's law. Nonfarm income provides one alternative a farmer can use to cope with the tread-mill. However, this solution has the effect of bidding farm resources away from other farmers who could use them to become larger and thereby cope with the treadmill. These farmers may instead turn to nonfarm income.

The net result is that there appears to be a nonfarm income treadmill inside the farm income treadmills. The interaction of these two treadmills will result in an increasingly larger amount of farm resources held through the support of outside capital, i. e. nonfarm income, increasingly larger farmers becoming dependent on nonfarm income for an increasingly larger share of their total income, and an increasingly share of farm production accounted for by farmers who earn a substantial, if not most, of their income from nonfarm sources. Concerning the latter

point, between 1970 and 1983, the share of gross farm income and farm expenses accounted for by farms in sales categories which on average earned at least one-half of farm family income from nonfarm sources increased from 15 to 37 percent and from 19 to 41 percent, respectively.

SUMMARY AND CONCLUSIONS

During the 1970s and early 1980s, the same general trends emerged in the distribution of number of farms, gross farm income, farm expenses, net farm income, and nonfarm income by farm sales categories whether the sales categories were measured in current or constant dollars. Share of farm numbers, gross farm income, farm expenses, and net farm income earned by farms with sales of less than $40,000 decreased while the share earned by farms with sales greater than $100,000 increased. However, the changes were smaller after inflation in the prices received by farmers was taken into account. Lastly, even when inflation in the prices received by farmers was considered, the proportion of farms which had sales between $40,000 and $99,999 increased although their share of gross farm income declined.

The increasing concentration of net farm income among farms with farm sales of at least $500,000 is attributed in part to the continuing high ratio of gross farm income to farm expenses for these farms (approximately 145 percent). The ratio for farms with smaller farm sales declined.

An increasing dependence on nonfarm income was found for farms in all categories between $10,000 and $500,000. This trend is postulated to result from a nonfarm income treadmill within the Schultz-Houthakker farm income treadmill. The farm income treadmill grows out of economic development and Engel's Law. One alternative for escaping the treadmill is for a farmer to earn nonfarm income. However, nonfarm income allows a farm family to hold onto its farm production resources and, therefore, essentially bids resources away from farmers who would like to expand their operation to deal with the farm income treadmill. These farmers in turn may elect or be forced to use nonfarm income to cope with the treadmill. The end consequences of the farm income treadmill and use of nonfarm income to solve this treadmill could be an agriculture where most farm

production is accounted for by farm operators who earn most of their income from nonfarm sources.

Time will tell if full-time farming will become a rustic memory. In the meantime, research is needed on several topics related to change in United States agriculture, including: why has the ratio of gross farm income to farm expenses remained high for farms with sales over $500,000, is this ratio likely to continue to remain high, and what impact does nonfarm income have on the use of farm production resources and the intergenerational transfer of farm resources?

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