

Sales Distributions

Based on the 1974 adjusted census data, the equation below does not estimate the sales class distributions as well as the acreage distributions:

$$\ln y - 2.0 = \frac{-0.18961 \left[\frac{x_i - 1.0}{\bar{x}} \right]}{(-6.627)} \quad R^2 = 0.846 \quad (8)$$

where: y = percentage of farms that lie above a size limit x_1 ,
 x_1 = the lower size class limit in sales receipts,
 \bar{x} = the average sales receipts per farm, and
 R^2 = the coefficient of determination.

The slope of the function is -0.18961 , and the t ratio is shown in parentheses. After calculating the intercept term, the estimated equation for 1974 sales distribution can be written alternatively as:

$$\ln y = 2.00029 - 0.18961 x_1/\bar{x} \quad (9)$$

The constant term was estimated by using the average sales receipts per farm (\$33,077) in 1974.

It is necessary to have projected average sales per farm to project the future sales distribution. A linear trend equation for this purpose was estimated for the period 1970-77:

$$S_a = 2152.47 + 4645.33 T \quad R^2 = 0.569 \quad (10)$$

(0.259) (2.815)

where: S_a = average sales receipts per farm,
 T = time (1970 = 1.0, 1971 = 2.0, etc.),

and the t ratios are in parentheses. In addition, total sales receipts are needed so that the number of all farms can be projected. Another linear trend equation for this purpose was estimated:

$$S_t = 44,998.3 + 7,303.13 T \quad R^2 = 0.841 \quad (11)$$

(6.878) (5.637)

where S_t is total sales receipts, and the other values are as defined above. Projected total farm numbers again continue to decline, with the pattern similar to that of acreage distributions (table 19).

The projected sales distributions, however, appear to depart from the historical trends in several important aspects. First, the negative exponential function projects far too many farms with sales of more than \$100,000. Second, small farms (sales less than \$20,000) are projected to disappear at a rapid rate--a decline from 72 percent of the total number of farms in 1974 to 6 percent in 2000. Third, the number of farms in the \$40,000-to-\$99,999 sales class is projected to be smaller in 2000 than the number in 1974.