

To the extent that size distribution around a moving average is stable over time, the information required for projecting future farm size distributions is minimal--the projected land in farms and average farm size in acreage distributions, and the projected total sales receipts and average sales receipts in sales distributions. Strictly speaking, however, the rationale for using the negative exponential function is not as strong for size distributions defined by sales. Thus, caution is advised in use of these equations for obtaining precise projections of sales distribution. Nevertheless, for comparison purposes and to maintain consistency throughout this report, sales distributions and their projections are also projected in this section.

Projections of acreage distributions to 2000 were obtained from the estimated equations by dividing the trend average farm size into the lower limits of each of the size categories to obtain new x variable values and the constant term, calculated as described previously. The resulting values are used to obtain the projected decumulative distribution, and the percentage of farms in each size category is found by subtracting each category from the previous one. Projected annual mean sizes were obtained from a linear time trend equation estimated from data for the 1957-77 period. The estimated equation is:

$$M = 363.39 + 3.02 T \quad R^2 = 0.96 \quad (6)$$

(0.20)

where M is mean size in acres, T is the time variable (1957 = 1.0, . . .), and the value in parentheses is the standard error of the estimate.

While the above information is sufficient to project future farm size distributions, projections of total number of farms require additional information on expected land in farms in the future. Land in farms was fitted by a linear trend equation based on census data (adjusted for undercoverage) for the years of 1959, 1964, and 1974. The estimated equation is:

$$L = 1233.80 - 8.16 T \quad R^2 = 0.971 \quad (7)$$

(0.13)

where L is land in farms and T is the time variable (1959= 1, 1964 = 6, etc.). Total number of farms is projected by dividing the projected average farm size into land in farms.

As expected, the number of farms was projected to continue to decline; a decrease from the actual 2.9 million farms in 1974 to 1.8 million farms in 2000 (table 18). The general pattern of decline in farm numbers is similar to that projected by historical trends reported in the previous section. However, the rate of decline after 1980 slows. During the 1974 to 2000 period, the negative exponential functions projected farm numbers to decrease at an annual average rate of 1.8 percent. Farms less than 220 acres in size show a continued decline in numbers, especially farms of less than 50 acres in size. The projected size distributions in the 220 to 2,000-acre range, although generally continuing a declining trend, present a discontinuity to recent trends: Instead of projecting smaller farm numbers in 1980 than that in 1974, the numbers are projected to increase. This discontinuity becomes more obvious in the 220 to 2,000-acre range. On the other hand, the numbers projected for the size class of over 2,000 acres present the opposite kind of discontinuity, even though the increasing trend is maintained.