World Food Needs. Although world famine is not new, our awareness and sensitivity to it is. Major industrial firms reviewing the development of our commodity donation programs and the expansion of dollar export markets, and sensing a clash of population growth with food needs, may anticipate that the United States will assume a role of increasing responsibility in feeding much of the world. Firms desiring to capitalize on the world's food needs may be selecting agriculture as a vital growth area.

Nonland-based Production. Except for range livestock operations, livestock production no longer requires an extensive land base. Beef feedlots; egg and broiler production; turkey production; lamb feeding; pig farrowing, weaning, and feeding units; and dairy farms are increasingly established as confinement systems independent of productive farm land. The separation of intermediate production steps such as specialized feeder pig production, cattle feedlots, or custom-hire field work has been facilitated by technological change. The separation of farming from agribusiness and nonfarm activities has become less distinguishable. Many of the economic reasons for small-scale farms disappear with the separation of land-intensive farming from nonland-based production.

Industrial Management Approach. The potential of substituting machinery for labor in crop production on an extensive scale has long been recognized as has the risk of price and weather variability. Yet, an industrial approach has appeal. Large dollar sales can be achieved per unit of labor with only a modest sales force. High volume output per unit of labor impresses wage-sensitive managements. Continuing technological advances in irrigation and agricultural chemical use suggest a new dimension to farming—the substitution of one type of capital (agricultural chemicals) for another (farm machinery).

ECONOMIC AND SOCIAL IMPLICATIONS

Economic studies of farm size have shown that, as farm size increases, average costs either decrease, remain about the same, or increase slightly for very large farms—but still remain below average returns.[7] If this were always so, large farms would be the most profitable, and it might be expected that the size distribution of farms would rapidly shift in this direction. But, as Wilcox reported to the Subcommittee on Antitrust and Monopoly, farm size has been increasing almost uniformly for all size categories.[8] Of all farms, the largest 10 per cent produced 44 per cent of all farm production in 1949, 46 per cent in 1959, and 48 per cent in 1964. The smallest 20 per cent of all farms produced about 3 per cent in each of these years.

Smaller farms have substantial staying power for several reasons. Farm income may be supplemented by the sale of custom services and by income from off-farm employment. Where resources lack uniformity or where spatial dispersion exists, the degree of management coordination and supervision required may be most efficiently supplied in smaller units. Problems of price and weather predictability and unreliable labor supplies increase both the difficulty of management and business risk, deterring farm expansion. Operators of small farms, especially debt-free owners, may be satisfied with a lower management and risk-bearing return than would be necessary for large indebted operations. Even though small farms are a vital part of our agricultural economy, growing evidence shows that an increasing proportion of production comes from large-scale commercial agriculture.

Chart 2, based upon 1964 Census data, shows the growing importance of large-scale agriculture. The number of farms grossing $100,000 or more in farm product sales increased from about 20,000 in 1959 to 31,000 in 1964. Although representing only 1 per

[7]U. S., Department of Agriculture, Economic Research Service, *Economies of Size in Farming,* Agricultural Economic Report No. 107 by J. Patrick Madden, February 1967.

[8]Walter W. Wilcox, Statement to Subcommittee on Antitrust and Monopoly, Committee on the Judiciary, U. S. Senate, September 27, 1967.