

The Model

This report assesses how various operator and farm characteristics affect farm exit. Farm size and operator age, however, have important effects on exit, so controlling for these factors is necessary in order to isolate the separate impacts of other farm and operator characteristics. To do this, a logistic regression model is used to estimate exit probabilities for farms with different characteristics. This type of model is commonly used in cases in which the variable of interest is a binary index, coded 1 (for exit in this case) or 0 (for survival) rather than continuous. For a detailed description of the model, see appendix II.

This analysis uses a base model with two groups of independent variables that cover four age classes for the operator and six sales classes for the farm. The analysis then examines the effects of including additional independent variables—namely, farm specialization, business age, and operator race, gender, and off-farm work. We first explore a base model that uses only age and sales class for three reasons:

- First, knowledge of exit probabilities across various size and age categories is useful in itself.
- Second, the exact linkage going from age and size to exit may be complex. We did not want to complicate the model more by adding additional variables.
- Third, the base model estimates provide a useful point of comparison when we add additional variables.

Using a base model that includes only operator age and farm sales class does not imply that the decision to exit is simple. As pointed out by Kimhi and Bollman (1999, p. 70), the decision to exit can be fairly complex even if only age and profitability are considered:

...Farmers choose to exit at or prior to retirement. In both cases, the alternative utility must be greater than the on-farm utility, by a factor large enough to cover the psychic cost of exit. Exit is almost inevitable in old age because of health problems and a decline in the ability to perform physical tasks, but it may also be a consequence of poor ability to run a farm, or simply bad luck. Hence, the decision to exit is in part planned ahead, and in part a consequence of revealed poor farm performance. In addition, exit can be gradual, implying that farmers may reduce farm activity, perhaps shift to part-time off-farm work, and eventually exit...

A variable that measures performance or profitability may be preferable to sales class, but such a measure is not available on the longitudinal file for each farm across time.⁵ Sales class, however, could be considered a proxy for profitability, given the relationship between sales and operating profits (fig. 2).

⁵Adding total sales and government payments and subtracting production expenses creates a crude measure of net income on the longitudinal file. However, production expenses are sample items, with the sampling rate in a given county ranging from one in two farms to one in six farms. A farm sampled in 1 year may or may not be sampled in other years, which makes analysis of small groups particularly difficult. In addition, the expense and government payments data are available only for 1987, 1992, and 1997, which restricts any analysis to two intercensal periods.