Factors Affecting Plant Exit from the U.S. Meat Slaughter, Poultry Slaughter, and Processing Industries: Comparisons Across Industries

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This study is a revised adaptation of earlier work by Wohlgenant et al. (1998). The methodology is similar to that used by Anderson et al. (2002) for plant exit from the U.S. Meat Slaughter and Processing Industries: Comparisons Across Industries. *Presented at the American Agricultural Economics Association meetings, Long Beach, CA, July 27-30, 2005

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1. Introduction

Share and poultry plants have historically had high costs of plant exit and entry costs, and share some mix of plant exit factors depending on the conditions. Industry-wide data on exit and entry factors depend on the type of data collected and the methodology used. One way to learn about the factors affecting plant exit and entry is to compare exit and entry patterns across different industries. While differences in the share and poultry industries are relatively easy to identify, differences in the meat and poultry industries are more difficult to identify. Similarly, differences between the meat and poultry industries and the processing industries are more difficult to identify. The meat and poultry industries are different from the processing industries in terms of plant size and the nature of plant exit and entry costs. Thus, it is unusual to find a set of plant exit factors that are important for both share and poultry plants and the processing industries. This paper presents the results of a study of the factors affecting plant exit and entry in the U.S. Meat Slaughter, Poultry Slaughter, and Processing Industries: Comparisons Across Industries. The study was conducted by RTI, a private data vendor.

Plant-level data were obtained from USDA’s Food Safety Inspection Service and augmented with company-level data from a private vendor, USA is a private data vendor. The study was conducted by RTI, a private data vendor.

2. Plant Entry & Exit Patterns

(a) The total number of meat and poultry plants has been relatively constant over the 1993 to 2000 time period (Figure 1). (b) Exit rates increased for very small and large plants between 1993 and 1996 (Figure 1). (c) Better rates increased for very small and large plants but decreased for small plants during the PR/HACCP implementation (Figure 2).

3. A Model of the Plant Exit Decision

A plant will exit the industry when:

\[ t < V_L t - e^{-r t} V_t + 1 \]

where \( t \) is in profit, \( V_L \) is the value of the future time, and \( r \) is the discounted value of the future time remaining to the plant at the end of the period. Let \( X \) be the vector of variables indicating the present values of the plant. Thus, the period will exit if the vector \( X \) is

4. Description of Data

(a) Plant level data were obtained from USDA’s Food Safety Inspection Service and augmented with company-level data from a private vendor, USA is a private data vendor. The study was conducted by RTI, a private data vendor.

(b) The results of our analysis indicate that the factors affecting plant exit did indeed differ among types of plants. While controlling for other plant characteristics that favor economic conditions for the region, as do higher wage rates in some cases. In addition, because of the different institutional structures for the meat slaughter and poultry slaughter industries, the measures of market share and competition had different effects in these industries. The findings that the reverse is true offers an important decision for the meat and poultry industries and the processing industries. The results of this analysis may be of interest to policy makers, regulators, and others who are interested in the economic effects of the PR/HACCP regulations.

5. Results of Probit Estimation

(a) The statistically significant factors explaining the probability of plant exit are presented in Table 3. (b) Table 4. Statistically Significant Factors Explaining the Probability of Plant Exit

6. Conclusions

(a) The results of our analysis indicate that the factors affecting plant exit did indeed differ among types of plants. While controlling for other plant characteristics that favor economic conditions for the region, as do higher wage rates in some cases. In addition, because of the different institutional structures for the meat slaughter and poultry slaughter industries, the measures of market share and competition had different effects in these industries. The findings that the reverse is true offers an important decision for the meat and poultry industries and the processing industries. The results of this analysis may be of interest to policy makers, regulators, and others who are interested in the economic effects of the PR/HACCP regulations.

For More Information

For more details on the analysis and results, see the following:


