MARYLAND COOPERATIVE EXTENSION
UNIVERSITY OF MARYLAND
COLLEGE PARK•EASTERN SHORE

Fact Sheet

Fact Sheet 549

Factors That Reduce Industrial Plant Closures

Maryland's economic vitality depends greatly on the health of manufacturing businesses. Community leaders are interested, therefore, in attracting new manufacturers and in helping retain and expand existing businesses. This fact sheet, by reporting on research to determine why manufacturing plants do or do not close, is intended to provide community leaders in Maryland with information about what businesses to recruit and assist. A 14-year study dispels the notion that international competition alone has caused American plants to close. Its findings suggest that:

- high-tech industrial plants are less likely to close, and
- managerial practices are more critical in plant closures than is market competition.

From 1973 through 1987, a group of researchers at the Center for Innovation studied 110 industrial plants in New Jersey to determine what policies might be pursued to reduce the probability of plant closings. This research produced two policy recommendations: one for public officials at both the state and local levels and another for managers. There is also a special and somewhat grim message for rural America.

The 110 plants in the study broadly represent the American economy, including Maryland's. Plants tend to be dedicated to particular products and markets. The 110 plants used in the study produced 85 different products, thus being quite comprehensive. Between 1975 and 1981, over one-third of the plants in the United States closed, making the timing of the study ideal for discovering what makes plants close.

The study found that plant closings have more to do with managers and their strategies than with market competition. However, the Center did find that one industry-related characteristic made a significant difference once managerial practices were controlled: the amount of research and development (R&D) in the industrial sector. Not surprisingly, high-tech industries (pharmaceuticals, chemicals, and electronics) were more likely to survive. This suggests that managers who pursue an R&D strategy in a low-tech industry are also more likely to survive.

Factors That Effect Closings

According to the study, the four factors that make a difference in plant closings are plant size, worker expertise, automation, and decentralization.

Plant Size

Larger plants are more likely to survive than smaller plants. This reflects the need for economies of size. Analysis also indicates that instead of laying off workers, large plants actually increased the number of employees while smaller plants were closing.

The age of the plant does not make much difference because plants can be recycled many times. For example, the oldest plant in the United States was built before the Civil

War to make cannon balls. Over the previous century, it has shifted its manufacturing focus and was making wire mesh in 1973 (it has since closed).

Worker Expertise

Plants that rely on the scientific and professional competence of their employees are more likely to survive than plants that do not. Those plants that started with a higher proportion of professional and technical workers in 1973 were more likely to survive the next 14 years. In contrast, the number of managers did not make a difference. Reliance on scientifically and technically trained personnel increases the plant's ability to adapt to a rapidly changing environment, especially in the competitive world of high-tech products.

Automation

Plants with more automated production systems are also more likely to survive. Highly automated systems allow for more flexibility in shifting production from one product to another. For example, flexibility is critical in biotechnology because the life of a product may be only 9 months. Furthermore, automated production lines are more likely to produce higher-quality products, which in turn have a competitive edge in the marketplace.

Decentralization

Decentralized plants are more likely to survive than those that have decisionmaking power centralized in a main headquarters. Plants that were subsidiaries of major corporations were likely to be closed, presumably because large corporations have been less willing to allow their plants autonomy. The Fortune 500 companies, many of which had plants in this study, lost 3 million workers and managers from 1980 to 1987. In 1 year alone, these companies lost 5 percent of their net assets, reflecting their difficulties in meeting international competition.

Implications

These findings have special policy implications for rural areas where the level of professional and technical personnel is low. These plants are more vulnerable to closures because they tend to be smaller and have fewer professional and technical personnel. Such vulnerability could increase the differences in average income between rural and urban areas in the U.S. Therefore, public policymakers concerned about Maryland's rural communities will want to consider an aggressive adult education program to upgrade the training of workers in rural areas and instruct managers in more productive strategies.

For policymakers interested in attracting and retaining businesses in Maryland, a number of implications are worth considering. Although the advantages of encouraging high-tech industries to locate in Maryland are apparent, attracting particular sectors offers little advantage. Instead, the quality of management, a company's investment in professional and technical personnel, and the implementation of decentralized decisionmaking at the plant level are the most important considerations. Furthermore, raising the level of training and education of professional and technical personnel can benefit state and local communities. Last, Maryland Cooperative Extension educators, or other adult educators, could help make a difference in Maryland's future through research and managerial training to help companies survive longer.

The Center for Innovation is located in the Department of Sociology at the University of Maryland. The Center has two major research emphases: the consequences for society of investments in knowledge and the political economy of development in Maryland and various developing countries. Research about Maryland serves as a base for community economic development programs, which are supported by Maryland Cooperative Extension.

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