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Office of Strategic Research

THE OHIO MACHINERY INDUSTRY



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THE OHIO MACHINERY INDUSTRY

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OVERVIEW AND FORECASTS

AN OVERVIEW OF THE MACHINERY INDUSTRY⁹

Many machinery industry establishments sell their products to other establishments in specific industries and are, therefore, affected by what is happening in their client industries. Some of these linkages are obvious; each of the industries in the industrial machinery group (NAICS 3332) supplies a major industry or industry group. The names denote the industries with which they are linked: sawmill and woodworking, plastics and rubber, paper, textile, printing, food products, and semiconductor. Additional examples from other groups include commercial laundry equipment (333312) and rolling mill machinery (333516 – for primary metal production).

Other linkages are somewhat more broadly based. Farm machinery (333111) is sold to farmers and farm companies, but droughts and government policies also affect sales.¹⁰ Manufacturers of turbines and turbine generator sets (333611) are linked to utilities, which are in turn subject to oil, gas and coal prices as well as being regulated institutions. Construction machinery (33312) is dependent on residential and non-residential construction and repair, the mining industry, and public works. Mining and oilfield machinery (33313) depends on mining, oil, and mineral prices and environmental and safety concerns. Pumps and compressors (33391) depends on water and sewer construction and the chemical, paper, pulp, petroleum, and food and beverage industries. Pumps and compressors are also incorporated into a variety of machines (Hingher, 2005).

What is noteworthy about the linkage between these industries and their clients is how it affects them. Some machinery industries have a narrow economic base. For example, if the oil and gas industry is depressed, then the oil- and gas-field machinery industry tends to be depressed. Consequently, such machinery industries can be highly cyclical.¹¹ On the other hand, some industries sell their goods to the public or a variety of industries. Examples include lawn and garden equipment (333112), office machinery (333313), photographic and photocopying equipment (333315), and power hand tools (333991). These industries tend to be less cyclical because they are broadly based. Indeed, Fiore (2005) notes that some makers of farm machinery have expanded operations to include related types of industrial, construction, lawn and garden machinery and equipment to reduce the impact of volatile agricultural prices.

The direct and indirect markets for machinery are so diverse that any overall analysis of the industry would merely be an aggregation of analyses for the individual industries and industry groups. Furthermore, the importance of assessments and forecasts for industries and industry groups has more or less importance for Ohio, depending on the concentration of the industries here and even which companies are located here.

Space limitations preclude an industry-by-industry analysis of machinery manufacturing. However, analysts of different industries repeatedly mention several interrelated trends. They include globalization, the increasing importance of foreign

trade, consolidation, diversification of product lines, providing greater value for customers, faster rates of innovation, and the use of the Internet for conducting business. Hingher (2005) states that the machinery industry has been global for some time. Many companies no longer think of serving only their home country customers because opportunities for higher rates of growth are more likely to be found in the developing or newly industrialized areas of the world – most notably China, but also Latin America, the Middle East, Eastern Europe. Statistics show that exports are a growing portion of revenues for many industries. This undoubtedly reflects the impact of the North American Free Trade Agreement (NAFTA), and the general lowering of trade barriers. However, freer trade is a two-way street, and the reduced trade barriers have resulted in increased imports and meant serious competition for U.S.-based manufacturers.

In light of this, American machinery companies have taken a number of actions to remain competitive. Some have established operations in foreign countries (whether following their customers or circumventing trade barriers), formed joint ventures with local companies, or purchased competitors. (Fiore (2005) notes that these strategies date to the 1980s.) An international presence also creates an organization where customers can obtain different products for their various locations and do so under the same procurement strategy and budget. Furthermore, emerging markets often are low cost areas in which to do business (Hingher, 2005).

Mergers, acquisitions, joint ventures and alliances can have other advantages regardless of whether they cross national boundaries: broadening customer bases, diversifying product lines for less vulnerability to industry cycles, obtaining greater market penetration, achieving greater economies of scale, reducing costs by integrating operations, and providing more resources for research and development (R & D). However, bigger has not always been better. Some companies did not realize an increase in revenues commensurate with the greater size or costs. Under such circumstances, companies will spin-off or sell divisions not fitting with their strategies and drop products not part of their core competencies (Hingher, 2005).

R & D activities have not only led to longer-lasting, more productive machinery, they have advanced automation by incorporating human experience, rules and decision-making into machines via sensors and programmable logic controllers.¹² Implementation of new technologies may disrupt production for a short period of time as training and maintenance issues are resolved, but it may be more valuable over longer terms. Providing greater value for customers means more than a low price. Speed, reliability, and easy and quick routine maintenance make for greater productivity and more than compensate for a higher initial price (Hingher, 2005).

Use of the Internet facilitates the conduct of business. Communications and transactions may be speeded-up, expenses may be reduced for customers and suppliers, and comparisons of products and prices are made easier (also Fiore, 2005).

THE SHORT- AND LONG-TERM FORECASTS

The short-term outlook for at least some machinery makers is more or less good, continuing the expansions recorded in 2003 and 2004. Strong sales of farm machinery and equipment are expected in 2005 due to higher farm income. Non-residential construction probably will do well, particularly with the passage of the highway bill, but residential construction may show only marginal improvement (Fiore, 2005). Industrial machinery manufacturers also are expected to do well in 2005; the pace of growth may be slower but more sustainable than in 2003 and 2004. Capacity utilization rates have improved, but are not sufficiently high to justify adding capacity. Consequently, orders for new industrial machinery may lean more towards the replacement of old machinery than the more fundamental change of further automation (Hingher, 2005).¹³ Recent high prices for oil and natural gas may lead to some increased expenditures for oil field and gas equipment, but the money may go more for up-grades and refurbishment than for new machinery (Glickman, 2005).

Analysts disagree in their long-term forecast for the machinery industry. On one hand, the writers of Business Week (2004) foresee American manufacturing – including machinery – eroded by low-priced Chinese imports. They conclude that only a multi-pronged, concerted effort will eventually stop it. Fiore (2005) argues that significant grain reserves will persist due to production subsidy programs. These programs prop up farm income and sales of farm equipment in the short-term, but the long-term effect is excess crop production that suppresses prices and, therefore, income, which, in turn, suppresses machinery and equipment sales. Farm equipment and machinery makers also face tough competition in a mature market. Fiore (2005) expects construction equipment makers to keep pace with overall economic growth. He also thinks they may focus more on repair in the future now that the interstate highway system is complete and there is little demand for new dams.

On the other hand, Berman (2004) forecasts a rate of growth in output from machinery manufacturers that is *greater* than for the economy as a whole: 4.0 vs. 3.3 percent per year, respectively, from 2002 to 2012. This is a turn-around from the preceding decade – 1992-2002 – during which the average annual growth rate in output from machinery manufacturers was less than for the economy as a whole: 2.1 vs. 3.3 percent. Berman (2004) expects the higher growth to be led by other general-purpose (NAICS 3339, 5.2 percent), metalworking (3335, 4.9 percent), and industrial (3332, 4.4 percent) machinery. Output from commercial and service industry (3333) and agricultural, construction and mining machinery makers is expected to be above average: 3.6 and 3.5 percent, respectively. (The latter may include the effect of the long-term rise in oil and gas prices forecast by Glickman (2005).) Output growth rates for VHAC, commercial refrigeration, engines, turbines and power transmission are forecast to be positive but slower than average. If these forecasts are accurate, then they are good news for Ohio's machinery industry given the concentration of other general-purpose, metalworking, and industrial machinery manufacturing in the state.

However, cheery outlooks for long-term economic growth do not necessarily mean increased jobs. In contrast with the higher-than-average economic growth rates mentioned above, Berman (2004) predicts that national machinery industry employment will grow at a slower-than-average pace. He expects only the employment growth rate in other general-purpose machinery to exceed the national average (although the rate for metalworking machinery will come close). Employment gains at a slower pace are also predicted in agricultural, construction, mining, commercial, service, VHAC, and commercial refrigeration machinery. He forecasts no change for the engine, turbine, and transmission group, and a net loss of jobs in the industrial machinery group. Forecasts from the Ohio Dept. of Job and Family Services' Bureau of Labor Market Information (ODFJS/BLMI, 2004) for Ohio can be described simply: the employment gains in VHAC, commercial refrigeration, metalworking, and other general purpose machinery are predicted to be greater than the job losses in agricultural, construction, mining, engine, turbine, transmission, industrial, commercial and service industry machinery and equipment. The employment growth rate forecast for machinery manufacturing in Ohio is positive, but slower than the overall rate for the state.

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| See Table A13 |
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