

A Review on Consequences of Industrialization of Agriculture

Pallala Vyshnavi¹, P.Sravanthi², P.Vasavi³

^{1,2,3}PG Student, Dept. of MCA, Sree Venkateswara College of engineering, Nellore, Ap.

Abstract: Agriculture is significantly impacted by the industrial revolution. As more people left farms to work in factories, the productivity of agriculture first declined. Secondly, it resulted in the advancement of new machinery and technologies that enhanced our food production process. Lastly, it caused a change in our eating habits since individuals can now buy food from anywhere in the world. Numerous studies on industrialization, especially industrialization and control, have been carried out by sociologists. Although the majority of our research has concentrated on the labor process itself and what happens to workers while they are at work, a number of ground-breaking studies have examined the effects on rural communities of changing the organization and control of production. This paper provides a succinct summary of how industrialization has affected agriculture.

Keywords: Industrial revolution, Agricultural, Food Processing, Systemization and Routinization.

I. INTRODUCTION

The livestock and agricultural sectors in particular are going through a significant period of transition and change. This transition is commonly referred to as the industrialization of agriculture. Many have questioned what this term actually means ever since Tom Urban made it popular in a Choices article that is frequently cited. Critics have contended that it is merely the broad application of Adam Smith's ideas in agriculture and their rediscovery as they are presented in The Wealth of Nations. Some have suggested that instead of concentrating on technology and other "more sophisticated" industries, innovative businesspeople and entrepreneurs have chosen to apply some of the established industrial practices of process control, system analysis, routinization, strategic alliances, and quality control to agriculture.

A few scholars have contended that agriculture merely acknowledges the ideas put forth by Porter, Coase, North, Harrigan, Mahoney, and Williamson regarding transaction cost, principal/agent theory, strategic management, negotiation/power, information, and performance incentives. According to critics, farming

and agriculture are being forcefully changed from being largely a way of life to a business, from an industry that valued independence to one that imposes dominance and dependence. What threat does this pose? Depending on your point of view, an insignificant (or at best not new) or inventive and creative transition in agriculture, and what are the effects of industrialization?

II. FIVE SPECIFIC DRIVERS

The viewpoint of Creative Destruction establishes a framework in which particular motivating factors influence agriculture and other economic sectors.

i). Consumers are evolving: Particularly in the US, customers now anticipate consistently better than average performance in the marketplace. This is, in fact, the pinnacle of creative destruction. Customers now anticipate exceptional quality and diversity from the products and services available to them in the marketplace. Particularly in developed economies, a food product's marginal dollar is in competition with all other possible uses of the consumer's dollar in addition to other food products. As a result, even though it's a crucial social objective, producing large amounts of safe food to satisfy the average person's nutritional needs doesn't work to compete for more consumer spending.

ii). Consumers and ongoing development: In the case of the majority of agricultural products, intermediaries also known as "the evil middleman" stand between the producer and the end user. In actuality, food service providers and retailers are the farmers' customers, and these food processors and manufacturers are their clients. As suppliers, food processors have discovered that in order to thrive, it is imperative to define quality in terms of what customers require and to always strive for improvement. Food processing companies are starting to view agricultural producers as suppliers and are also developing similar expectations for their suppliers as customers. Adverbial, open market commodity transactions do not exhibit the same

characteristics as effective customer/supplier relationships.

iii). Social accountability: It's evident that people are now worried about the methods and techniques used in the production of their food. It is easy to find specific examples about labor practices, food safety, and the environment. In contrast to the commodity market, which is driven by price and physically measurable quality attributes, responding to societal concerns frequently requires the addition of new information attributes to the market, such as the how, where, and when of production. The commodity market's ability to meet consumer demands declines as these pressures mount.

iv). Farmers as a threatened species: A cursory examination of the demographic information pertaining to farm owners in the Midwest will reveal a compelling narrative. The percentage of farmers who are conducting agricultural production at or above typical retirement ages is rising, while the average age of farmers is rising and the percentage of younger farmers is declining. I believe that in the past ten years, there has been a shift in the attitudes and expectations of young people who are most likely to pursue careers in agricultural production, even though this is not backed up by any empirical data. There seems to be less enthusiasm for becoming a "independent family farmer" and more interest in pursuing a career in production agriculture, perhaps as a result of the bad experiences associated with the farm financial stress of the 1980s. These two trends imply that a different production structure than what Heartland agriculture has become accustomed to may be necessary to draw in future management and labor.

v). Precision agriculture and technology: Over the past two years, anyone who has followed the farm media has been exposed to the information age and its possible effects on agriculture in the Heartland. Here, there are two crucial components:

- Thanks to global positioning and related technologies, we are able to locate specific locations within the farm factory on a regular basis.
- The Internet and related electronic communication technologies promise to change the flow of communications within the agricultural production and distribution system, enabling much more precise geographic information gathering, production processes, and decision making. In terms of agricultural inputs, farmer-supplier conversations may begin to supplant public relations campaigns and mass media coverage.

III. WHAT IS INDUSTRIALIZATION

Although it is impossible to define (since everyone sees the elephant from a different angle), let's attempt to explain industrialization of agriculture. The application of contemporary industrial manufacturing, production, procurement, distribution, and coordination concepts to the food and industrial product chain could be a succinct and straightforward description.

A Manufacturing Mentality

Manufacturing Food Products vs. Producing Commodities. The transition of agriculture from a commodity industry to one with differentiated products, especially when combined with a focus on the food consumer and a manufacturing approach to production, indicates a dramatic paradigm shift in the industry. The produce-and-then-sell mentality of the commodity business is being replaced by the strategy of first asking consumers what they want as attributes in their food products and then creating or manufacturing those attributes in the products. This may in fact require changes in how the raw material is produced and what it doesn't contain (i.e., chemical residues) as well as what it does contain. This manufacturing mentality has become more predominant and has the potential to be increasingly successful as we learn more about the biological production process and as we gain increased capacity to control and manipulate that process through genetics, nutrition, building and facility design, and health management programs.

Systemization and Routinization. One of the characteristics of the manufacturing process is systemization and routinization. With increased understanding and ability to control the biological production process, routinization becomes increasingly possible. Tasks become more programmable. Routinization generally fosters more efficient use of both facilities and personnel as well as less managerial oversight and overhead. Hourly work schedules that identify specific tasks to be done at specific times on specific days in the modern farrowing or finishing unit are examples of the systemization and routinization in modern livestock production. Precision crop farming is another example. In essence, agricultural production is becoming more of a science and less of an art.

Specialization. An additional manufacturing mentality concept now being utilized in modern production systems is that of specialization, not only with respect

to business venture and focus, but also with respect to individual employee tasks or function. As a larger proportion of the swine, dairy, beef, and poultry output is being produced by larger scale, specialized units, within these units employees are becoming more specialized in their task or functions with some focusing only on breeding, some on feeding, some on health maintenance, and so on. This specialization of function of personnel as well as business focus of the firm again is increasingly feasible because of better understanding and control of the biological process. Scheduling and Utilization. A further implication of the manufacturing paradigm in agricultural production is increased emphasis on facility utilization, flow scheduling, and process control. In the past, variability associated with the lagged dynamics of output response to current and expected prices and the biological production processes has made facility use and scheduling and process control difficult if not impossible. Many production units have in essence maintained excess plant capacity as one means of accommodating the uncertainty of the output of the biological production process. But again, as a result of increased ability to predict and control that process, facility use can be more accurately predicted and controlled, and process control concepts to improve efficiency and reduce cost are more applicable and useful than in the past.

Partnering and Alliances. At the same time that geographic and stage separation is occurring, the stages are being relinked by various forms of alliances. The traditional approach to agricultural production has been that of an independent producer who purchases inputs and sells products through various market mechanisms to other independent businessmen. Increasingly, producers are partnering with other resource suppliers in various ways to expand volume with limited capital outlays. In livestock production, this phenomenon is occurring through contracting arrangements; a hog integrator may own the breeding, gestation, and farrowing facilities, but contract out the nursery and growing phases. In essence, the integrator is leveraging volume by investing his funds in only part of the total fixed assets needed to produce hogs (approximately one-half of the investment is in breeding, gestation, and farrowing with the remainder in the nursery and finishing units), while maintaining a high degree of control of the other phases through the ownership of the livestock and the specification of the growing conditions. The critical dimension of such partnering or alliances is that more resources and services are outsourced if that is a less expensive

technique for obtaining production inputs, and more linkages up the value chain to the end-user are used to capture value in additional stages of the chain.

IV.CONCLUSION

The agricultural production and distribution industry is undergoing significant changes that will have a significant impact on management of production and distribution companies, starting with input sourcing and continuing through operations, finance, and marketing to end users. Most importantly, these modifications have a big impact on the knowledge and abilities required to succeed in the future. Technical expertise and knowledge will undoubtedly be crucial given the variety and demands of end-use markets and the increasing sophistication of the production process. However, it is not anticipated that technical expertise will serve as the primary source of a strategic competitive advantage. The human and interpersonal skills—negotiation proficiency, inventiveness and creativity, vision and strategic thinking, assessment and acceptance of new technologies and institutional arrangements, and awareness of markets, specializations, and diversity—are probably the ones that will be most important in the future. Although acquiring these crucial skills is more challenging, those who succeed in doing so should have a long-term strategic competitive advantage in the evolving agricultural industry.

REFERENCES

- [1]. Barkema A. and Cook M., "The Changing Pork Industry: A Dilemma For Public Policy," *Economic Review* (Federal Reserve Bank of Kansas City) Second Quarter 1993, pp. 49-65.
- [2]. Barry, Peter J., Steven T. Sonka, and Kaouthar Lajili, "Vertical Coordination, Financial Structure, and the Changing Theory of the Firm," *American Journal of Agricultural Economics*, 74(5):1219-1225, December 1992.
- [3]. Casson, Mark, *The Economics of Business Culture: Game Theory, Transactions Costs and Economic Performance*, Clarendon Press, Oxford, 1991.
- [4]. Coase, R.H., "The Nature of the Firm," *Economica*, 4:386-405, 1937.
- [5]. "Don't Get Left on the Shelf," *The Economist*, 332(7970):11-12, July 2, 1994. Harrigan, Kathryn R., *Strategic Flexibility A*

- Management Guide for Changing Times, Lexington Books, Lexington, MA, 1985.
- [6]. "The Industrialization of Agriculture: Policy, Research, and Education Needs," A Symposium, Council of Food, Agricultural, and Resource Economics, Greenbelt, MD, July 1994.
 - [7]. King, Robert P., "Management and Financing of Vertical Coordination in Agriculture: An Overview," American Journal of Agricultural Economics, 74(5):1217-18, December 1992.
 - [8]. Poultry Industry," George Morris Centre Food Industry Research Group, Guelph, Ontario, Working Paper 10-93, June 1993.
 - [9]. Milgrom, P. and J. Roberts, Economics, Organization and Management, Englewood Cliffs, NJ, Prentice Hall, 1992.
 - [10]. Porter, M.E., Competitive Advantage: Creating and Sustaining Superior Performance, New York Free Press, 1985.
 - [11]. Urban, T. "Agricultural Industrialization: It's Inevitable," Choices, fourth Quarter (1991):4-6. Williamson, O., "Markets and Hierarchies: Some Elementary Considerations," American Economic Review, Vol. 63, pp. 316-325, 1973.
 - [12]. Wunderlich, Gene, "Owning Farmland in the United States," Resources and Technology Division, Economic Research Service, U.S. Department of Agriculture. Agriculture Information Bul. No. 637, 1992.