

Chapter 1

Introduction

Under the auspices of the Arizona-Mexico and Sonora-Arizona Commissions, the Department of Agricultural and Resource Economics at the University of Arizona, El Centro de Investigación en Alimentación y Desarrollo, A.C. (CIAD), and El Colegio de la Frontera Norte (COLEF), analyzed the Arizona-Sonora agribusiness cluster. This study comprises component 4.3 of a larger binational project known as the *Strategic Economic Development Vision for the Arizona-Sonora Region (SEDVASR)*.

The overall aim of SEDVASR can be summarized as an attempt to identify actions that the governments of Arizona and Sonora can take to improve the region's position in the global economy. The stated general objectives of SEDVASR are:

- ◆ Develop Arizona and Sonora as a single economic region with a competitive advantage in the global market.
 - ◆ Facilitate the movement of goods, services, people and information through the region and promote the establishment of a trade corridor with Arizona and Sonora as a hub.
 - ◆ Promote linkages and eliminate barriers to facilitate economic development and to promote complementarity in commerce, trade, and production.
 - ◆ Stimulate and encourage cross-border cluster development in the Sonora-Arizona region to increase value-added economic activities.
 - ◆ Create new external markets and new market opportunities for the Arizona-Sonora region.
 - ◆ Identify and develop economic foundations, infrastructure and services needed to reach the desired level of competitiveness in the region.
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1.1 Objectives of the Study

The general objectives of this component of SEDVASR are to enhance the global competitive edge of the agribusiness sectors in the Arizona-Sonora Region by identifying the resource potential both states possess as one economically integrated unit and to identify competitive advantages and complementarities in order to exploit the development of new trade opportunities. The specific objectives of this study were to:

- ◆ Describe the agribusiness sectors of Arizona and Sonora and review recent global trends that affect the functioning of agribusiness activity.
- ◆ Evaluate trade patterns and linkages of the agribusiness sectors of Arizona and Sonora.
- ◆ Analyze the competitive position of the Arizona-Sonora agribusiness sector.
- ◆ Analyze the implications of NAFTA for the functioning and future perspectives of the region's agribusiness activity.
- ◆ Identify main impediments to the expansion of the region's agribusiness cluster.
- ◆ Recommend solutions to enhance development potentials and to overcome impediments identified for expanding the region's agribusiness industries.

1.2 Methodology

Information Sources and Data Collection

This study used two main sources for obtaining data and information: primary data, and secondary data. Primary data has been collected by interviewing agribusiness individuals in both Arizona and Sonora. On the Arizona side, a total of 175 questionnaires were mailed or faxed to selected "agribusiness leaders" and individuals involved in agribusiness activities. A variety of sources were used to identify these individuals that include farmers, ranchers, feedlot operators, dairy farmers, agribusiness entrepreneurs, brokers, bankers, commodity associations, and members of professional organizations, government and educational institutions. In selecting these individuals, an effort was made to obtain a wide representation of agribusiness industry both in terms of geographic location and commodity distribution. The questionnaire utilized in Arizona is provided in Appendix A.

Of the 175 questionnaires sent out, 93 were returned representing a 53% response rate for Arizona. All the survey results for Arizona are based on the responses from these 93 individuals. Based on what respondents identified as their product(s) or area(s) of expertise, the 93 respondents were then classified into four groups: crops, livestock, food processing, and finance and marketing. Depending on the responses, an individual may

be identified with more than one category. Using this procedure, 38 individuals are identified with crop sector, 33 for the livestock sector, 21 for food processing and 23 for financing and marketing sector.

On the Sonoran side, personal interviews were used to collect primary data. These interviews in Sonora were conducted by research staff at CIAD, Hermosillo and El Colegio de la Frontera Norte, Nogales, Sonora. Using the Arizona questionnaire as a starting point, four similar questionnaires were developed for Sonora for crops, livestock, food processing, and financing and marketing individuals. The four questionnaires are presented in Appendix B. These questionnaires were then used to conduct a total of 95 personal interviews – 33 individuals from the crop sector, 14 from livestock, 28 from food processing and 20 broker/finance individuals. As in Arizona, a considerable representation of agribusiness activity in the State of Sonora was obtained, covering the most important producing regions: Desierto de Altar (San Luis Río Colorado and Caborca); Central-Border region (Nogales-Magdalena); Central region (Hermosillo and Carbó); Southern region (Guaymas-Empalme, Valle del Yaqui-Ciudad Obregón, Valle del Mayo-Navojoa and Huatabampo); and Sierra region (Baviácora and Cumpas). Thus, a total of 188 agribusiness individuals were interviewed in Arizona and Sonora for this study. Besides administering the questionnaires, four focus group sessions were carried out; two in Hermosillo and two in Ciudad Obregón.

In addition to primary data, secondary data were relied on for this study. Secondary data were gathered from federal and state sources concerning size, importance and comparative advantages of the agribusiness sectors in Arizona and Sonora. Main sources for Sonora were INEGI, BANCOMEXT, SAGAR, CNA, BANXICO, the Government of the State and publications from private organizations, commerce offices, and research reports. Main secondary data sources for Arizona were Arizona Agricultural Statistics, US Agricultural Statistics, USDA/ERS (United States Department of Agriculture / Economic Research Service), and FATUS (Foreign Agricultural Trade of the US). A Technical Advisory Committee (TAC) was also established with members representing government agencies and private firms from the states of Arizona and Sonora. The TAC provided guidance in directing issues to address and valuable expertise in the “draft review” of this study.

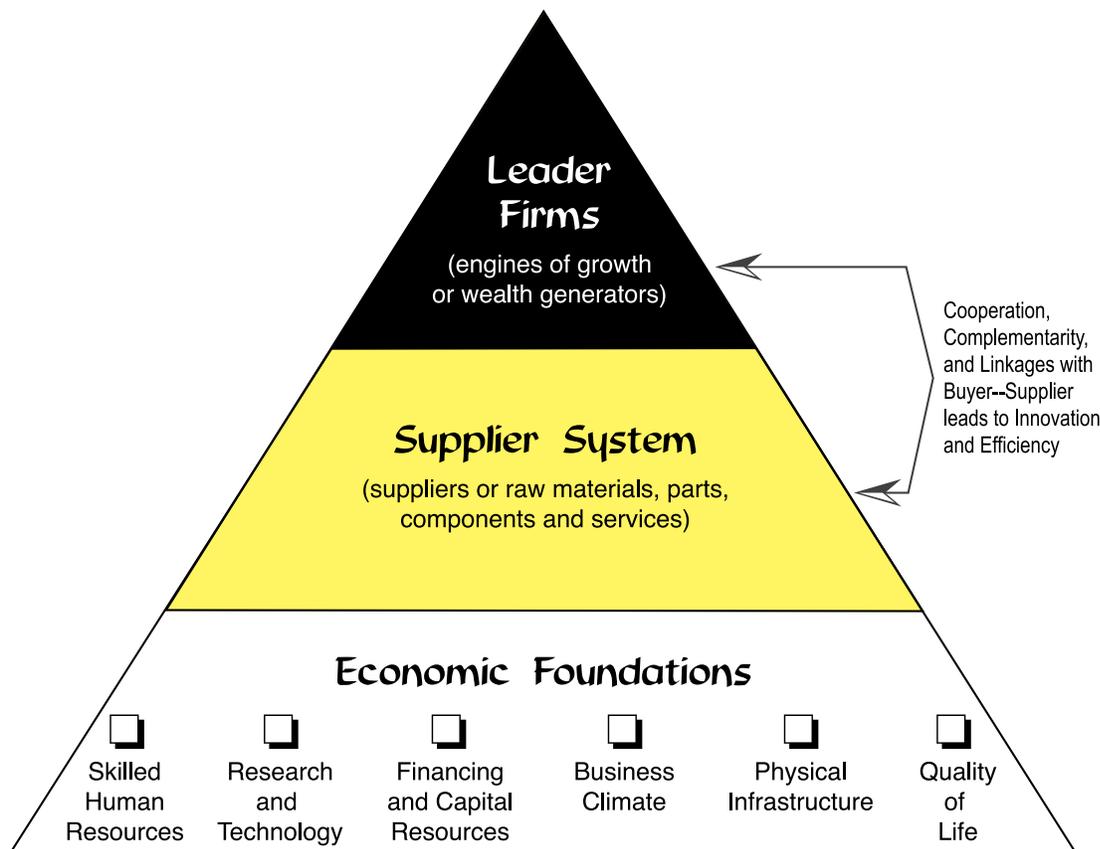
Analytical Framework

A fundamental analytical dimension in the design and elaboration of the SEDVASR project is the application of the *cluster and foundations* approach. Thus, along with the analysis of the economic structures of agribusiness activity in the Region, cluster and foundations concepts were also applied.

Industrial clusters and economic foundations are considered as two main sources of comparative advantage that provide knowledge inputs to companies within the new economics of technological advance, global competition, and corporate specialization (SRI, 1990; Porter, 1990). More specifically, industrial clusters represent concentrations of competing, complementary, and interdependent firms across several industries, including component suppliers, service providers, and final product manufacturers. That is to say, a cluster is a group of industries connected through vertical and horizontal linkages. According to this view, the category of industrial clusters more accurately accounts for comparative advantage in today’s global economy than traditional industry sectors.

In a similar way, economic foundations are the complex stock of resources needed to compete successfully in the global economy (SRI International; Porter). As described in figure 1.2a, the most important economic foundations are skilled labor, access to advanced technology, venture and investment capital, suitable and advanced physical infrastructure, and attractive quality of life. Porter argues that these foundations are more important to high-quality economic growth than traditional business climate factors such as cheap labor and land, and special tax incentives.

Figure 1.2a. Key Components of a Cluster.



Porter's model of the determinants and dynamics of national (regional) advantage were considered in this study. According to the model, the four following broad attributes of a nation (region) shape the environment in which local firms compete, promote or impede the creation of competitive advantage (Porter):

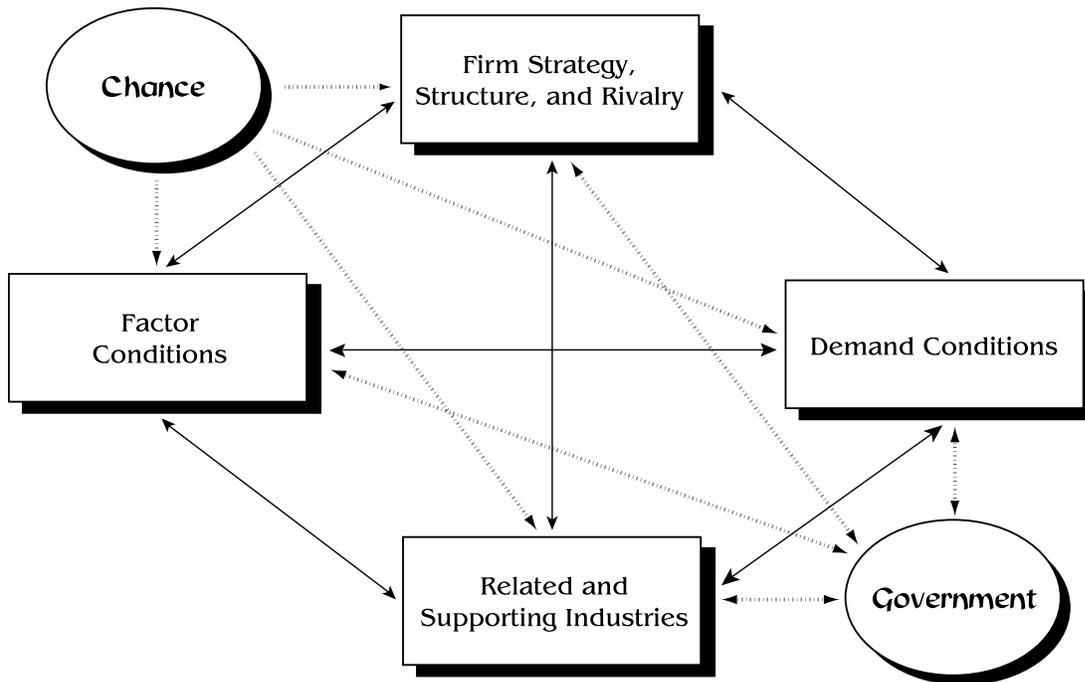
- ◆ *Factor conditions*: the nation's (region's) position in factors of production, such as skilled labor or infrastructure, necessary to compete in a given industry.
- ◆ *Demand conditions*: the nature of home demand for the industry's product or service.
- ◆ *Related and supporting industries*: the presence or absence in the nation (region) of supplier and related industries that are internationally competitive.
- ◆ *Firm strategy, structure, and rivalry*: the conditions in the nation (region) governing how companies are created, organized, and managed, and the nature of domestic (local) rivalry.

According to Porter, the determinants, individually or as a system, create the context in which a region's firms are born and compete. Thus, regions are most likely to succeed in industries or industry segments where the regional "diamond" above is most favorable. The "diamond" is a mutually reinforcing system since the effect of one determinant is contingent on the state of others.

In addition to the "diamond's" four determinants, the elements of *chance* and *government* influence a region's system and competitiveness. Chance events are developments that have little to do with circumstances in a region or nation and are often largely outside the control of firms (and often the regional and national governments) to influence. Some examples are acts of pure invention, major technological discontinuities, significant shifts in world financial markets or exchange rates, external political developments, discontinuities in input costs such as oil shocks, wars, etc. Chance events create discontinuities that can unfreeze or reshape industry structure and provide the opportunity for one region's firms to supplant another's. They create discontinuities that allow for shifts in the competitive position of an industry.

Government is prominently discussed in treatments of international competitiveness. Many see it as a vital, if not the most important, influence of modern international competition. However, the government's role is not considered as a fifth determinant in the competitive "diamond." Government's real role in national and regional competitive advantage is in influencing the four determinants, as described in figure 1.2b. Government has an important influence on national and regional competitive advantages, though its role is inevitably partial. Government can hasten or raise the odds of gaining competitive advantage (or vice versa) but it lacks the power to create advantages by itself. Some of the factors are as follows: subsidies, policies toward capital markets and exchange rates, fiscal policy, external trade policy, establishment of local or national product standards, gradings and regulations, antitrust legislation, and government purchases.

Figure 1.2b. The Complete System of the Determinant of National (Regional) Advantage.



Source: Adapted from M. Porter (1990).

A summary of the strengths/weaknesses and opportunities/threats for agribusiness clusters was made to ascertain the competitive position of the Region. *Agribusiness* is conceived as “an integrated food system that extends from farm to factory to retail consumer, including everything from food production to the manufacture of farm implements and pesticides to food processing and food marketing” (Burbach and Flynn). According to Burbach and Flynn, *agribusiness* was first used in the late 1950’s when describing the integrated food system of the United States. Under this framework, the agribusiness cluster includes production chains and related product transformation activities in agriculture, livestock, forestry, fishing/aquaculture. In this study, the agribusiness cluster is based on the study of crops, livestock, food processing, and their related financing/marketing activities.

1.3 Organization of the Report

The remainder of this report is organized into eight more chapters. Chapter 2 describes megatrends for agribusiness in a global context. Chapter 3 gives an overview of the agribusiness cluster in the Arizona-Sonora Region. Chapters 4, 5, 6 and 7 present results for the crop, livestock, food processing, and finance and marketing sectors respectively. Chapter 8 gives a synthesis of the general survey results from the primary data. Conclusions and recommendations are given in Chapter 9. Questionnaires used for interviews for Arizona and Sonora are given in Appendices A and B, respectively. Appendix C presents a complete description of survey responses for both Arizona and Sonora. TAC members for this study are listed in Appendices D and E.

1.4 References

- Burbach, R. and P. Flynn. *Agribusiness in the Americas*, Monthly Review Press, New York, 1980.
- Porter, Michael. *The Competitive Advantage of Nations*, The Free Press University, New York, 1990.
- SRI International. *Economic Success in the 1990's. A New Perspective and Analytical Approach*, Concept Paper, Menlo Park, California, August, 1990.
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