

Technical Assistance Note #1: Des Moines, Iowa Brownfield Pilot Site, December 98, Vernon P. Deines

I. Input-Output Analysis

Economic development decisions require information on the impacts of economic growth and/or decline and the relative benefits and costs of alternative development decisions in a community. Input-output analysis is one framework for analyzing the interdependence within the economy. A fundamental relationship of input-output analysis is that the amount of a product (good or service) produced by a given sector (agriculture, manufacturing, trade) in the economy is determined by the amount of that product that is purchased by all of the users of the product (households, government, foreign trade). *References include: Microcomputer Based Input-Output Modeling by Dan Otto and Thomas Johnson (eds.) Westview Press, Boulder, 1993; and The Kansas Input-Output Model by Jarvin Emerson, Kansas State University, Manhattan 1989.

An input-output model of an economy is a quantitative process for examining the complicated interdependence within the production system of the economy.

1. The transaction matrix describes the flows of goods and services between all individual sectors of the economy in a given year.
2. The direct requirements matrix indicates the requirements from each industry for a particular other industry to produce an average \$1 of output.
3. The direct and indirect requirements matrix is one of two matrices that measures the interaction among industries. The other (the direct, indirect and induced requirements matrix) is similar but includes the effects of household income and spending in addition to the interindustry interaction.

The Iowa Input - Output Model is based on the IMPLAN system developed for the Iowa economy. Highlights of this study, Economic Impacts of Agriculture was developed by the Iowa State University Department of Economics (Dan Otto, Professor of Economics and his colleagues) in August 1997. Total agriculture related impact on the Iowa economy is \$55.84 billion in gross sales and 445,823 in jobs, or 25.6% of gross state product and 22.8% of jobs. In addition to the role of agriculture in the Iowa economy, there are sections on the role of agriculture in each county.

The input-output analysis approach could be used in identifying agricultural enterprises for the Des Moines Agribusiness Park, particularly the synergistic relationship for development of value added firms in the Des Moines Agribusiness Park utilizing agricultural food and fiber production from the 21 county metropolitan area. For example, soybeans could be a raw material source for value added products such as soybean extracts for adhesives, printing ink and food supplements. These value added products could then benefit three sectors of the local economy (construction/ manufacturing, communications and food products).