

Chicago Fed and University of Illinois form regional research lab

David R. Allardice



Over much of its 75-year history the Federal Reserve Bank of Chicago has worked to understand more fully and describe more accurately the

changing economic structure of the Seventh Federal Reserve District. The Seventh District—all of Iowa and major segments of Indiana, Illinois, Michigan, and Wisconsin—lies in the heart of the Midwest. With major industrial and commercial centers, such as Chicago, Detroit, Des Moines, Indianapolis, and Milwaukee, as well as vitally important agricultural resources, the Seventh District is also near the heart of the U.S. economy. In its research on this region, the Bank has sought out new data sources and institutions with which to cooperate to improve and enhance the knowledge base on the District economy.

In January of 1989, the Bank and the University of Illinois at Urbana/Champaign joined forces to establish a center to study the changing nature and performance of the District economy. The center, called the Regional Economic Applications Laboratory (REAL), will enable researchers from the Federal Reserve Bank of Chicago and the University of Illinois to cooperate in the development of a set of integrated models of the Seventh District economy and its component parts. Ultimately, the models will be available to individual researchers, public and private corporations, and federal, state, and local government agencies interested in urban and regional economic issues. The center is a not-for-profit institution that resides within the Institute for Govern-

ment and Public Affairs at the University of Illinois. Direction of REAL's research activities is shared jointly by the two institutions.

Regional economic modeling

Regional economic analysis has been focused increasingly on the identification and understanding the quantitative impact of economic events on regional economies, whether the events occur at the national or international levels or even in other regions.

The traditional approach to modeling regional economies has been based on the regional input-output model. This model can describe the linkages that exist between industries. In this structure, changes in one industry can be shown to have both direct and indirect effects on other sectors within the regional economy. However, the increasing complexity of regional economies requires that greater attention be focused on other aspects of the regional system—for example, on the nature of the labor markets, on household expenditures, and on migration patterns. Thus, a need is created for the design and implementation of a set of models linked to one another, each describing an important component of the region's economy.

Input-output models

Input-output models, developed by the Nobel laureate Wassily Leontief, allow comprehensive forecasts and economic analyses of

David R. Allardice is assistant director of research and vice president at the Federal Reserve Bank of Chicago.

a regional economy. The completeness of the models allows one to trace the effects of a change in one component of an industry on all other industries. Moreover, the model relates changes in one facet of the economy directly and indirectly to the whole economy. This aspect of the input-output model makes it distinctly different from econometric models.

The major problem in constructing a regional input-output model is a lack of regional data and the inadequacies of the national data as a substitute. The most recent national input-output table using actual data is more than thirteen years old. A regional input-output model based on this national table would not only be out of date, it would also not capture the subtle differences between the District and the national economy.

There are numerous methods that allow the regionalization of national input-output models. But there are problems with such regionalization, in both technique and the data used.

Efforts at the University of Illinois have been directed toward analyzing separate components of an input-output table, instead of the whole table. Researchers at the University have found that, depending on the region, an analyst need update and regionalize only a few components of the national table. This makes the task of the regionalization much easier. However, even that simplification would require a substantial effort on the part of the data gatherer.

One of REAL's jobs will be to utilize available data sets necessary for the regionali-

zation and updating of the national table, as well as to select available techniques to combine with the defined data sets. REAL has an arrangement with the Center for Economic Studies at the U.S. Bureau of the Census in Washington, D.C., to obtain the most current establishment-level data collected through the various censuses.

So far, attention has been focused on the *Census of Manufactures* data. These data provide the very best information currently available for the construction of input-output tables. The initial efforts of REAL have also focused on the integration of input-output and econometric models to produce a consistent accounting scheme suitable for input analysis, forecasting, and projections.

The work allows for a more detailed analysis of important issues facing the Seventh District economy. It should provide a research framework in which to analyze many commonly held beliefs. For example, the models developed will be capable of examining the life cycle of firms and their relocation patterns. From this study, it will be possible to determine the extent to which the District economy is dependent on small firms for its growth.

The following article, "Chicago's economy: Twenty years of structural change," reports on some initial findings developed in the joint research effort. Future articles will report on other research findings stemming from REAL's efforts.