

Senior Thesis

Matthew Miller

Advisor: Dan Rockmore

A Network Approach to Industrial Input-Output Analysis

Abstract:

This paper establishes a framework for studying the industrial structure of an economy using network analysis. By considering various measures of industrial interdependence, economic input-output tables are used to compute a set of network statistics which identify those industries that are historically and presently most important to the United States economy. Given the recent volatility and uncertainty in the national economy, having a more thorough understanding of its underlying structure could indicate where academics and policy-makers should focus their attention. Measures of network centrality, hub and authority scores, and community specifications are all computed for data from 1947 - 2002. Furthermore, the results of industrial community structure analysis, which gives evidence toward a highly central real estate industry, industrial exposure of the financial industry, and a small community of automobile-related industries, may be a promising alternative to examining the importance of particular industries within the economy.