Long-term Effects of Institutions of Higher Education on the Regional Economy*

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Abstract

This paper investigates the long-term effects of universities and colleges on regional growth through knowledge spillovers. As houses and producers of knowledge and human capital, institutions of higher education may accelerate the region’s capital accumulation and technological change, thereby having a persistent effect on the growth of the economy. In addition, the nature of knowledge spillovers implies that institutions of higher education may affect not only their own locations but also the neighboring areas. The main goal of this paper is to estimate and distinguish among the effects that different types of institutions have on their location and neighbors. I use county-level data from the United States and estimate the effects of higher education institutions on the changes in local economic conditions measured by employment and wages. I take into account spatial dependence among counties in the estimation, which is largely neglected in prior empirical studies. Computational difficulty arises when estimating a spatial model with a large number of observations because spatial relationships are 2-sided and multi-dimensional. I utilize the sparse nature of the spatial weight matrix to solve the computational problem. Preliminary analyses use county-level data between 1990 and 1995, including measures of economic conditions provided in the County Business Patterns and institutional characteristics provided in the Integrated Postsecondary Education Data System (IPEDS). The results suggest that U.S. counties with more universities or colleges had higher growth between 1990 and 1995 in terms of employment. Universities with accredited engineering programs or business programs have much larger effects than others. In terms of spatial dependence measures, counties experience large spillovers from having a university with business programs in a neighboring county. I am currently extending the analysis period to the years of 1975 to 2000. Data will be acquired from additional sources, including the Covered Employment and Wages (CEW) program, which provides employment and wage data between 1975 and 2000 at the county level, and the 1974-1975 Institutional Characteristics file of the Higher Education General Information Survey (HEGIS), which provides information on universities and colleges. Institutions will be further categorized by their research and degree granting activities based on the Carnegie Classification.

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