

Data Sources: Graduate Education and Regional Economic Growth

With the continuing development of a “knowledge economy” that is driven by innovation and entrepreneurship (Atkinson and Court 1998), the economic roles of knowledge and entrepreneurship are gaining increased academic attention. The theoretical developments, from the neoclassic economic growth theories to the new growth theories and various extensions, are focusing scholarly attention on the roles of knowledge and entrepreneurship. In empirical studies, knowledge capital and entrepreneurship capital have both been observed as factors as equal to physical capital and labor to drive economic growth (Audretsch and Keilbach 2004).

Knowledge capital has been measured in most cases by college education attainment or by research and development (R&D) indices. With the rising role of knowledge in our economy, graduate education, which often serves as an epicenter of innovation and R&D, has become increasingly important. However, efforts to use graduate education attainment as a measure of knowledge capital are limited.

Audretsch and Keilbach (2004) have integrated knowledge and entrepreneurship in their growth model; however, this model did not measure the role of graduate education and spatial effects (effects based on the space or location of business and industries) were not considered. To bridge this gap, a recent study (Zhang, 2007) extends Audretsch and Keilbach's model into a per capita spatial (based on the space or location of business and industries) growth model with sensitivity analysis and tests the role of graduate education on regional economic growth. In this study, entrepreneurship is defined as incorporated and unincorporated self-employment in knowledge-based sectors.

Zhang's 2007 study uses data from the U.S. Census Bureau's 2000 Public Use Microdata Samples (PUMS) 1-percent sample, the Bureau of Economic Analysis (BEA), and the American Community Survey (ACS) to develop and test three regression models that measure the impact of graduate education on economic growth and entrepreneurship. The economic models were also based on work by Garofalo and Yamarik (2002). The dependent variable in the models

measure ACS median personal income in 2005 (with 1999 chained values) and the independent variables use 1999 values from PUMS and BEA (data sets in 2000) to capture lagged values. The unit of analysis is metropolitan areas, which consider the special role of cities. To make the definition of metropolitan areas consistent, 90 metropolitan areas are sampled. The models are estimated by the Maximum Likelihood Estimation (MLE).

Based on the MLE coefficients, graduate education attainment has significantly positive impact on metropolitan economic growth for all the three models, with the coefficients ranging from 0.05 to 0.07. This result indicates that with each additional 1% gain in people attaining post-baccalaureate education in 2000, metropolitan economic growth increased by 0.05% to 0.07% in 2005, controlling for other factors.

Based on this study, increasing graduate education attainment has a significant positive impact on metropolitan economic growth; therefore, promoting policies that raise the number of citizens with graduate degrees could spur future economic growth. Graduate deans frequently assert this relationship, but these results suggest more meaningful support for this assertion.

Further research that uses different data to explore the relationship between graduate education and economic growth could strengthen these results.

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References

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Audretsch, D.B. and M. Keilbach (2004). “Entrepreneurial Capital and Economic Performance”, discussion paper. *Entrepreneurship, Growth and Public Policy*. Jena, Germany: Max Plank Institute.

Garofalo, G. A. and S. Yamarik (2002). Regional Convergence: Evidence from a New State-by-state Capital Stock Series. *The Review of Economics and Statistics*, May 2002, 84(2): 316–323.

New Deans and Titles

Helen C. Sobehart is Associate Provost and Academic Vice President at Duquesne University. She replaces Francesco C. Cesareo.

Andrew J. Szeri is Dean of the Graduate Division at the University of California, Berkeley. He replaces Mary Ann Mason.

Joan Ficke is Associate Vice President, Academic Affairs at Montclair State University. She replaces Eileen Kaplan.

Teresa A. Scandura is Dean of the Graduate School at the University of Miami. She replaces Steven G. Ullmann.

Joseph C. Voelker is Interim Provost at the University of Hartford. He replaces Donna M. Randall.