

Changes in the Cost Structure and Productivity of U.S. Tertiary Education

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Abstract

This paper decomposes instruction-related expenditures at colleges and universities in the United States from 2004 to 2015 and analyzes the changes in the cost structure and productivity of the higher education sector. Specifically, I decompose spending on instruction into the number of students (quantity), credit hours per student (demand intensity), faculty course load (service intensity) and cost of instruction per instructional staff (input cost). Taking logs and differencing, changes in spending are summarized into the sum of enrollment (demand at the extensive margin) changes, changes in demand at the intensive margin, service intensity (productivity) and changes in input cost. I use the Integrated Postsecondary Education Data System to decompose the above changes in six types of institutions: public 2-years, private 2-years, public bachelors and master's, non-profit bachelors and master's, doctoral research, and for-profit 4-year institutions.

Results indicate that increases in aggregate spending on instruction at post-secondary educational institutions are foremost driven by the increase in unit cost (expenditures per instructional staff), particularly at public colleges and universities, which account for more than two-thirds of student enrollment. Demand intensity, as measured by credit hours per student, stays flat mostly due to institutional reasons, while the productivity of educational services measured by credit hours taught per instructional staff respond strongly to changes in student enrollment, possibly reflecting production technology of education services. Looking at the composition of instruction-related expenditures, I find that the share of the cost of academic and institutional support services increases while the direct instruction cost grows more slowly at public institutions, while expenditures related to student services increase most rapidly among public 2-year and for-profit institutions.

JEL Code: I21, D24, H44

Key Words: Post-secondary education, instruction cost, productivity of higher education

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