An analysis of the efficiency of public research universities in the United States

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This dissertation undertakes an analysis of the relative efficiency of public research universities in the U.S. It examines relative efficiency, a measure of the extent to which a campus (or similar group of campuses) approaches optimal output levels with available resources. In this respect, relative efficiency is to be understood as a concept distinct and separate from more conventional analyses of unit costs.

This project uses existing data from the Integrated Postsecondary Education Data System (IPEDS) and Scopus databases. IPEDS provides comparable information on inputs such as total full-time academic staff, administrative staff, non-professional staff and on learning outputs such as undergraduate and graduate enrollments and retention. Scopus provides information on research output, measured by citations. Data Envelopment Analysis (DEA), a linear programming method, is used to estimate a "relative efficiency score" for each of the 165 public research universities included in the study. The relative efficiency scores are used in comparisons across categories and classifications of establishment (e.g. Land Grant or with medical facilities) and also in OLS regressions to identify associations that might help to explain differences in performance.

Results show most institutions appear to be relatively efficient. While the determinants of technical efficiency remain largely unknown, measures of staff salary and the ratio of students to faculty are found to be significantly associated with relative efficiency scores in all comparisons.