



Analysis of the relationship between library expenditures and research revenues in R1 and R2 universities

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BACKGROUND

Believing that institutional fiscal support aligns with units that help generate research revenue, library directors seek evidence that shows library contribution to institutional success. Academic library budgets as proportionate to University total expenditures have been steadily decreasing since 1983 (ARL)[1]. No research is found published since 1977 [2] that has examined the relationship between library expenditures and university research revenues.

This study addresses this gap by analyzing finance categories on research-related revenues and library expenditures among R1 and R2 institutions.

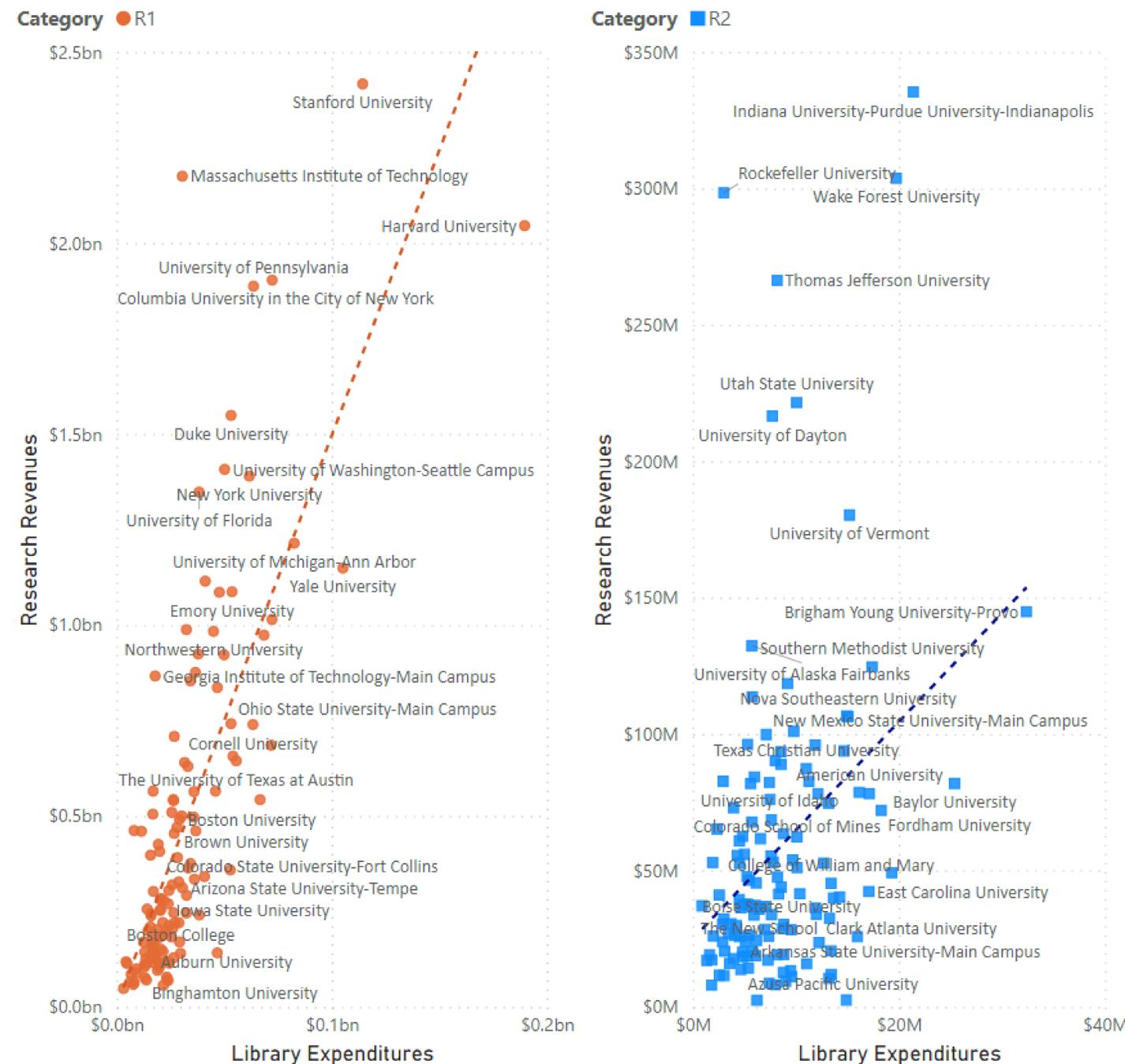
METHODOLOGY

The data source is the IPEDS [3] report for 2018. The research active institutions, categorized as R1 (very high research activity) and R2 (high research activity), comprise the study's population with 130 and 131 institutions, respectively (research revenues < \$3 billion).

Three IPEDS components generate data for the variables in this study.

- 1) Institutional Characteristics Survey: the institution's unique number, Carnegie classification
- 2) Finance Survey: research revenues (federal, state, local, and private)
- 3) Academic Libraries Survey: total expenditures

- First, a **correlation analysis** identified the relationship between library expenditures and research revenues. Correlation shows the degree of an association of two variables.
- Second, a **regression equation for a linear model** was computed to present how much the library expenditures (independent variable) predict research revenues (dependent variable).



Category	Number of Institutions	Median of Research Revenues	Median of Library Expenditures
R1	130	\$281,368,285	\$24,118,987
R2	131	\$40,213,200	\$7,343,113

FINDINGS

Correlation

- For R1 institutions, the correlation coefficient of 0.75 indicates a strong positive relationship between library expenditure and research revenues. When the library expenditures increase the research revenues increase.
- For R2 institutions, the relationship is weak ($r = 0.35$).

Regression

- For the R1 institutions, the equation of regression is $[y=14.94x + (9e+06)]$ ($R^2=0.56$; $p < 0.01$). This means when the library expenditures increase \$1 million, the research revenues increase about \$15 million. The independent variable explains about 56% of the variance of the dependent variable.
- For the R2 institutions, the equation is $[y=3.98x + (3e+07)]$ ($R^2 = 0.12$, $p < 0.05$). The prediction of the dependent variable is statistically significant, but the R^2 is low, the equation can explain only 12%.

PRACTICAL IMPLICATIONS

The study results present a positive relationship between the library expenditures and research revenues in R1 and R2 institutions. The relationship is statistically significant, and stronger among R1 institutions than among R2. The findings will be of interest to library and university administrators and researchers in higher education administration, library assessment, and institutional research. The evidence from this study suggests the justification of investment in a library, and strengthens the idea that more research revenues are generated with greater library expenditures.

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