Development and Use of Peer Groups in IR

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POSSIBLE USES FOR A PEER LIST

• Clarify your institution’s market position within higher education
• Allow comparison of activities and outcomes to similar schools to see if you’re typical
• Set goals and benchmarks for management decisions (e.g., faculty salaries, division budgets, etc. could aim to be at the midpoint of a peer group)
• Make ourselves feel better about where we work or learn
OVERVIEW OF PEER LISTS

• No single list works for every analytical purpose
• Part art, part science, part politics, part psychology
• Our office has taken the approach of keeping a list of different comparison-groups
• Cluster analysis is one approach to systematically identifying a list
METHOD FOR THIS REVIEW

• Not like solving a math problem & finding the correct answer, but an exploratory process aimed at identifying a variety of groupings
• Judgment calls at every step
• We started with all 3,939 schools in Carnegie Classification system and winnowed down to 105 on five factors:
  • Control (public, private non-profit, private for-profit)
  • Basic categorization (associates, baccalaureate, masters, doctoral, special focus)
  • Size and setting (2 yr./4 yr.; small/medium/large; how residential is it)
  • Undergraduate profile (inclusive/selective; full-time vs. part-time)
  • Enrollment profile (exclusively/very high/high/majority undergrad)
Starting with 3,939 U.S. institutions...
Eliminated all publics & private for-profits (-2,273)
Eliminated all non-baccalaureate arts & sci. (-1,462)
Eliminated all but selective/more selective + fewer transfer-ins (-26)
Eliminated all but exclusively + very high + high undergrad (-1)
VARIABLES WE WERE ASKED TO LOOK AT

1. Financials
2. Financials + Size
3. Financials + Size + Quality
4. Financials + Size + Quality + Social mobility
5. Financials + Size + Quality + Social mobility + Student diversity
DATA WE USED

- Institutional characteristics: [Carnegie Classification of Institutions of Higher Education](https://www.carnegienclassification.org/)
- Cost of living variation: [Regional Price Parity](https://www.bls.gov/idc/groups/public/@blier/documents/special-report/workingpapers28.pdf) by Metropolitan Statistical Area (or closest one to the campus)
- Endowment; endowment per student: FY2023 endowment data from [NACUBO](https://www.nacubo.org/)
- Student body size & composition: Average of most recent 3 years from National Center for Education Statistics ([IPEDS](https://nces.ed.gov/ipeds/))
- Faculty and staff size (FT, PT, total): same
- Student-faculty ratio; student-staff ratio: 3-yr. average; calculated from IPEDS data
- Selectivity (admit rate) and yield rate: Average of most recent 3 years from IPEDS
- Social mobility: [Washington Monthly subrank](https://www.washingtonmonthly.com/)
- Operating budget; operating budget per student: Average of most recent 3 years from IPEDS
- First-to-second-year retention rate; 6-year graduation rate: Average of most recent 3 years from IPEDS
- AAUP faculty salary data
METHODOLOGY, PART I

I. Type of Cluster Analysis to Use
   • Hierarchical vs. K-means
   • Research findings
     Armacost, Wilson, Pet-Armacost, and DeSousa of Univ. of Ctrl Florida (AIR Forum, 2003), University of Rhode Island Peer Group Executive Summary (2004)

III. How does Hierarchical Clustering work?

https://nscpolteksby.ac.id/ebook
Hierarchical Clustering Dendrogram using SPSS Explained: Endowment

$46.1 – $317M

$377.1 – $877.4M

$972M – $1.97B

$2.4B – $3.5B
RUNNING THE CLUSTER ANALYSIS METHODOLOGY, PART II

• Cases
  • 3-year averages (to smooth out large variances)
  • Z-scores (to streamline differences in scales)
  • Missing values
  • Outliers (boxplot and histogram)

Milligan (1980) found out that complete linkage and Ward’s method reacted badly when outliers were present in the data.
  • 79 schools left in the analysis after clean up

• Variables
  • Variable reduction
  • Simplify with financials (RPP + Endowment + Spending per student)

• How many clusters?
Hierarchical Clustering Dendrograms with Financials in SPSS: RPP + Endowment + Spending per student

Agglomeration Schedule

Coefficient Change by Clustering Stage

<table>
<thead>
<tr>
<th>Stage</th>
<th>Cluster 1</th>
<th>Cluster 2</th>
<th>Coefficients Cluster 1</th>
<th>Coefficients Cluster 2</th>
<th>Next Stage</th>
<th>Diff</th>
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</table>
Extracting Cluster #2: RPP + Endowment + Spending per student

17 schools + Conn
DETAILS OF EACH METRIC: Cost of living (RPP)
DETAILS: Per-student spending (3-yr. avg.)

- $51,003: Muhlenberg College
- $54,312: Gettysburg College
- $57,084: Agnes Scott College
- $58,198: Dickinson College
- $59,396: Macalester College
- $59,155: Connecticut College
- $59,618: Wheaton College
- $60,112: Skidmore College
- $60,112: Tulane University
- $60,854: Bowdoin College
- $61,997: Trinity College
- $63,848: Franklin and Marshall College
- $65,373: Goucher College
- $65,934: The University of the South
- $65,836: Union College
- $65,987: Kenyon College
- $67,198: Bates College
- $67,378: Reed College
- $72,541: Trinity College
- $74,555: New York University
DETAILS: FY 2023 endowment ($000s)
U.S. News ranking (3-yr. avg.)
“MANUALLY ADJUSTING” THE LIST

• Committee discussed whether any of schools warranted removal due to having substantially different missions, characteristics, etc.

• Consensus was to remove Agnes Scott College (due to its status as a small non-coed institution) and Reed College (due to its lack of an athletics program, which gives it a quite different programmatic, financial, admissions picture)

• This produced a revised list of 15 institutions
NEW PEER LIST WITH CURRENT PEER LIST

ON CURRENT LIST
• Bates College
• Dickinson College
• Franklin & Marshall College
• Gettysburg College
• Kenyon College
• Macalester College
• Skidmore College
• Trinity College
• Union College
• Whitman College

NEW / NOT ON CURRENT LIST
• Goucher College
• Hobart & William Smith Colleges
• Muhlenberg College
• Univ. of the South
• Wheaton College (IL)

NOT ON NEW LIST
• Bowdoin College
• Carleton College
• Centre College
• Colby College
• Colgate University
• Colorado College
• Hamilton College
• Kalamazoo College
• Lafayette College
• Middlebury College
• Mount Holyoke College
• Oberlin College
• Smith College
• Vassar College
• Wesleyan University
• Wheaton College (MA)
Independent check: Schools that have *us* as a peer

https://www.chronicle.com/article/who-does-your-college-think-its-peers-are

10 of these 27 are on our new list
So....takeaways

• Our faculty salary peer group had not been revised since 2006; should do it more regularly
• Cluster analysis is an exploratory statistical technique that can be deployed with widely available software and readily available data
• It’s a technical process but also a political process
• A peer list has to be viewed as plausible and defensible
• Once you have a list everyone’s o.k. with, then you can do other sorts of comparative analyses of variables you didn’t use for selecting the peer group
Questions, comments, suggestions?

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