Statistical Analysis of Library Budgets

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ARL Survey Coordinators and SPEC Liaisons Meeting

2014 ALA Midwinter Meeting
Slides available at

http://ufdc.ufl.edu/AA00019455
Background

- In 2011, the University of Florida (UF) adopted RCM budgeting and financial management.
- The UF libraries entered RCM chronically under-funded and facing escalating materials costs.
- RCM was implemented at UF at a time of severe budget reductions, including steep cuts in state appropriations.
RCM Budget Review for the George A. Smathers Libraries
Gap In Expenditures for Materials

- Add'l $ from HSC for HSCL
- Carry Forward
- Reallocated Salary $
- Appropriation for Materials
- DSR
- $ to Maintain Content
RCM Budget Review for the George A. Smathers Libraries

Carry Forward Generation and Use

- Annual Carry Forward Balance
- Materials Expenditure
- Operating Expenditure
- Required Reserve ($766,288)

Financial data for the George A. Smathers Libraries is presented in a graph showing the annual carry forward balance, materials expenditure, operating expenditure, and required reserve from 09-10 to 13-14 fiscal years.
Background

• In this environment, the UF libraries had to develop effective methods for communicating its budget circumstances and what appropriate funding levels should be in order to adequately serve UF’s faculty, students and researchers.
Approach

• The UF libraries have engaged in an ongoing analysis of how the resources of the libraries and the demands of the university compare to peer institutions using data from Integrated Postsecondary Education Data System (IPEDS) and ARL Statistics.
Findings

• There is a considerable and statistically significant gap between the scale of UF programs and populations, and the resources of the library system that is not explained simply by the size of the large institution, but truly reflects a funding issue.
• Compared UF to 8 Public AAU Universities
  – All with 4 or more Health Colleges
  – All with a College of Law
  – All with *U.S. News* Ranking above 30
  – All members of the Association of Research Libraries (ARL)
  – 4 are land grant universities
PEER ANALYSIS, 2010

• Peer Universities
  – University of Michigan (#4)
  – University of North Carolina, Chapel Hill (#5)
  – University of Wisconsin, Madison (#9)
  – University of Washington (#11)
  – University of Florida (#15)
  – Ohio State University (#18)
  – University of Pittsburgh (#20)
  – University of Minnesota (#22)
  – Michigan State University (#29)
PEER ANALYSIS

• ARL data for 7 factors that report library RESOURCES for materials and staff (2008)

• NCES data for 7 university factors that correlate with DEMAND for library resources & services (2008)
<table>
<thead>
<tr>
<th>LIBRARIES</th>
<th>Avg. Excluding UF</th>
<th>UF as % of Non-UF Avg.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXPENDITURES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Library Materials Expenditures</td>
<td>$14,820,857</td>
<td>84%</td>
</tr>
<tr>
<td>Total Library Expenditures</td>
<td>$39,116,382</td>
<td>73%</td>
</tr>
<tr>
<td><strong>PERSONNEL-SALARIES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salaries &amp; Wages Professional Staff</td>
<td>$9,602,922</td>
<td>63%</td>
</tr>
<tr>
<td>Total Salaries &amp; Wages</td>
<td>$18,656,818</td>
<td>75%</td>
</tr>
<tr>
<td><strong>PERSONNEL-FTE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Staff (FTE)</td>
<td>149</td>
<td>68%</td>
</tr>
<tr>
<td>Support Staff (FTE)</td>
<td>192</td>
<td>99%</td>
</tr>
<tr>
<td>Total Staff (FTE)</td>
<td>454</td>
<td>84%</td>
</tr>
<tr>
<td>UNIVERSITY</td>
<td>Avg. Excluding UF</td>
<td>UF as % of Non-UF Avg.</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>PhDs Awarded</td>
<td>635</td>
<td>135%</td>
</tr>
<tr>
<td>Prof Degrees Awarded</td>
<td>626</td>
<td>200%</td>
</tr>
<tr>
<td>Total PhDs and Prof Degrees</td>
<td>1,261</td>
<td>167%</td>
</tr>
<tr>
<td>PhD Fields</td>
<td>95</td>
<td>131%</td>
</tr>
<tr>
<td>Faculty (Full-Time)</td>
<td>3,449</td>
<td>128%</td>
</tr>
<tr>
<td>Total Student Enrollment</td>
<td>43,195</td>
<td>119%</td>
</tr>
<tr>
<td>Total Graduate &amp; Prof Students</td>
<td>12,579</td>
<td>134%</td>
</tr>
</tbody>
</table>
PEER ANALYSIS, 2010

- UF Libraries are BELOW average for every library RESOURCE factor for materials and staffing
- UF is ABOVE average for every university factor correlating with DEMAND for library resources and services
PEER ANALYSIS, 2010

RCM Budget Review for the George A. Smathers Libraries
Library Expenditures as a Percentage of Total University Expenditures

<table>
<thead>
<tr>
<th>State</th>
<th>Expenditure as Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICHIGAN</td>
<td>1.4395%</td>
</tr>
<tr>
<td>NORTH CAROLINA</td>
<td>2.1523%</td>
</tr>
<tr>
<td>WISCONSIN</td>
<td>1.9368%</td>
</tr>
<tr>
<td>WASHINGTON</td>
<td>1.6919%</td>
</tr>
<tr>
<td>FLORIDA</td>
<td>1.6442%</td>
</tr>
<tr>
<td>OHIO STATE</td>
<td>1.8494%</td>
</tr>
<tr>
<td>PITTSBURGH</td>
<td>2.1344%</td>
</tr>
<tr>
<td>MINNESOTA</td>
<td>1.6702%</td>
</tr>
<tr>
<td>MICHIGAN STATE</td>
<td>1.8071%</td>
</tr>
</tbody>
</table>
PEER ANALYSIS, 2010

- Average library expenditures as % of university budget (8 peers without UF): 1.8352%
- Library expenditures as % of university budget (UF): 1.6442%
• More useful comparison by accounting for differences in scale at the peer institutions
  – Analyzed correlations between ARL data on library expenditures and NCES data on university factors
• The highest correlation was with total university budget ($R^2 = 0.8278$)
RCM Budget Review for the George A. Smathers Libraries
Total Library Expenditures as a Function of Total University Expenditures

$55,000,000
$50,000,000
$45,000,000
$40,000,000
$35,000,000
$30,000,000
$25,000,000
$20,000,000
$15,000,000
$10,000,000

$2,900,000,000
$2,400,000,000
$1,900,000,000
$1,400,000,000

Total University Expenditures

Total Library Expenditures

Pittsburgh
UNC
Wisconsin
Washington
Ohio State
Minnesota
Michigan
Michigan State

y = 0.0103x + 2E+07
R² = 0.8278
# PEER ANALYSIS, 2010

Application of Linear Regression Formula to UF

<table>
<thead>
<tr>
<th>Total UF Expenditures</th>
<th>Projected Library Expenditures</th>
<th>Actual Library Expenditures</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1,737,832,000</td>
<td>$37,899,670</td>
<td>$28,573,302</td>
<td>$9,326,368</td>
</tr>
</tbody>
</table>

Data from 2008
# PEER ANALYSIS, 2013

Application of Linear Regression Formula to UF Using 2009 Data

<table>
<thead>
<tr>
<th>Total UF Expenditures</th>
<th>Projected Library Expenditures</th>
<th>Actual Library Expenditures</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2,121,460,000</td>
<td>$41,851,038</td>
<td>$28,147,202</td>
<td>$13,703,836</td>
</tr>
</tbody>
</table>
# PEER ANALYSIS, updated

<table>
<thead>
<tr>
<th>PROPORTION OF LIBRARY EXPENDITURES</th>
<th>Materials and Operations</th>
<th>Staffing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median for Peers</td>
<td>50%</td>
<td>48%</td>
</tr>
<tr>
<td>Average for Peers</td>
<td>54%</td>
<td>46%</td>
</tr>
<tr>
<td>University of Florida</td>
<td>53%</td>
<td>47%</td>
</tr>
</tbody>
</table>
# Smathers Libraries Staffing

## Decrease in Smathers Libraries Staffing

### 2009-2010 Through 2011-2012

<table>
<thead>
<tr>
<th></th>
<th>Faculty &amp; Other Professionals</th>
<th>Non-Professional Staff</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>97</td>
<td>186</td>
<td>283</td>
</tr>
<tr>
<td>2011</td>
<td>85</td>
<td>172</td>
<td>257</td>
</tr>
<tr>
<td>2012</td>
<td>81</td>
<td>167</td>
<td>248</td>
</tr>
</tbody>
</table>
PEER ANALYSIS, 2014

**Top 10**
- ILLINOIS, URBANA
- MICHIGAN
- NORTH CAROLINA
- PENNSYLVANIA STATE
- VIRGINIA
- WISCONSIN

**Top 25 AAU**
- MICHIGAN
- MINNESOTA
- NORTH CAROLINA
- OHIO STATE
- PENNSYLVANIA STATE
- PITTSBURGH
- TEXAS
- VIRGINIA
- WASHINGTON
- WISCONSIN

**UF Identified Peers**
- CALIFORNIA, BERKELEY
- ILLINOIS, URBANA
- INDIANA
- MICHIGAN
- NORTH CAROLINA
- OHIO STATE
- PENNSYLVANIA STATE
- TEXAS
- TEXAS A&M
- VIRGINIA
- WISCONSIN
PEER ANALYSIS, 2014

Library Exp. as a Percentage of University Inst., Res. & PS Exp. 2011-12

0.0000% 0.5000% 1.0000% 1.5000% 2.0000% 2.5000% 3.0000% 3.5000% 4.0000% 4.5000% 5.0000%

PENNSYLVANIA STATE 2.5099%
ILLINOIS, URBANA 3.5442%
MICHIGAN 3.3513%
NORTH CAROLINA 2.8063%
VIRGINIA 4.4618%
WISCONSIN 2.2717%
PEER AVG 3.1575%
PEER MEDIAN 3.0788%
FLORIDA 1.6363%
PEER ANALYSIS, 2014

Univ. Inst., Res. & PS Exp. v. Library Exp.
Top Ten Publics
Exc. U of Californias, William and Mary and G. Tech

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<tr>
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</thead>
<tbody>
<tr>
<td>$R^2$</td>
<td>0.5252</td>
<td>0.642</td>
<td>0.6806</td>
<td>0.9317</td>
<td>0.9068</td>
<td>0.6373</td>
</tr>
</tbody>
</table>
Top Ten Publics - Exc. U of Californias, William and Mary and G. Tech

Linear (2011-12)
Linear (2010-11)
Linear (2009-10)
Linear (2008-09)
Linear (2007-08)
Linear (2006-07)
Linear (FLORIDA)
PEER ANALYSIS, 2014

Univ. Tuition, Fees, State App. & Fed Grant Inc. v. Library Exp.

Top Ten Publics

Exc. U of Californias, William and Mary and G. Tech

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>R²</td>
<td>0.701</td>
<td>0.6558</td>
<td>0.7511</td>
<td>0.9313</td>
<td>0.9199</td>
<td>0.8201</td>
</tr>
</tbody>
</table>
Top Ten Publics - Exc. U of Californias, William and Mary and G. Tech

\[ y = 0.4296x - 3E+06 \]
\[ R^2 = 0.7652 \]
Top Ten Publics - Exc. U of Californias, William and Mary and G. Tech

\[ y = 0.5018x + 440170 \]
\[ R^2 = 0.9334 \]
Slides available at

http://ufdc.ufl.edu/AA00019455