Combining Federal Data Sets with Institution Data

Jason Wang, PhD, IRP Data Management Specialist, Georgia Tech
Sandra Kinney, DPA, Senior Director of IRP, Georgia Tech
Why Use External Data Sets?

• Publicly available

• Provide context for your institution’s data

• Inform internal strategic decision making

• Enhance public-facing institutional marketing and materials
Overview

• Research & Development
• Student Financial Aid
• Faculty Salary
• Staff Equity
• Academic Program Supply and Demand
By the end of this session, we will have...

• **Showcased** several examples of combining federal data sets with institution data

• **Demonstrated** the potential value added by combining federal data sets with institution data

• **Provided** a selection of federal data sets
Ask Yourself...

- What data is available and relevant to my institution?
- Where can I find the data?
- How does the data provide context for my institution?
- How can I present the data meaningfully?
Research & Development

Data Sources

- Federal Data Set
  - NSF Higher Education Research and Development (HERD) Survey
  - https://ncsesdata.nsf.gov/ids/herd

- Institution Data
  - The data pulled to complete NSF HERD Survey
### External Benchmarking
How do we compare to our peer institutions?

### Internal Decision Making
Where are there opportunities for growth in research?

### Public-facing Marketing
How can we emphasize Georgia Tech’s research strengths?
## Research & Development

### Georgia Institute of Technology R&D Expenditures by Discipline in Comparison with Peer Institutions (2013 – 2017)

<table>
<thead>
<tr>
<th>Institution</th>
<th>Field of Study</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia Institute of Tech.</td>
<td>Computer &amp; Info. Sciences Engineering</td>
<td>$503.47M</td>
<td>$505.38M</td>
<td>$533.33M</td>
<td>$558.22M</td>
</tr>
<tr>
<td></td>
<td>Geo, Atmos, and Ocean Sciences</td>
<td>$20.96M</td>
<td>$19.45M</td>
<td>$19.88M</td>
<td>$23.92M</td>
</tr>
<tr>
<td></td>
<td>Life Sciences</td>
<td>$6.48M</td>
<td>$6.66M</td>
<td>$6.82M</td>
<td>$6.97M</td>
</tr>
<tr>
<td></td>
<td>Mathematics and Statistics</td>
<td>$4.11M</td>
<td>$5.30M</td>
<td>$5.28M</td>
<td>$5.66M</td>
</tr>
<tr>
<td></td>
<td>Non-S&amp;E Fields</td>
<td>$5.77M</td>
<td>$6.97M</td>
<td>$7.68M</td>
<td>$8.26M</td>
</tr>
<tr>
<td></td>
<td>Other Sciences</td>
<td>$56.66M</td>
<td>$60.62M</td>
<td>$47.28M</td>
<td>$47.28M</td>
</tr>
<tr>
<td></td>
<td>Physical Sciences</td>
<td>$7.07M</td>
<td>$6.42M</td>
<td>$7.43M</td>
<td>$8.73M</td>
</tr>
<tr>
<td></td>
<td>Psychology</td>
<td>$9.95M</td>
<td>$10.82M</td>
<td>$9.42M</td>
<td>$10.35M</td>
</tr>
<tr>
<td></td>
<td>Social Sciences</td>
<td>$4.34M</td>
<td>$4.07M</td>
<td>$4.42M</td>
<td>$4.42M</td>
</tr>
</tbody>
</table>

| California Institute of Tech. | Computer & Info. Sciences Engineering | $533.41M | $49.29M  | $29.13M  | $41.32M  |
|                               | Geo, Atmos, and Ocean Sciences        | $20.34M  | $23.27M  | $63.91M  | $82.42M  |
|                               | Life Sciences                         | $66.40M  | $65.01M  | $10.02M  | $23.29M  |
|                               | Mathematics and Statistics            | $9.15M   | $9.34M   | $10.02M  | $10.02M  |
|                               | Non-S&E Fields                        | $13.56M  | $20.02M  | $20.28M  | $20.28M  |
|                               | Other Sciences                        | $1.10M   | $0.92M   | $0.92M   | $0.92M   |

| Massachusetts Institute of Tech. | Computer & Info. Sciences Engineering | $129.93M | $117.23M | $129.16M | $124.98M |
|                                 | Geo, Atmos, and Ocean Sciences        | $9.33M   | $8.68M   | $9.13M   | $9.03M   |
|                                 | Life Sciences                         | $66.44M  | $93.01M  | $71.80M  | $66.05M  |
|                                 | Mathematics and Statistics            | $40.25M  | $22.82M  | $23.46M  | $22.16M  |

<table>
<thead>
<tr>
<th>Institution</th>
<th>Field of Study</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>(All)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Federal Data Sets
• IPEDS (IC, SFA)
  • http://nces.ed.gov/ipeds
• HUD Fair Market Rent
  • https://www.huduser.gov/portal/datasets/fmr.html
• USDA Food Plans Cost

Institution Data
• Financial Aid budget amounts from FA Office
External Benchmarking
How do we compare to our peer institutions?
Is our budget for room and board in line with other Atlanta institutions?

Internal Decision Making
Where are there opportunities to better assist students?

Public-facing Marketing
How can we tell the best story for prospective students?
Faculty Salary

Data Sources

- Federal Data Sets
  - IPEDS: Use the Data
    - [https://nces.ed.gov/ipeds/use-the-data](https://nces.ed.gov/ipeds/use-the-data)
  - Bureau of Economic Analysis (BEA): Interactive Data
    - [https://apps.bea.gov/itable/index.cfm](https://apps.bea.gov/itable/index.cfm)

- Institution Data
  - The data pulled and submitted to IPEDS
External Benchmarking
How do we compare to our peer institutions?

Internal Decision Making
How can this influence faculty recruitment, retention, and promotion?

Public-facing Marketing
How can we highlight the advantages of working at Georgia Tech?
“Faculty salary is weighted at 7% and is the average faculty pay plus benefits during the 2017-2018 and 2018-2019 academic years, adjusted for regional differences in the cost of living. Nonresponders to the faculty salary question for the first time had modified federal government faculty salary data used as the basis for their estimates. Also new for the 2020 rankings, the faculty salary figures were adjusted using open source data from the Bureau of Economic Analysis regional price parities 2017 dataset published in May 2019. These regional price indexes allow comparisons from one metro area to another and measure the differences in price levels across states and metropolitan areas for a given year. They are expressed as a percentage of the overall national price level. The regional price indexes cover all consumption goods and services, including housing rents.”
Staff Equity

Data Sources

• Federal Data Sets
  • IPEDS: Use the Data
    • https://nces.ed.gov/ipeds/use-the-data
  • US Census Data
    • https://data.census.gov/cedsci/
  • Living Wage Data
    • https://livingwage.mit.edu/

• Institution Data
  • The data pulled and submitted to IPEDS
  • Data from HR
External Benchmarking
How do we compare to our peer institutions?
How do we compare to the local area?

Internal Decision Making
Are there any equity issues that need to be addressed?

Public-facing Marketing
How can we highlight the advantages of working at Georgia Tech?
Academic Program
Supply & Demand

Data Sources

• External Data Sets
  • EDEPS (uses several Federal data sets)
  • https://www.edeps.org/
  • Bureau of Labor Statistics (BLS)
  • https://data.bls.gov/oes/#/home

• Institution Data
  • Current programs
  • Possible new programs
  • Proposed new programs
External Benchmarking
What is our market share of program completers?
What is the demand for program completers?

Internal Decision Making
Does the market suggest the need to discontinue a program?
Does the market suggest the need to create a new program?

Public-facing Marketing
How does the institute maintain its competitiveness in the market?
# Academic Program Supply & Demand

## United States

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Average Establishments</th>
<th>Annual Average Employment</th>
<th>Average Annual Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>1,043</td>
<td>191,283</td>
<td>$41,908.33</td>
</tr>
<tr>
<td>2016</td>
<td>1,029</td>
<td>193,099</td>
<td>$42,489.00</td>
</tr>
<tr>
<td>2017</td>
<td>1,002</td>
<td>192,375</td>
<td>$43,872.00</td>
</tr>
<tr>
<td>2018</td>
<td>995</td>
<td>193,802</td>
<td>$44,483.33</td>
</tr>
</tbody>
</table>

## Georgia

<table>
<thead>
<tr>
<th>Year</th>
<th>Annual Average Establishments</th>
<th>Annual Average Employment</th>
<th>Average Annual Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>66</td>
<td>13,508</td>
<td>$51,163.50</td>
</tr>
<tr>
<td>2016</td>
<td>65</td>
<td>13,497</td>
<td>$51,114.00</td>
</tr>
<tr>
<td>2017</td>
<td>46</td>
<td>13,368</td>
<td>$54,823.00</td>
</tr>
<tr>
<td>2018</td>
<td>45</td>
<td>13,669</td>
<td>$54,392.50</td>
</tr>
</tbody>
</table>
Big Picture

Research & Development

Student Financial Aid

Faculty Salary

Staff Equity

Academic Program Supply and Demand
Combining Federal Data Sets with Institution Data

Jason Wang, PhD, IRP Data Management Specialist, Georgia Tech
Sandra Kinney, DPA, Senior Director of IRP, Georgia Tech