Effectiveness of Statistics in Schools of Business

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Business students studying statistics:

  ~1,000 teachers (4 sections/yr; 50 students/section).

  ~1,000 teachers (3 sections/yr; 33 students/section).

At $1,000 per student per course, the total costs are:
  US Undergraduate: $230 million per year.
  US Graduate: $100 million per year.
Are we achieving our goal? Undergraduate level

Making Statistics More Effective

- Students better prepared to get an MBA?
- Students better prepared for next courses?
- Statistics teachers (~1,000) teach differently?
- Students (~250,000/yr) learn/retain more?
- Students have better appreciation of statistics?
- Employers (other teachers) see improvement?
Prepare Undergrads for MBA

Percentage of business grads who get an MBA

~30%*

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<thead>
<tr>
<th>% of MBA earned by non-Bus</th>
<th>DELAY</th>
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<tbody>
<tr>
<td></td>
<td>Undergrad to MBA</td>
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<tr>
<td></td>
<td>6 years</td>
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<tr>
<td>10%</td>
<td>34%</td>
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<tr>
<td>30%</td>
<td>26%</td>
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Undergraduate Preparation for Follow-on Courses

• Statistics/Quantitative Methods: All courses
• Operations Mgmt/Research: Various
• Finance: Principles and all others
• Economics: Managerial Economics
• Marketing: Market Research
• Accounting: None
• Management: None
Where are We Monitoring our Progress?

<table>
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<tr>
<th>Inside the box?</th>
<th>Outside the box</th>
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<tr>
<td>~20%</td>
<td>~80%</td>
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- Statistics/OR
- Finance
- Economics
- Management
- Marketing
- Accounting
Effectiveness of Statistics: As judged by Whom

Those who teach business statistics.

Those in closely-related areas:
- *Teachers* teaching follow-on courses
- *Students* majoring in finance, econ, etc.
- *Employers* who hire such students

Those in distantly-related areas:
- *Teachers* teaching mgmt, mktng, acctng
- *Students* majoring in these areas
- *Employers* who hire such students
Statistical Needs of Non-Specialist Young Workers
Peter Holmes, RSS Centre for Statistical Education

- Surveyed 25 businesses in 1985
- Surveyed 155 employees ages: 18 - 25
- Sample not random or representative
- Statistical tools taken in the broadest sense
- Tabulated number of times each statistical tool is referenced in the surveys
Findings: % of young non-specialists

54% read and interpret tables of data
50% decide what data to collect
40% detect and estimate trends
37% make decisions using data
17% calculate median and quartiles
13% use statistical tests to compare sets of data
14% read and interpret scatter diagrams
6% use a statistical test of significance
Undergraduates vs. MBAs/PhDs.
See 1985 MSMESB papers on business needs.

Student/employer needs vs. educator wants.
See papers in Journal of Statistical Education.

Statistical needs of employers/staff by area:
non-statistical vs. statistical (OR, QC, etc.).
See 1985 MSMESB papers on business needs.
What do successful entrepreneurs say they need?

Which is more important for managers:
• Statistics or cost accounting?
• Statistics or risk management?
• Statistics or market research?
• Statistics or Monte-Carlo decision making?
• Statistics or modeling/forecasting?
We should measure our “Effectiveness”

1. High priority: Measure “effectiveness for undergraduate non-specialists.”
2. Determine criteria for evaluation.
3. Generate survey instrument.
4. Work with ASA as joint sponsor.
5. Survey stakeholders.
6. Publish data for use by all.