The unintended consequences of academic study in a resources boom

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Overview (21 slides in total)

- Background
- Introduction
- Analysis enrolments to failures
- Exogenous factors
- Select the right cadet?
- What’s an employer to do?
- Summary
Pick the common element?

(a) All male
(b) All successful
(c) All identifiable
(d) All non-graduates
(e) All of the above
(f) None of the above
Background

- Struggle to attract skilled workers and qualified personnel in many industries
- Many employers training existing staff within the organisation
- Formalised training arrangements as cadetships (cadetship - paid full-time employment while undertaking part-time study at USQ) or informal support by employers
- How are students faring in their first year?
Introduction

- Good news - rapid escalation of enrolment intake at USQ for spatial science - surveying
- Fourfold increase since 2003, downturn 2009??

External v. On campus enrolments
Introduction (cont.)

- Fail rate higher for external students, trending upward, statistically significant Student’s t test prob. = 0.028 (significant < 0.05 for 95% conf.int.)
Introduction (cont.)

Four fail grades:

- F – attempted all assessments
- FNS – assignments only, no exam
- FNC – attempt exam, no assignment(s)
- FNP – attempt nothing

<table>
<thead>
<tr>
<th></th>
<th>Ass.1 100</th>
<th>Ass.2 100</th>
<th>Exam 800</th>
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<tbody>
<tr>
<td>F</td>
<td>40</td>
<td>40</td>
<td>360</td>
</tr>
<tr>
<td>FNS</td>
<td>80</td>
<td>80</td>
<td>0</td>
</tr>
<tr>
<td>FNC</td>
<td>50</td>
<td>0</td>
<td>390</td>
</tr>
<tr>
<td>FNP</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>
Analysis – enrolments/failures

- F grades % flat as expected, trending downward (on-line resource impact, 50% rule), mild -ve correlation $R=-0.22$ (-1 to 1, 0 is none), not statistically significant Student’s t-test=0.365 (significant<0.05)
Analysis – enrolments/failures (cont.)

FNC grades trending downward as expected (50% rule), mild -ve correlation with external enrolments R=-0.33
Analysis – enrolments/failures (cont.)

- FNP trending upward, unexpected, mildly strong +ve correlation external enrolments $R=+0.67$

![Graph showing External FNP (%) - non-participation from 2003 to 2008]
Analysis – enrolments/failures (cont.)

- FNS trending upward, unexpected, mildly strong

+ve correlation external numbers R = +0.58
Analysis – enrolments/failures (cont.)

Correlation co-efficient R values (-1 to 1, 0 is none): should be no correlation in fail % against enrolment increase - unless exogenous factors exist

<table>
<thead>
<tr>
<th>R correlation</th>
<th>Comment</th>
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<tr>
<td>F  -0.22</td>
<td>mild –ve</td>
</tr>
<tr>
<td>FNS +0.58</td>
<td>mildly strong</td>
</tr>
<tr>
<td>FNC -0.33</td>
<td>mild –ve</td>
</tr>
<tr>
<td>FNP +0.67</td>
<td>mildly strong</td>
</tr>
</tbody>
</table>
Analysis - enrolments to failures

Statistically significant Student’s t-test = 0.006 (significant<0.05) between EXT and ONC
Exogenous factors

- FNP – underestimate time commitment required to study effectively or realise out of depth
- Two types of FNS:
  - Very poor assignments, realise out of depth, consider not worth the effort to sit exams
  - Pass all assignments, not given time-off to attend exams, too busy with work to sit exams
Select the right cadet?

- **Mental acuity**
- **Application and self-disciplined to study**
- **Personal drive - career goals and ambition**
- **Skills in mathematics**

All equally important - but if lacking the ability to solve trigonometric problems???
The wrong cadet – end result

S2, 2003 SVY4306       FNP
S2, 2003 GIS2403       FNC
S2, 2003 SVY3201       FNP
S1, 2003 GIS3404       FNP
S1, 2003 ENV2201       FNS
S1, 2003 SVY3202       FNP
S2, 2002 ENG1101       C
S2, 2002 GIS1401       FNC
S2, 2002 SVY3201       FNP
S1, 2002 ENV2201       FNS
S1, 2002 ENG1001       FNP
S1, 2002 SVY1102       C
S3, 2001 USQ51004       F
S2, 2001 USQ64001       F
What’s an employer to do?

 Assistance for the student (cadet):

- provision for examination leave as required; time-off to sit exams at nearest centre and also the working day preceding examination
- study time granted whilst in full-time employment - 2 hrs per course per week during semester.
- tutorial assistance by mentor/employer and monitoring of progress – taking an active interest
What’s an employer to do?

Latest Graduate statistics (2007)

<table>
<thead>
<tr>
<th>Field of education</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
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<td>Dentistry</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<td>=2</td>
<td>3</td>
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<tr>
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<td>6</td>
<td>=7</td>
<td>5</td>
<td>=4</td>
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<tr>
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<td>3</td>
<td>4</td>
<td>4</td>
<td>=4</td>
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Reflecting current strength of resources boom, earth sciences (surveying/planning/geology?) moved from 8th in 2003 to equal 4th 2007

Earth science median starting salary $50K (approx. 500 respondents including 139 surveyors) – Gov’t $46K, Practice $50K, Industry $53K

2008?? engineering booming 2008
Summary

Problem
- Dramatic increase in failure rates for external students
- Directly related response to skill shortage

Solution
- Select the right person
- Provide the required support to succeed

Benefit
- Investment for increased charge-out rate
- Establishes relationship/loyalty and succession planning
## The *Pixar* bonus

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<td>Atherton</td>
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<td>4488</td>
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<td>Charters Towers</td>
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<td>-0.50%</td>
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<td>-0.20%</td>
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<td>5503</td>
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<td>Ayr/Home Hill</td>
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<tr>
<td>Cooktown</td>
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<td>Port Douglas/Mossman</td>
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<td>Whitsunday</td>
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<tr>
<td>Sarina</td>
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<td>Mareeba</td>
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<td>7435</td>
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<td>Eacham</td>
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<td>Innisfail</td>
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<tr>
<td>Townsville/Thuringowa</td>
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<td>165,278</td>
<td>1.70%</td>
<td>63228</td>
<td>64500</td>
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</tr>
</tbody>
</table>

*Source: Office of Economic and Statistical Research, Local Government Profiles*
You never know the true value of water until the well runs dry (old English proverb)

Thank you