Do Science Masters Matter?

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Compliments to the NRC

- *Important topic, rarely addressed*
- *Outstanding Committee appointed*
- *Your recommendations will be most valuable*

A Consensus Goal

- *Attract outstanding young people to science careers* – across broad economy
- *Concerns:*
  - *Is interest or ability declining among US students?*
  - *Weaknesses of K-12 system?*
  - *Unattractive career path deterring?*
  - *Other reasons?*

What potential for enhanced masters?

- *Sloan supports many science PhDs, postdocs*
- *Would enhanced Masters fit US science workforce needs?*
- *Would they align well with interests of?:*
  - Students looking for non-PhD path to career in science?
  - Faculty (more enrollments, smart students)?
  - Institutions (more enrollments, regional economies)?
  - Employers outside academe? (meet science workforce needs?)

Committee's advice on…

- *How many "real" science masters now?*
  - *#'s fuzzy: On way to PhD? Desired last degree?*
- *Demand growth: mostly in or outside academe?*
  - *Recent academic growth heavily non-tenure-track*
- *What balance of science degrees is optimal?*
- *Enhanced science masters: good career paths?*
- *Meet demand of non-academic employers?*
- *Is there a gap in our repertoire of science graduate degrees?*

Could masters =“pull” factor?

- *We know: S&E undergrad retention low*
- *~1/3 freshmen intend S&E major, BUT:*
  - *<1/2 intending freshmen complete major*
  - *1/3 shift fields, ~1/5 drop out*
- *Could enhanced masters, configured to industry careers, improve these numbers?*

Some basic demography

(numbers in red likely are fuzzy)

- *2003 (latest NSF data) degrees in Natural Sciences, Mathematics, CS:*

Field	Bachelors	Masters	PhD
Natural Sciences	***186,400***	**26,400**	***9,936***
Math and Statistics	***25,600***	***5,900***	***944***
Computer and Information Science	***84,800***	***27,200***	***866***

SOURCES: NSF/SRS, National Survey of Recent College Graduates, 2003 and Survey of Doctoral Recipients, 2003

For comparison…engineering:

Field	Bachelors	Masters	PhD
Engineering	***112,300***	***47,000***	***5,265***

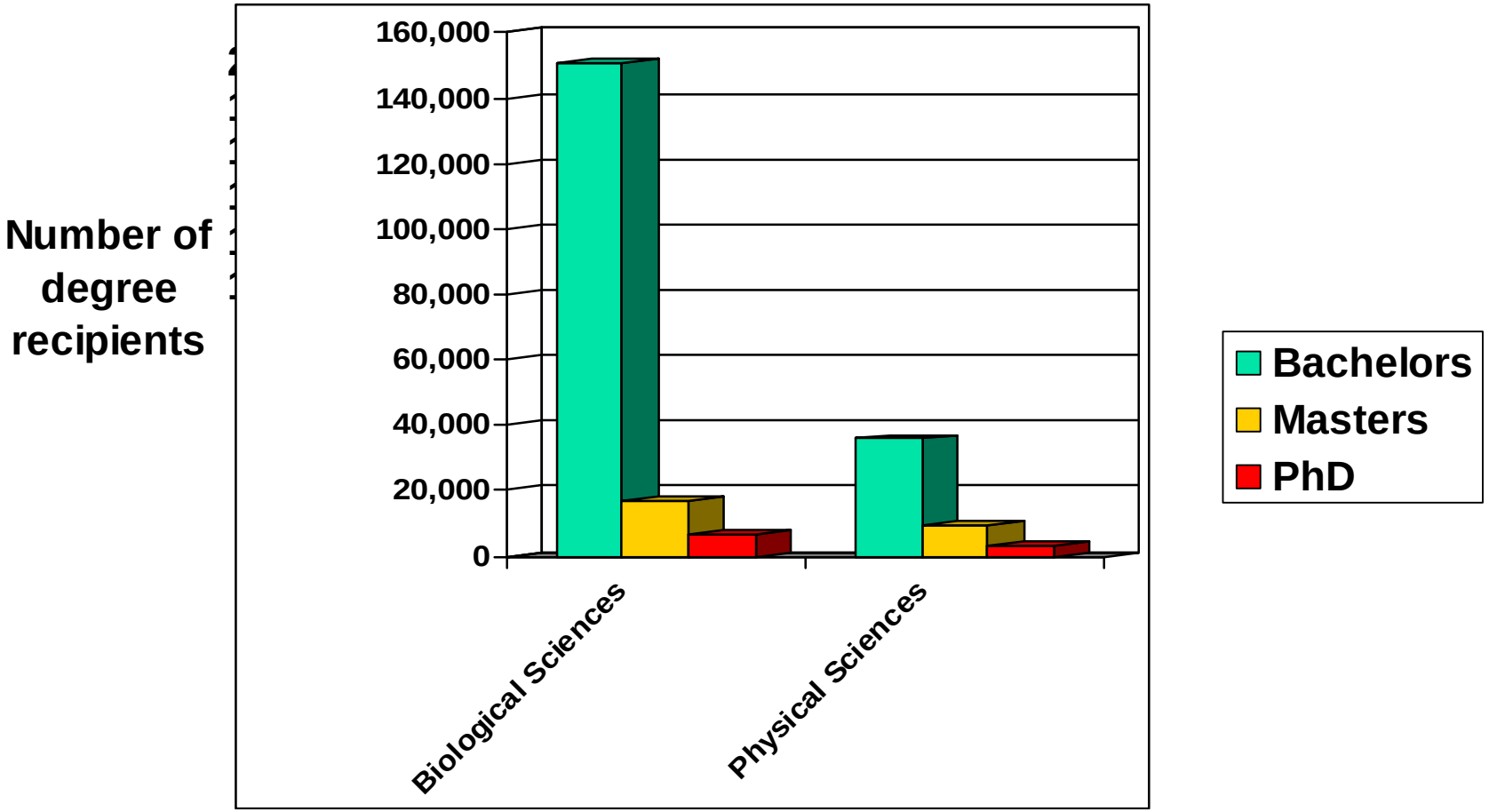
SOURCES: NSF/SRS, National Survey of Recent College Graduates, 2003
and Survey of Doctoral Recipients, 2003

Ratios are very different

Field	Bachelors: Masters	Masters: PhDs
Biological, agricultural, and environmental life sciences	9:1	2.5:1
Physical and related sciences	4:1	3:1
Mathematics and statistics	4:1	6:1
Computer and information sciences	3:1	31:1
Engineering	2:1	9:1

SOURCE: NSF/SRS, National Survey of Recent College Graduates, 2003

Wide Gap Between Bachelors and Masters Degree Recipients



Quick summary

- *Low retention,<1/5 on to graduate programs*
- *Masters: ~25-30K/yr?? (vs. 40K JDs, 100K MBA's)*
- *Would enhanced science masters serve interests:*
  - *Students?*
  - *Faculty?*
  - *Institutions?*
  - *Science workforce?*
- *Bon voyage!*

Thank You!

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