GIES 2007: Session 2

Incentivizing the Development of Global Skills for Mobility in the S&T Workforce

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Outline of comments

- Introduction: international experience
- Understanding the motivations of the S&T workforce
- Why international mobility?
- Some suggestions

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A career case study

- My friend with Ph.D. in physics from U of Illinois
- Awarded "STA Fellowship" postdoc at Riken in early 1980's
  - Program jointly administered by STA, NSF (US): considered prestigious but chronically under-subscribed
  - (Contrast with NSF / CGP master's summer internships in Japanese national labs -- tough competition to get in)
  - Plus: he was involved in interesting research
  - Minus: he disappeared from U.S. job market
- Difficulty getting a job when returned to U.S.
  - Finally corporate research job for precision instrument company -- somewhat outside field

Some S&T communities are already relatively globalized

- Very top ranks of research in "Nobel Prize" fields
  - Importance of publishing in a few world-class journals (*Science*, *Nature*, etc.)
  - Importance of going to major international conferences
  - Even in Japan, some research groups in these fields operate primarily in English
  - Small number of people: leading researchers worldwide know each other
- Problems:
  - Very top ranks don't see need to promote global skills
  - People not in very top rank tend to be ignored
  - No one thinks about value of global experience in career

Applied fields tend to have less global focus or mobility

- Engineering, *clinical* medicine (as opposed to basic medical research)
  - Tendency to publish in local language before translating into English
    - Especially, corporate research is filtered before English publication -- tendency more severe as approach product development
  - There are major worldwide conferences, but less mobility across national boundaries in job markets
    - University faculty in smaller universities, corporate researchers
  - Tend to be cultural differences about how research is "done" and evaluated -- e.g. role of junior researcher

Challenges to development of global skills

(If combine "Nobel" and applied fields):

- Assumption that best people in the field do not need to develop global skills
  - "If the research is any good, it will show up in *Science*"
  - If go abroad for experience, then not top in the field
  - Lack of interest in rest of S&T workforce
- Costs of developing experience
  - Time studying foreign language, overcoming cultural differences = time away from primary field
  - Career time lost if not at "top hub" in field

In general, …

- Very top rank of "Nobel" fields
  - Characterized by worldwide research hubs
  - But very small percentage of total research, even in these fields
- Task 1: Create more global research hubs
  - Attractive because of quality of research, not because of location
- Task 2: Pay more attention to needs of broader segments of S&T workforce
  - Will help to improve overall quality of research base (and also help lead to more global hubs)

Some concrete ideas for incentives
(focus here on global skills, not research quality)

- Integrate global skill development into general career advising
  - Better counseling for the forgotten 95%: especially how to plan career through the job after next
  - Better information about overseas research activities, jobs, and repatriation opportunities
- Provide financial stimuli for global skill development
  - Scholarships, travel grants for study, research abroad, also for giving job talks
- Require and reward more participation in international conferences, publications
- Develop new types of cross-cultural education
  - How to solve practical problems doing research in a foreign country
  - New information about research activities overseas