

## Is Education the Answer?: Skills and the Competitiveness of US IT Organizations

Prof. David Finegold  
Dean, School of Management and  
Labor Relations, Rutgers University

## Is Education the Answer?

- Education = the silver bullet for many policy problems
  - Examples from the last Presidential debate
- A world-class education system is clearly necessary for competitive success
- But it is not sufficient
  - College degree = no guarantee of a good job
    - Particularly true for IT sector
- And most US citizens aren't well qualified
  - Roughly 25% of the US workforce has a BA
  - Limited provision of intermediate skills

## Concern is not new

- *"Our once unchallenged preeminence in commerce, industry, science, and technological innovation is being overtaken by competitors throughout the world. ... If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. ... We have in effect, been committing an act of unthinking, unilateral educational disarmament"*

- A Nation at Risk, 1983

## Did the US win the wrong Cold War?

- Signs that the US is losing the educational advantage that has fueled its IT leadership
  - Failure to provide strong educational foundation for large parts of the US population
  - Rapid narrowing of its higher education lead
  - Closing of the safety valve: ability to attract and retain top immigrant labor
  - Reduced incentives for US firms to invest in development of its own workforce

**Rutgers** New Brunswick/Piscataway Campus  
**SMLR** School of Management and Labor Relations

**Weak Educational Foundation: e.g. Math Skills (2005)**

- Comparative study every 3 years
- 10<sup>th</sup> graders
- US scores:
  - Average in reading
  - Below average in science
  - Far behind in math and problem-solving

Country	Score
Finland	544
South Korea	542
Netherlands	538
Japan	534
Canada	532
Belgium	529
Switzerland	527
Australia	524
New Zealand	523
Czech Republic	516
Iceland	515

**Rutgers** New Brunswick/Piscataway Campus  
**SMLR** School of Management and Labor Relations

- US Finishes 24th out of 29 in Math**
- Demographic trends suggest problem likely to grow in absence of radical change**

Denmark	514
France	511
Sweden	509
Austria	506
Germany	503
Ireland	503
Slovak Republic	498
Norway	495
Luxembourg	493
Poland	490
Hungary	490
Spain	485
<b>United States</b>	<b>483</b>
Portugal	466
Italy	466
Greece	445
Turkey	423
Mexico	385

**Rutgers** New Brunswick/Piscataway Campus  
**SMLR** School of Management and Labor Relations

**US higher education lead evaporating**

- US created first mass higher education system
- But other nations catching up or passing the US
  - US falls from 3<sup>rd</sup> to 17<sup>th</sup> in S&E grads/population
  - UK transformed in a generation: 13% → 30% of young people getting degrees
  - China - rapid expansion of research universities
- US HE system suffers from high attrition rate
  - Many begin college doing remedial education
  - Only 50% of those who enter Engineering undergrad programs earn an Engineering degree

**Rutgers** New Brunswick/Piscataway Campus  
**SMLR** School of Management and Labor Relations

**Post-9/11, US less open to top talent from abroad**

- US has depended heavily on attracting and retaining top international talent
  - 38% of US science and engineering Phd labor force
    - Even higher % among star scientists (Stephan, 2002)
  - Chinese and Indian immigrants have created 25% of Silicon Valley start-ups (Saxenian, 1999)
- Tightening of immigration rules has hit technical students and workers
  - 50% cut in H1-B Visas

## Reduced incentives to invest in workforce development

- Explosion in offshoring - gives firms exit, rather than voice option
  - 3 billion new people enter global economy in last decade
  - Easier, quicker to move work abroad than try to invest in improving quality of US labor supply
  - Firms with most H1-B applicants are Indian IT service providers
- Individuals bearing more employment risk
  - Healthcare, retirement, contingent work

## Strategies for going forward

- Need for a National Skills Strategy
  - Britain just issued *Leitch Review*
    - Planning ways to go beyond 50% of population with higher ed qualifications
  - National Academy doing its part – 2 other studies
    - Globalization of Innovation
    - Future skill demands

## Strategy: Build on US's key educational advantages

- Home to most of world's top research universities
- Strong incentives for innovation
  - IP protection, infrastructure, risk capital
- US population one of the few that treats education as a lifelong investment
  - Vital in rapidly changing knowledge economy with longer life spans
- Top foreign talent still attracted to US
  - H1-B annual quota filled on Day 1