

# Offshoring ... offshor ...

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National Academy of Engineering

The Offshoring of Engineering, Oct 24-25, 2006

# UK Institute of Directors on Off shoring

“the availability of high-speed, low-cost communications, coupled with the rise in high-level skills in developing countries meant offshoring has become an attractive option outside the manufacturing industry.

Britain has seen call centres and IT support move away from Britain, but now creative services such as design and advertising work are being outsourced. "There is more to come. In theory, **anything that does not demand physical contact with a customer can be outsourced to anywhere on the globe.**

For many UK businesses this presents new opportunities, for others it represents a serious threat. But welcome it or fear it, it is happening anyway, and we had better get used to it.“

RBF adds: For many workers ... it represents a serious threat. But we had better get used to it

- **IBM shifts global procurement HQ to China**

- By Andrew Charlesworth | 17 October 2006 10:21AM | General News

- Big Blue moves east. IBM is to relocate its global procurement headquarters to Shenzhen in a move indicative of the rising technological status of China.

The move will see the headquarters of an IBM horizontal function being located outside the US for the first time. "In a globally integrated enterprise a company's worldwide capability can now be located wherever in the world it makes the most sense, based on the imperatives of economics, expertise and open environments," said IBM chief procurement officer John Paterson, who will be moving to Shenzhen.

# Two Tales from my N-hood

- Engineer promoted to manager: “I took the job even though I prefer begin a pure engineer and was I lucky – my first big assignment was to offshore the work I had been doing to India.
- Computer user: “I bought a Dell computer and it didn’t work right. Had to whole new operating system. I called help, get a technician in India, who guided me through half, then he took over my machine through the Internet and got everything working well.”

# Lists of Occupations subject to offshoring

- Always has engineering
- Best method is geographic concentration  
Jensen and Kletzer: if concentrated in US then must be traded within country and thus can be traded/offshored overseas if others have comparative advantage

Trade within US has NOT led to economic decline of old Northeast. Absolute Real Income difference between Conn and Mississippi has risen even as relative difference has narrowed

# Why Off-shoring “Good Engineering jobs”?

- Global labor supply
- Spread of technology and communication
- Multinationals → globally integrated company: firms are only loosely tied to country nowadays. They will globally source. Much trade in services is intrafirm
- Multinationals → Foreign Direct Investment

# The supply incentive for global sourcing + spread of modern technology = “globally integrated enterprise”

In 2000 ~ 112 million college enrollees, 3.8 x as many as in 1970; 69% in LDCs US share falls from 29% to 14%

2004 China graduates 463,000 BS engineers. Between 1999 – 2005 China increases Bachelor’s grads fivefold to 4 Million!! Quality will improve.

US Share of World PhD in SE fell from nearly 50% in 1975 to 22% in early 2000s to ~15% 2010. Largest increase is for China, which will graduate more SE PhDs in 2010 than the US! And many US PhDs are from China, other developing countries.

Cannot imagine how US with 5% can possibly “dominate”

# Two Messages from Econoland

1) Technological change overseas can help or hurt US

If it is in products we import, we gain

If it is in products we export, we can lose

There are conflicting national interests in trade, off-shoring is part of this.

Question: How important vs gains? Can we minimize costs?

How can we compete better?

2) Off-shoring is within-industry trade in occupations or activities; possibly greater impact on inequality

Message from labor market:

It's Wages not Jobs

Focus on “jobs lost” misses key economic point  
– in long run, it's the wage that will be affected. Global labor market will exert pressure for wages to move closer between LDC and US.

Faster increase in their wages best thing for us and for them.

# Message from International trade: Agglomeration vs Global Divisibility

Agglomeration → immigration

Divisibility → offshoring

foreign direct investment

import from foreign

# Choices: Immigrants, offshoring, higher quality US education

With huge able foreign supplies, can/must get immigrants; should be substitute for offshoring

Eventually, they will return home or not come.

“Why go to the US when all the opportunity is in India?” (IIT student cited by L&S, 2006)

Cannot out-produce more populous countries in quantity. More engineers? No. Has to be comparative advantage with quality/kind of engineer → creativity.

## Comments on 5 of 6 questions

1. Off shoring is affecting market, but jobs still growing, wages doing ok, so only issue is flows are very international
2. Can find out how engineers who lost jobs/left have done using SESTAT
3. Off shoring is having negative effects on status/attitudes: can see in computer sci enrollments
4. Key issue about which we know least is DEMAND for engineers in India, China, LDCs
5. Don't mess with competitive job market through policies; encourage people through early payoffs
6. ??? We already do a lot of defense production internationally.