Globalization of IT: Economic Gains & Policy Challenges

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(for updated data for many of these charts, go to www.IIE.com)

Gains from Global Sourcing of IT Hardware

a model for understanding channels of gains

Catherine L. Mann, Institute for International Economics

Macroeconomic Gains

.... Reduced IT hardware prices by 10-30 % more than if produced only in US

.... Diffused IT investment through US sectors due to demand elasticity greater than 1.0

.... Accounted for more than ½ of accelerated productivity growth

.... Raised GDP growth 0.3 /yr (95-2000) & added at least $230 billion to GDP

Sources of price declines

1. Technological change
2. DRAMS: margins
   - vary with global production & global demand
3. PCs: prices
   - vary with net imports

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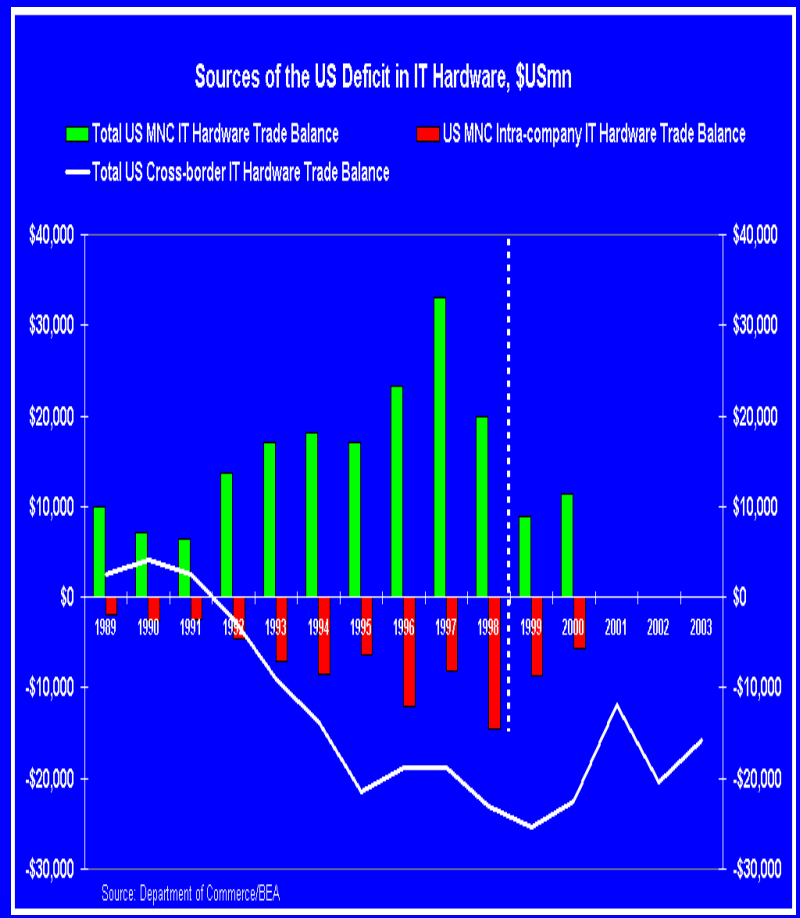
Export Competitiveness too



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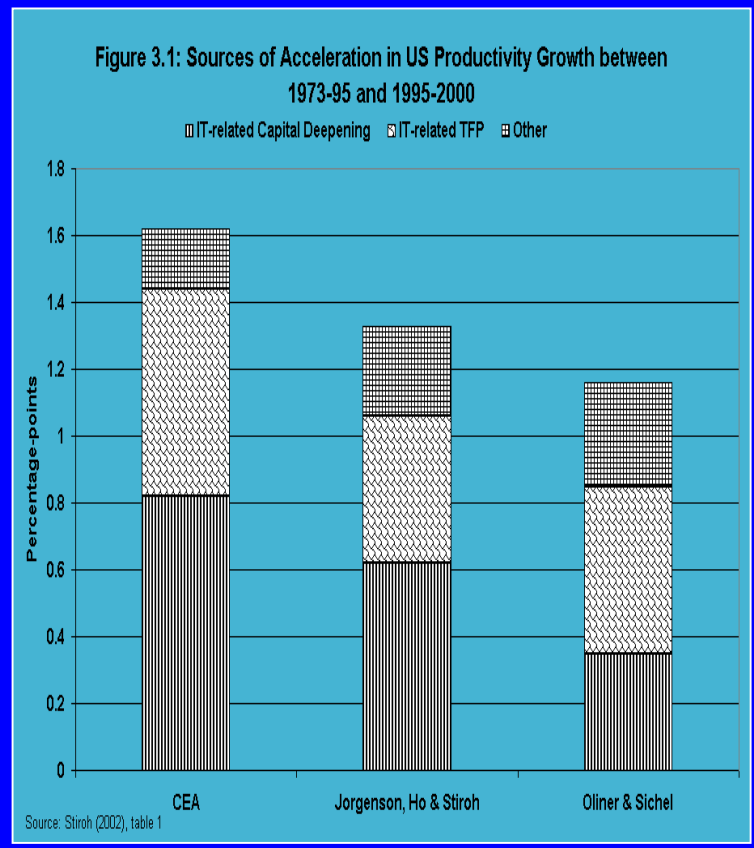

Uneven Diffusion of IT

offers important contrasts

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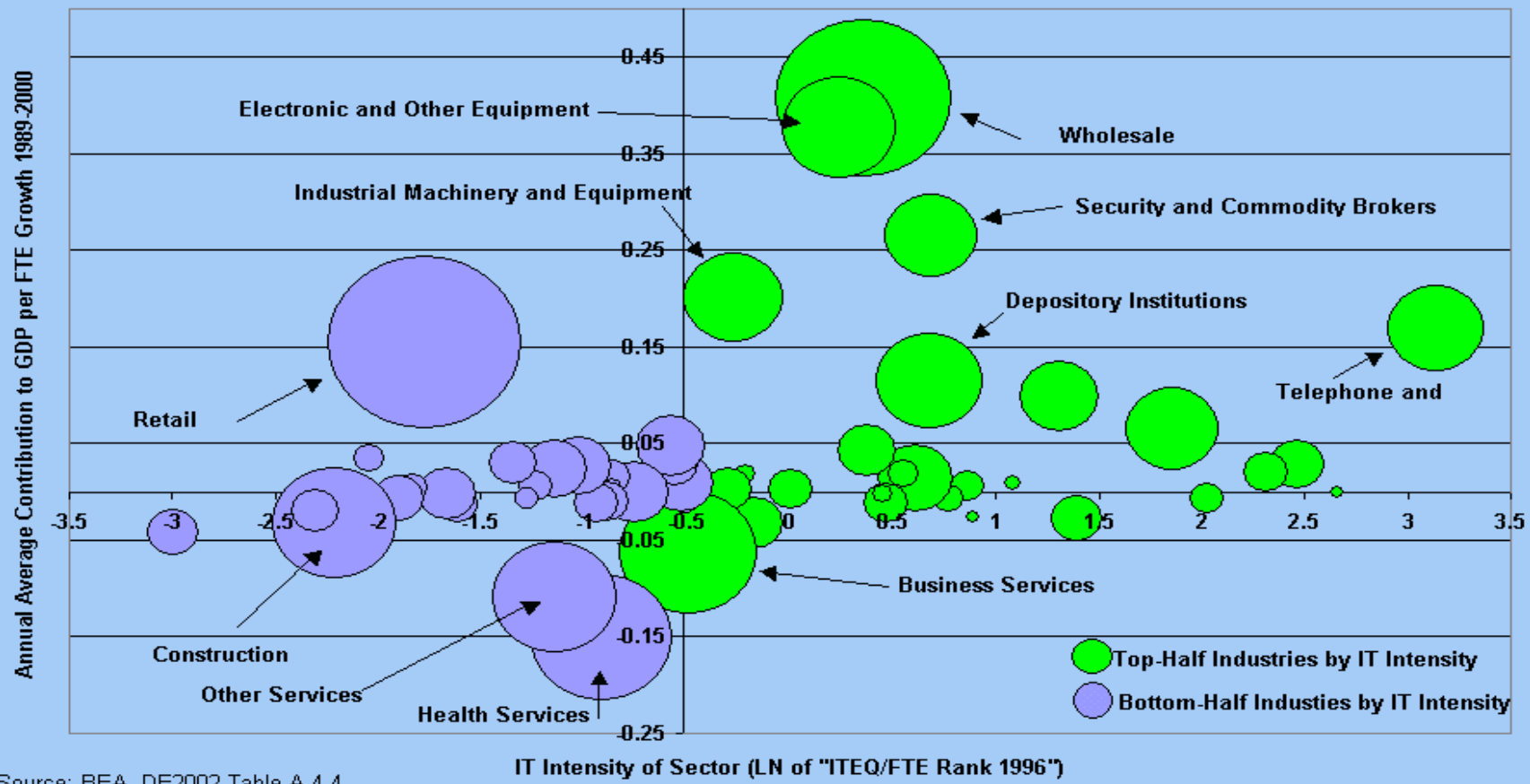
Figure 1: IT Intensity and Contribution to GDP per FTE Growth 1989-2000[14]
(Size of bubbles indicate share of GDP By Individual Sector)



Source: BEA, DE2002 Table A.4.4

Sectors that invested a lot in IT capital
also hire a lot of IT workers

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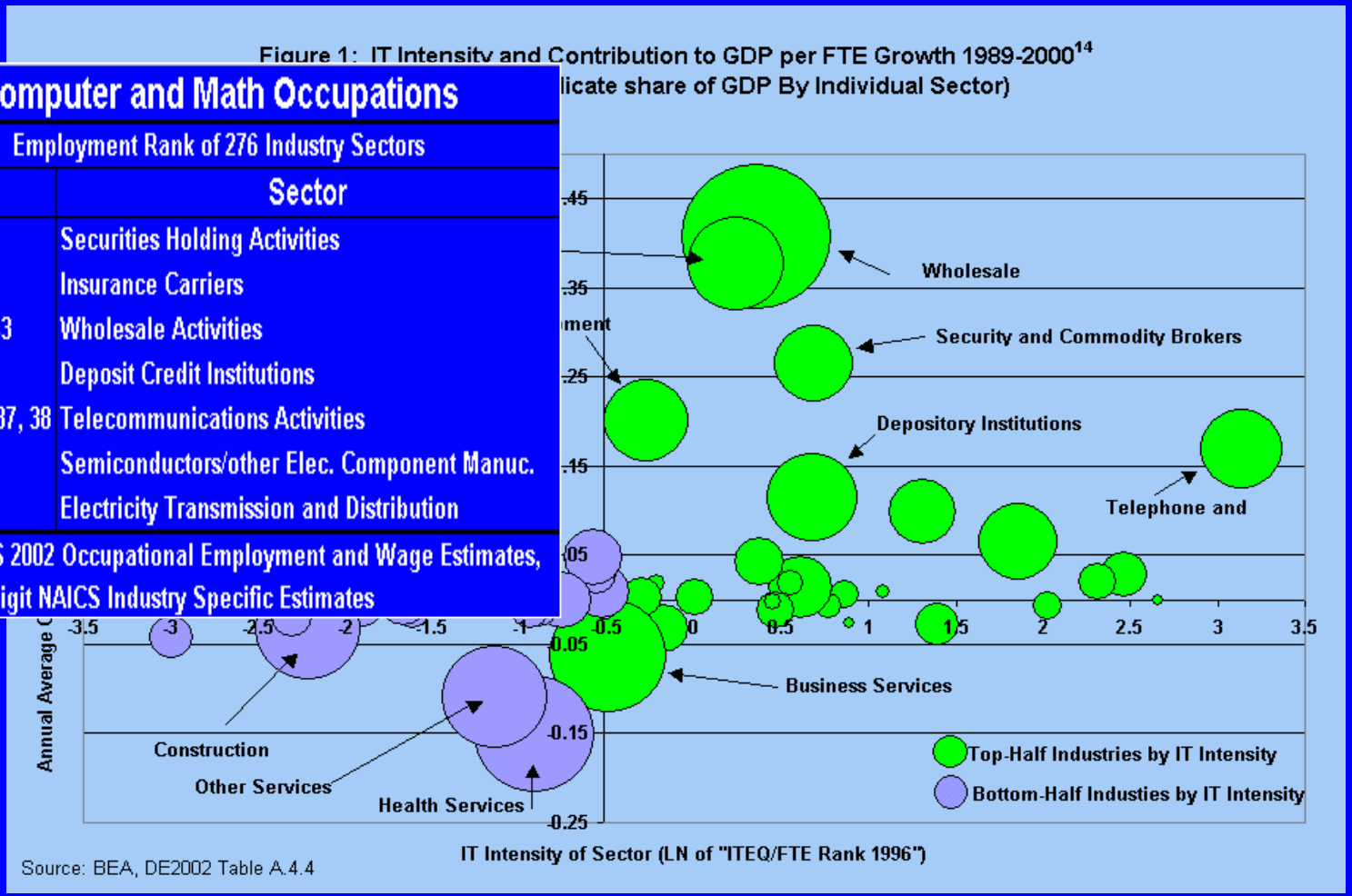
Computer and Math Occupations	
Employment Rank of 276 Industry Sectors	
Rank	Sector
#2, 29	Securities Holding Activities
#4	Insurance Carriers
#5, 32, 43	Wholesale Activities
#14	Deposit Credit Institutions
#16, 17, 34, 37, 38	Telecommunications Activities
#25	Semiconductors/other Elec. Component Manuc.
#36	Electricity Transmission and Distribution

Source: BLS 2002 Occupational Employment and Wage Estimates, National 4-digit NAICS Industry Specific Estimates



also are net services exporters

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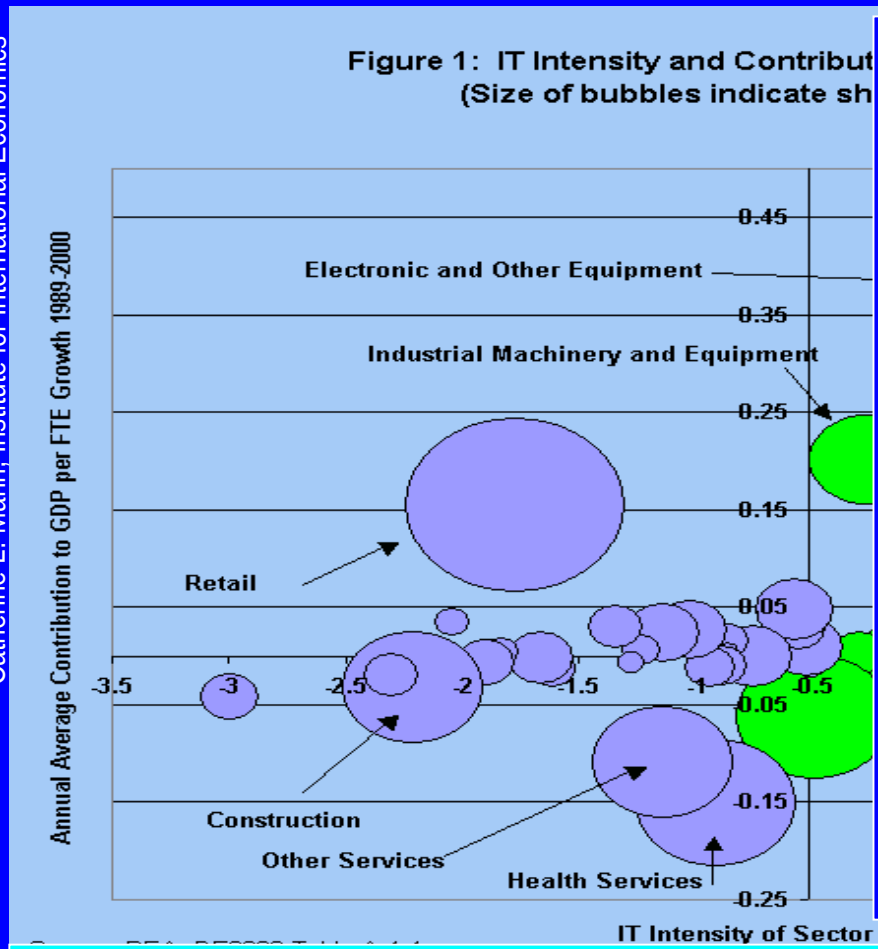
Source: BEA, DE2002 Table A.4.4

What about the 'lagging' sectors?

Gains from globalization of IT services & software



Why do some sectors lag?

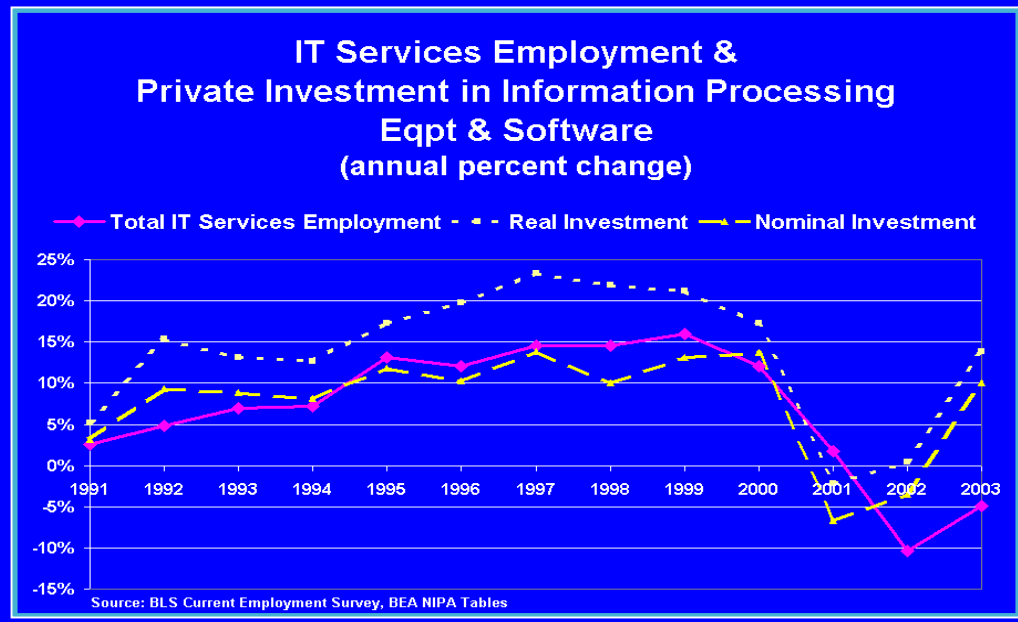
- Rising cost of services & software relative to hardware; $1.4 to 1 (1990) vs. $2.2 to 1 (2000)
- SMEs & proximity preference
- Regulation & complexity of relationships (health)
- Domain-specific knowledge

Offshoring some software & services reduces costs of tailored applications yielding more investment, effective use, and promoting jobs & productivity

IT jobs Overall

Microcosm of cyclical & structural changes

- Cyclical factor of IT investment
  - IT jobs in IT sector move in lock-step, but, 2/3 of IT jobs are in non-IT sectors and have held up better than IT sector
- Structural factor:
  - Rising skill demands from changing technology & trade



Evolution in IT Occupations and Demand for Skills 1999-2002

	Change 1999-2002	Av. Wage	2002 Emp. Level
Data Entry Keyers	-143250	$ 23,190	377,000
Computer Operators	-25860	$ 31,640	173,000
Computer Programmers	-71280	$ 63,690	457,000
Computer Software Engineer	115170	$ 74,615	612,000
Total "White-Collar IT" Occup	-144630	NA	5,492,000

Source: BLS 2002 Occupational Employment and Wage Estimates,
National 4-digit NAICS Industry Specific Estimates

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Policy Implications: Two Prongs

Domestic policy

- Transition policies for permanently displaced workers
  - Wage insurance and training credits
- Entry and up-skilling policies within a career-ladder
  - Human capital investment tax credit through firms & community colleges
- Movement/flexibility policies mitigate costs of adjustment
  - Affordable health portability; pension portability
- Business climate to promote investment in IT and R&D

External policy

- Foreign macro demand & exchange rate policies
  - Collapse in exports is a key problem today
- Get back to the trade negotiating table
  - Negotiate reduced tariffs on capital goods exports
  - Negotiate for two-way trade and investment in services

The Human-Capital Investment Tax Credit

Invest in people for a competitive economy

- The ITC instrument fits a 'classical' economics case
  - Private benefit captured by firms is less than national (social) benefit
  - Is the rationale for the R&D tax credit & accelerated depreciation / investment tax credit.
- H-ITC for incumbent workers to move up career ladder
  - An H-ITC mitigates the firm's disincentive to train workers for fear of losing them to a rival firm that does not train
- H-ITC for entry level workers
  - A internship credit mitigates students' concern about technical careers and recognizes that the 'first job' may no longer be US

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