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TITLE: Measuring the Economic Impact of ICT: A Methodological Survey

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# MEASURING THE ECONOMIC IMPACT OF ICT: A METHODOLOGICAL SURVEY

Vincenzo Spiezia  
Head, ICT Unit  
OECD



## OUTLINE

1. Present common methods to measure ICT impact
  2. Summarize data needs
  3. Give examples
    - Growth accounting
    - Productivity
    - ICT diffusion
    - Final demand
    - Multiplier effects
    - Network effects
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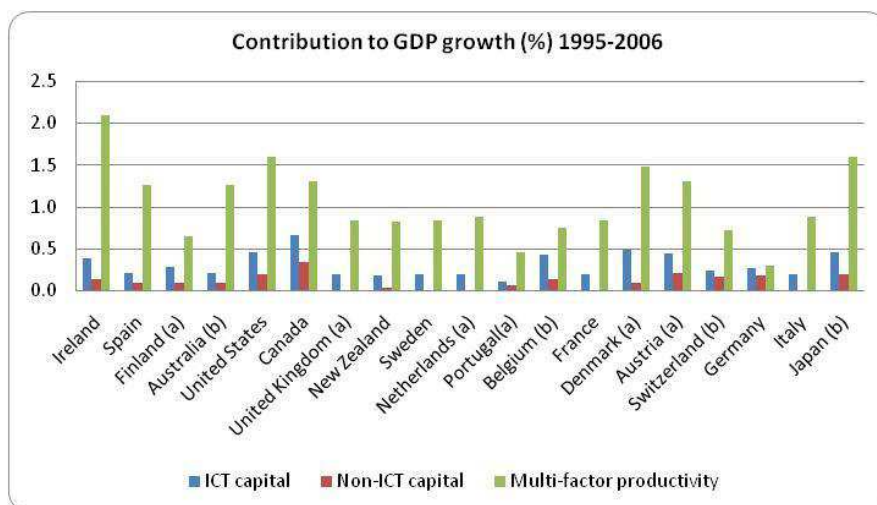
## GROWTH ACCOUNTING

*What is the contribution of ICT investment to growth?*

- GDP = Labour + ICT capital + Non-ICT capital +...
- Data needs:
  - Inputs remuneration (wages, capital costs,...)
  - ICT and Non-ICT investments
  - ICT capital price
- See: OECD Manual on Measuring Capital



## CONTRIBUTION TO GDP GROWTH 1995-2006

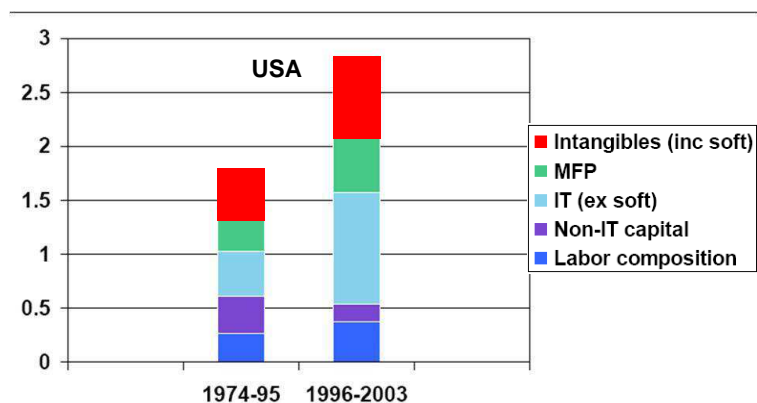


## PRODUCTIVITY

### *Does ICT investment increase productivity?*

- Multi Factor Productivity = growth in GDP not explained by growth in labour, capital, ...
- MFP accounts for a large share of GDP growth
- MFP is explained by ICT and Knowledge Investments
- Intangibles:
  - Software
  - R&D
  - Brand Equity
  - Firm-specific human capital
  - Organisational know-how
- See: OECD Science, Technology and Industry Scoreboard

## INTANGIBLES EXPLAIN A LARGE PART OF MFP



- Same results in the UK and Japan

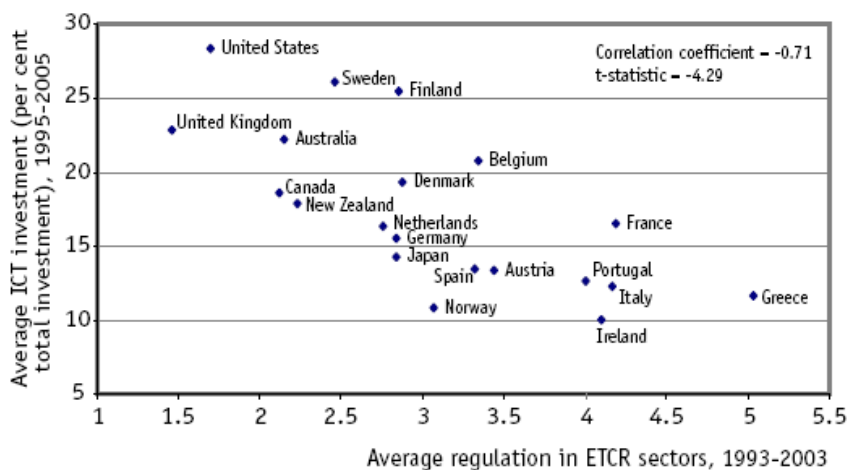
## ICT DIFFUSION

### *Why is ICT adoption slow in some countries?*

- Financial markets: difficult access to credit
- Product regulation: low competition
- Labour regulation: high costs for failure
- Data needed:
  - % of firms using ICT *or* ICT investment
  - Indicators of regulation
  - Cost of failure
  - Cost of credit
  - Degree of competition
- See: OECD Indicators of economy-wide regulation



## PRODUCT MARKET REGULATION AND ICT INVESTMENTS



Source: Conway and Nicoletti (2006) OECD

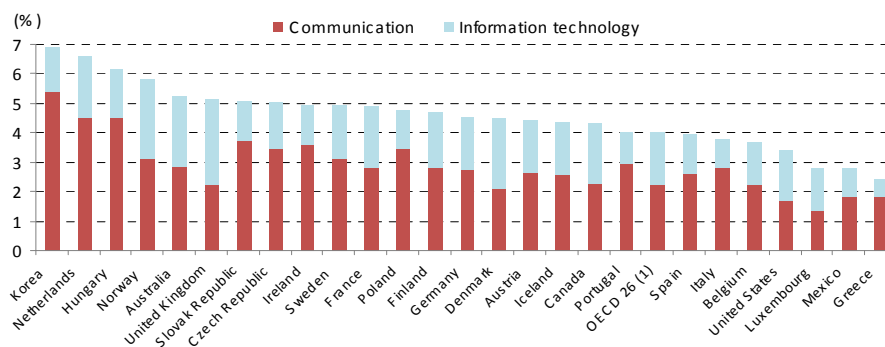


## FINAL DEMAND

*What is the effect of final demand for ICT on growth?*

- Domestic demand
- Exports
- Data needs:
  - Household expenditure survey
  - Trade statistics
  - Classification of ICT goods and services
- See: OECD Guide to Measuring the Information Society
- OECD IT Outlook

## HOUSEHOLD PROPENSITY TO SPEND ON ICT



## MULTIPLIER EFFECTS

- **Final demand:** ICT offers new goods and services for consumers;
- **Demand multiplier:** ICT supply increases demand for the output of other industries;
- **Supply multiplier:** ICT supply creates new opportunities for production in other industries.
- Data needs: Input/Output tables
- See: OECD Input/Output Database

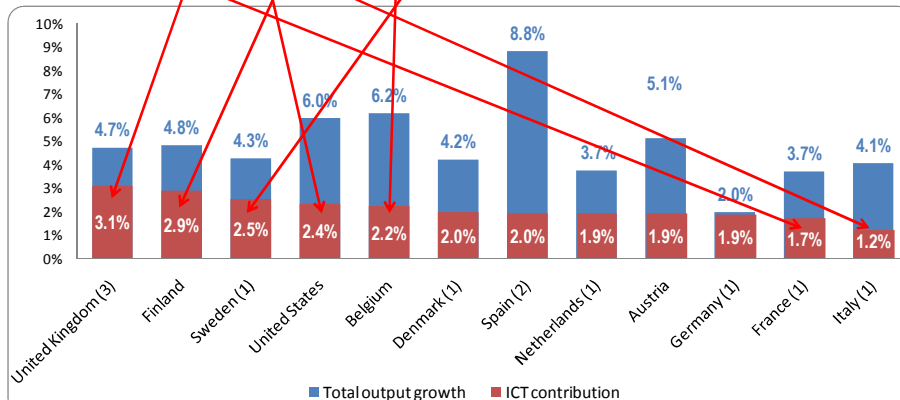


## MULTIPLIER EFFECTS OF ICT ON GROWTH 2001-06

Largest in UK, Finland and Sweden

Large also in US and Belgium

Small in France and Italy



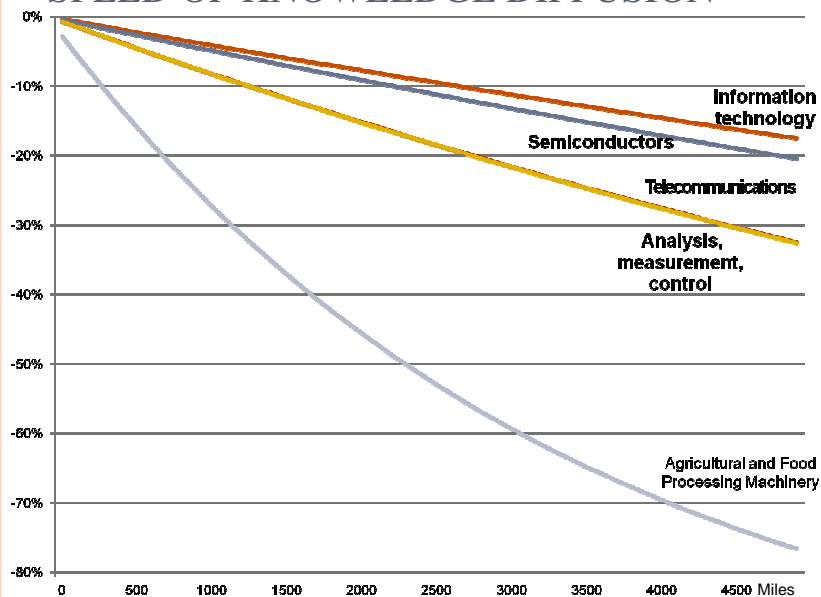


## NETWORK EFFECTS

### *Is ICT speeding up the diffusion of knowledge?*

- The time needed for information to go from A to B
- A and B: individuals, firms, regions, countries...
- Data needs (examples):
  - Patents, scientific articles
  - Patent citations, scientific citations
- The intensity of relations between A, B and C
- Data needs (examples):
  - Co-patenting, co-authorship, R&D partners
- See: OECD Patent Database

## SPEED OF KNOWLEDGE DIFFUSION



## MORE INFORMATION?

- ICT Partnership for Development:  
“Measuring ICT Impact: A User Guide” *ongoing*
- OECD Guide to Measuring the Information Society
- OECD Manual on Measuring Capital
- OECD Manual on Productivity Measurement
- [vincenzo.spiezia@oecd.org](mailto:vincenzo.spiezia@oecd.org)

