

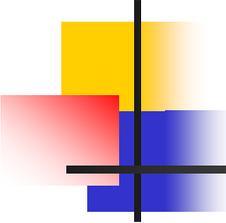


The Impact of ICT Use in Manufacturing Firms in Thailand

Joint UNCTAD – Thailand NSO Project

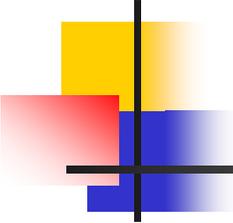
by Ruamporn Sirirattrakul

National Statistical Office ,Thailand



Outline

- Research Methodology and Data Sets
- Some results
- Lessons learned, experience gained from the joint project
- Recommendation

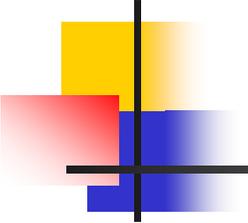


Research Methodology

The research based on 2 data sets :

- 2007 ICT Business Survey(70,800 sample firms) for overview of ICT uptake by firms
- 2003 Manufacturing Survey (8,862 sample firms) for productivity analysis using econometric techniques

Study firms with at least 1 employee



Empirical models

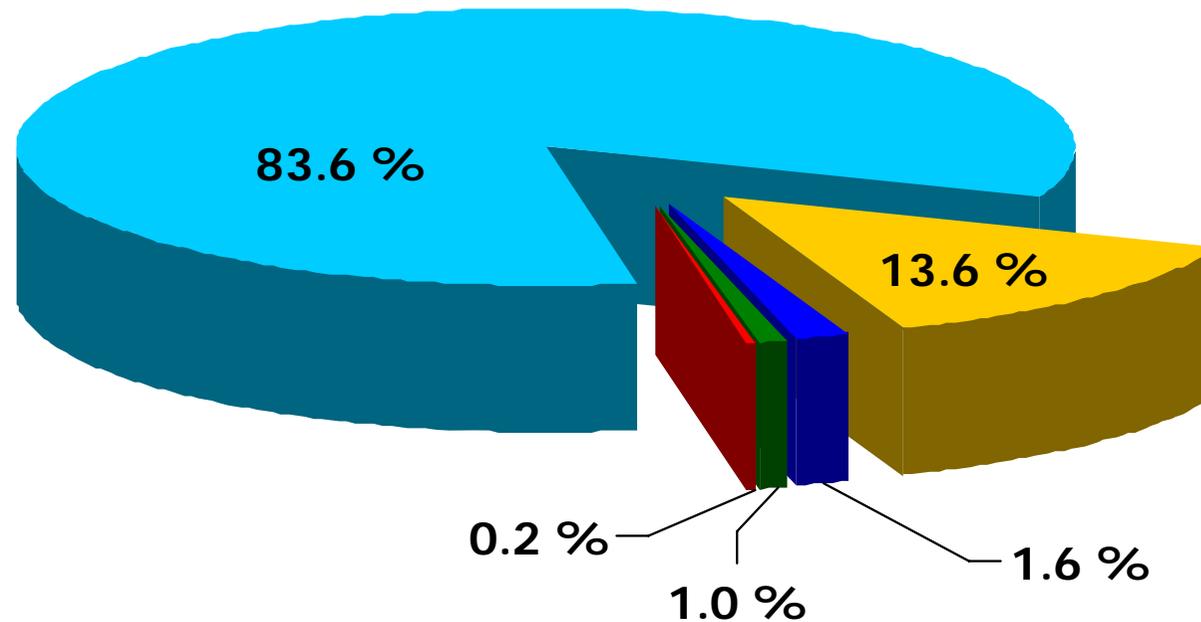
- Cobb Douglas framework

$$\ln\left(\frac{\text{sales}}{L}\right) = \beta_0 + \beta_1 \text{ICTVariable} + \beta_2 \ln\left(\frac{K}{L}\right) + \beta_3 \ln\left(\frac{M}{L}\right) + \beta_4 \ln(L) + \beta_5 \text{Multi_unit} + \\ + \beta_6 \text{Foreign_capital} + \beta_h \text{region} + \beta_i \text{Industry} + u$$

where i takes values between 1 and 14 and h between 1 and 6.

- Labour productivity measured by **value of sales per employee**
- K = Capital , M = Spending on materials , L = Labor
- ICT variables comprise of presence of computers , access to internet and presence of website
including intensity of computer ; proportion of employee using computers and number of computers per employee
- Multi_unit = Form of economic organization (head offices ,branches or single unit)
- Foreign_capital = Foreign capital participation

Percentage of Firms by Economic Activities



Trade & Services

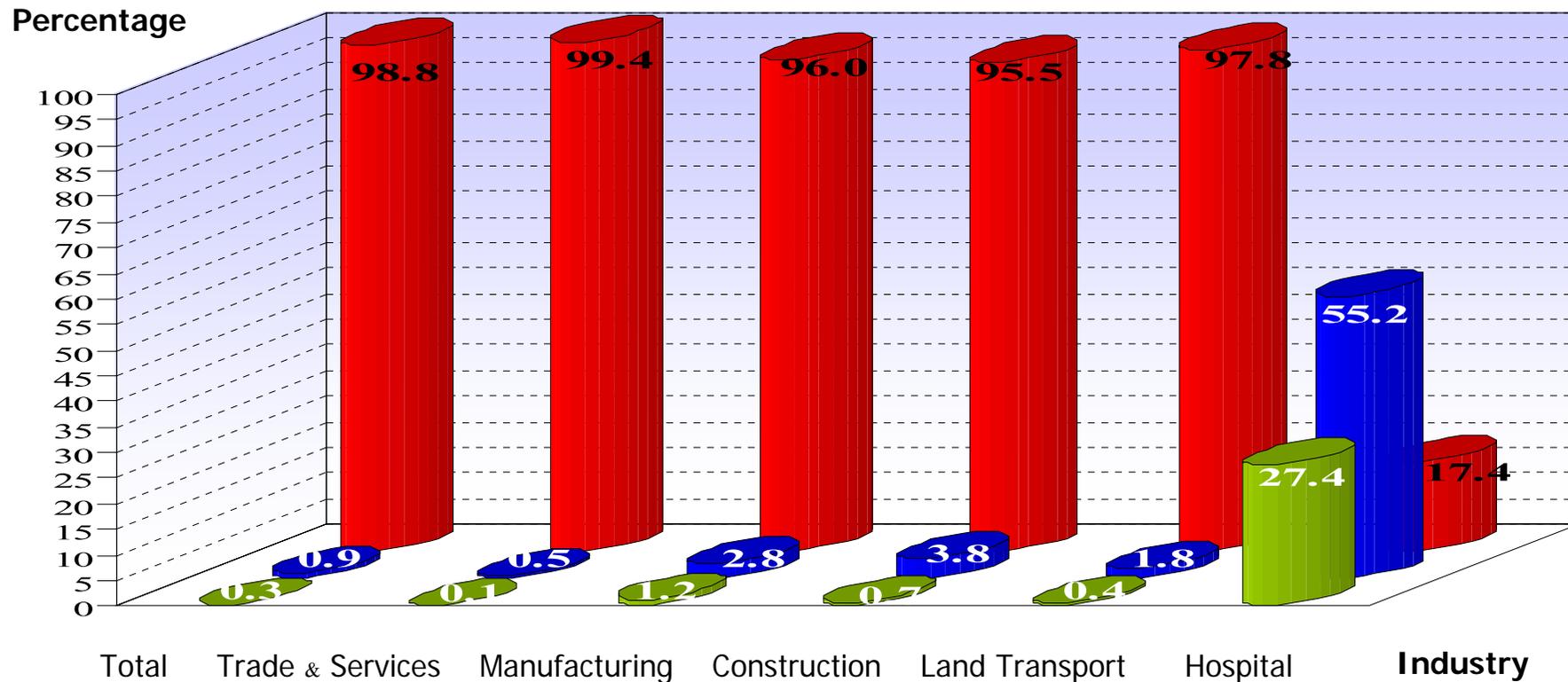
Manufacturing

Land Transport

Construction

Hospital

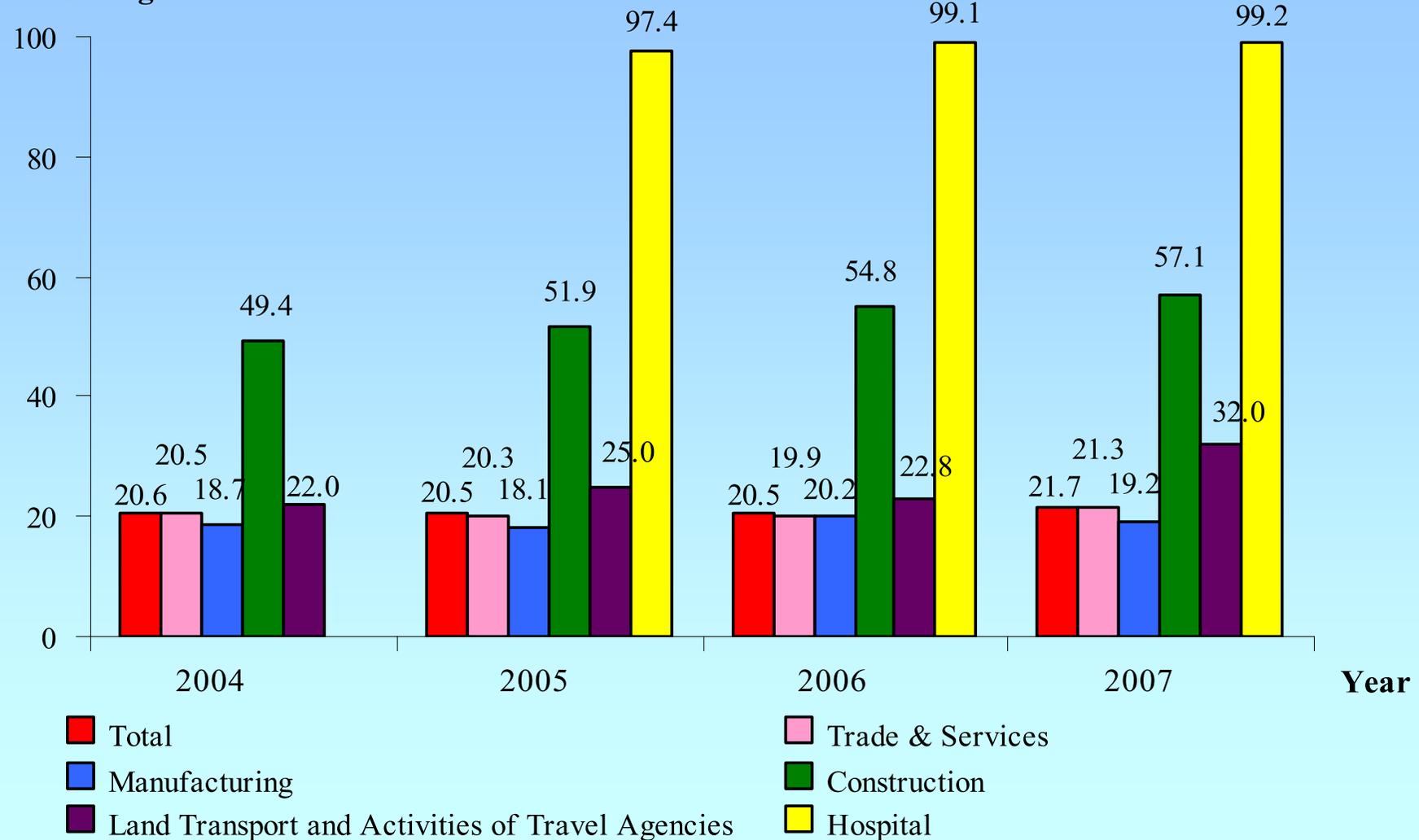
Percentage of Firms by size of Firm and Industry : 2007



● 1 - 50 Persons ● 51 - 200 Persons ● Over 200 Persons

Percentage of Firms with presence of computer :2007

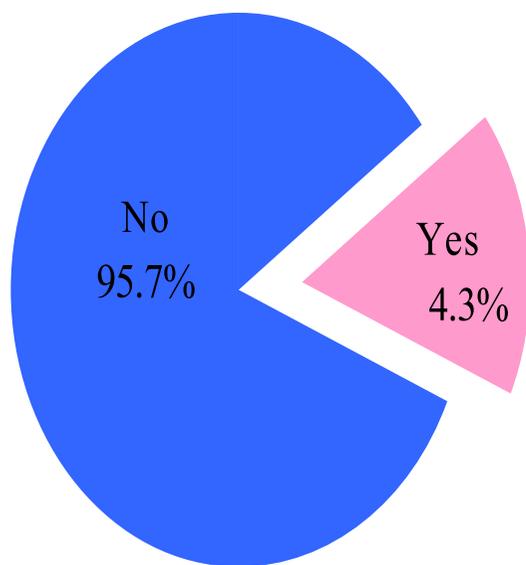
Percentage



Percentage of Firms with Access to Internet :2007



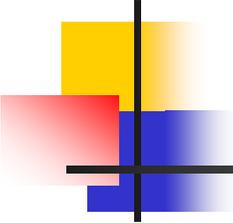
Percentage of Firms by presence of Web site and purposes of using web site : 2007



Purposes of using

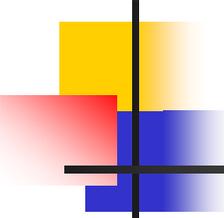
- Advertisement of products and firms 84.4%
- Inquiry / Contact facility 67.5%
- Receiving purchased order 16.3%
- Providing after sales services 8.9%
- Online payment 2.4 %
- Internal Information networking 5.7%

Note : An Establishment could answer more than 1 purpose



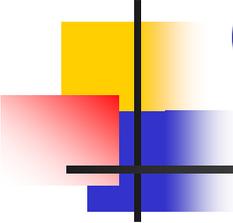
Some results of ICT impact on productivity

- Computer Use ,Internet access and Web presence in manufacturing firms are associated with significantly higher sales per employee (labor productivity)
 - computer presence : 14.6 %
 - internet access : 3.7 %
additional from computers
 - web presence : 3.8 %
additional from computers and internet



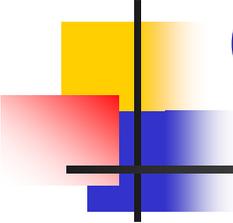
Some results

- Intensity of computer use was reflected in higher productivity gains
 - 3.6% higher labor productivity with 10% increase in the share of employees using computers
 - 4 % higher labor productivity with 10 % increase in no. of computers per employee



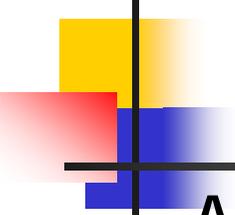
Lessons learned, experience gained from the joint project

1. Learning of applying Econometrics for ICT data analysis and using software SPSS from training
2. Learning by doing own in-depth data analysis in parallel with UNCTAD (as best practice) who provide technical assistance via email
 - conceptual frame work , empirical modeling and model selection techniques
 - solving heteroskedasticity and checking robustness
 - data analysis and interpretation



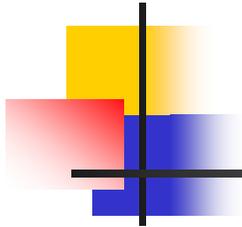
Lessons learned, experience gained from the exercise

- Gain more skill in processing micro firm data and applying econometric in data analysis
- Gain more techniques in data manipulation
- Gain in motivation for using Eviews software in running regression by our own



Recommendation

- An appropriate software for econometric analysis should be selected for learning and practicing at the beginning ,ie. Eviews
- Technical assistance provided via long distance (email) is suitable for whom quite skills in statistics , data processing , fare English and regular communication.



THANK YOU

Sawaddee Ka

