



CEDEFOP

European Centre for the Development
of Vocational Training

Alphametrics (AM)



Alphametrics Ltd

ce *cambridge*
econometrics

connecting you to the future

Forecasting skill supply and demand in Europe: Improving the links between skills and technological progress in E3ME

Paper presented at *Skillsnet* technical workshop on:
Forecasting skill supply and demand in Europe

15-16 October 2009, Valleta, Malta

Unnada Chewpreecha

Cambridge Econometrics



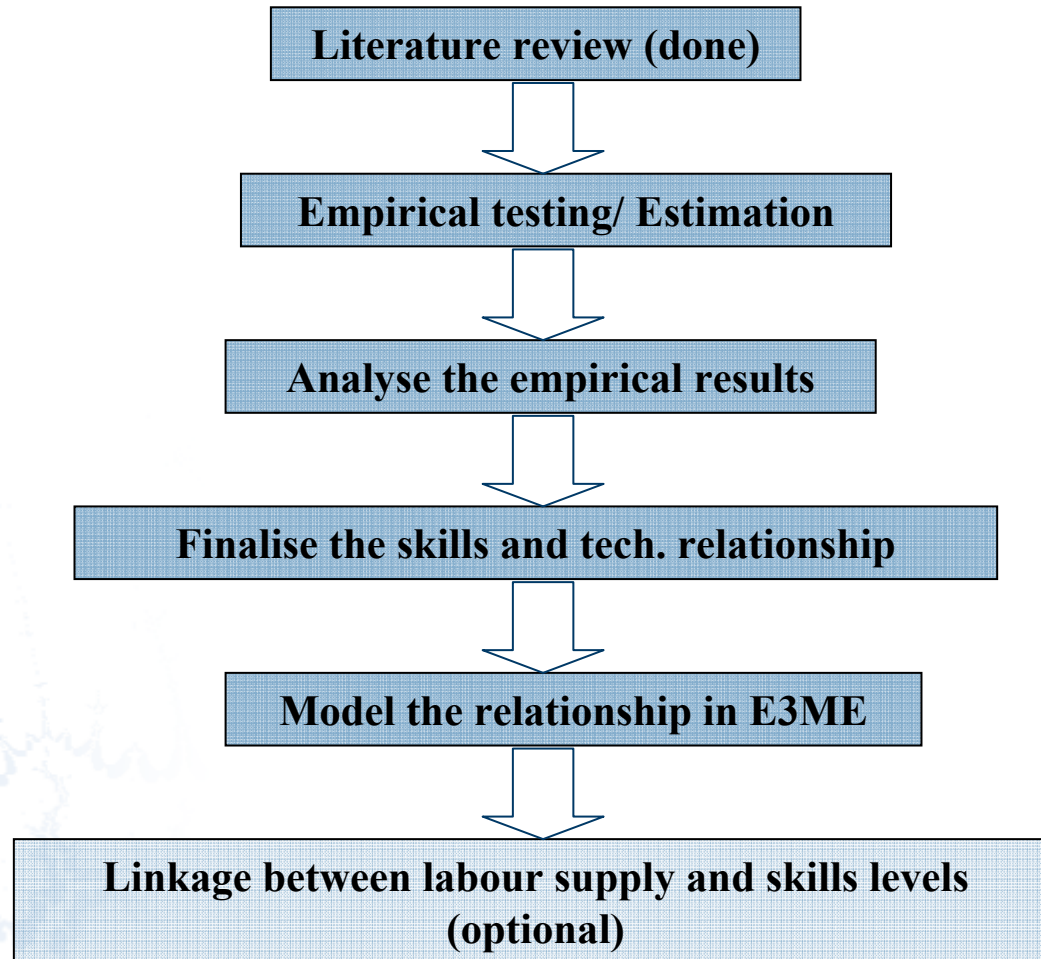
Researchcentrum voor Onderwijs
en Arbeidsmarkt

Research Centre for Education
and the Labour Market

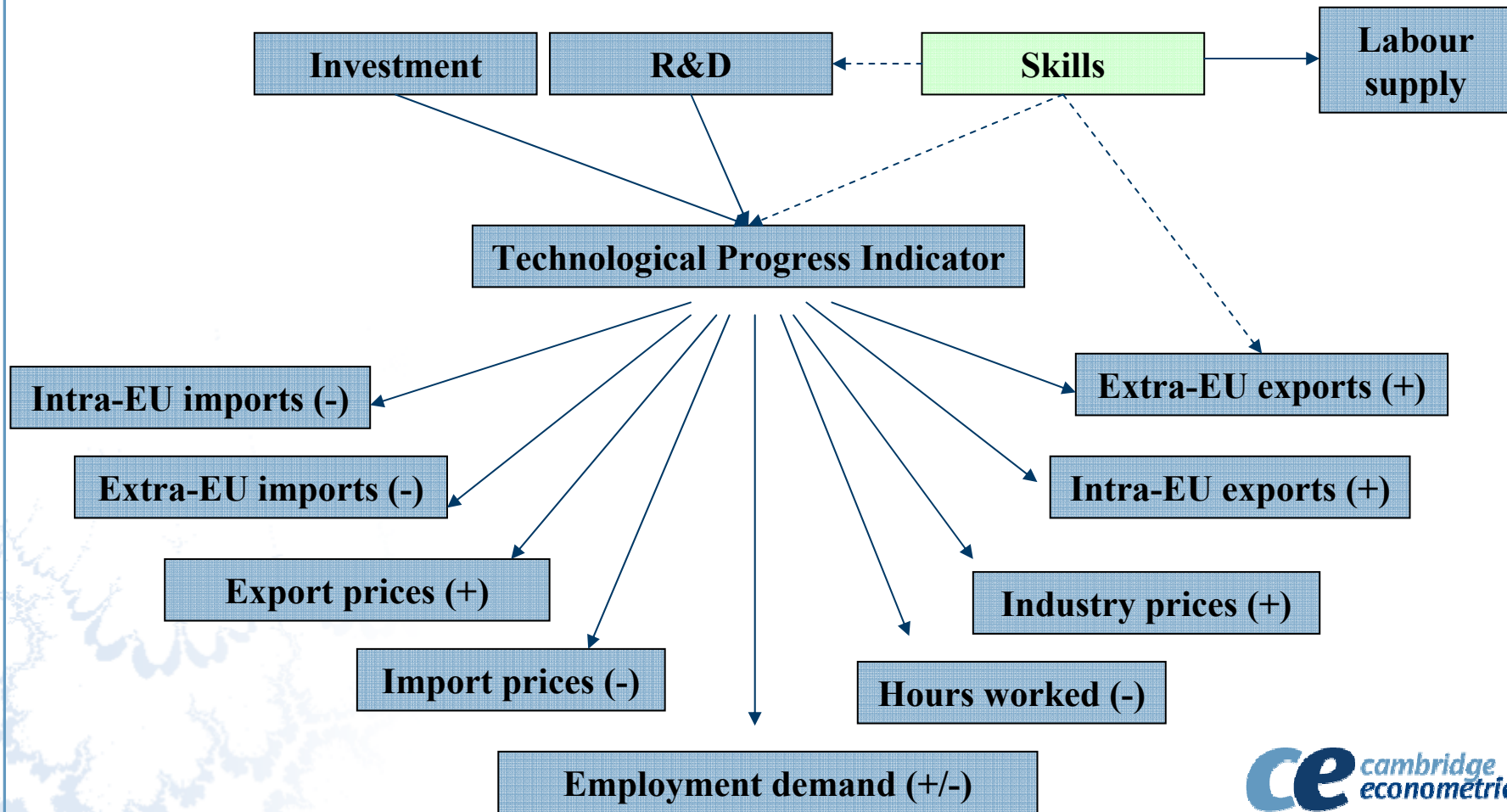
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Overview of the task



Current treatment in E3ME



-----> Results from this task

Measurement problems

| Problems | Solution |
|---|---|
| 'Skills' are not easily defined | Use education (qualification mix) as proxy |
| Different standard of education between countries | Not so much of an issue when using ISCED definition |
| 'Learning-by-doing' ignored when using qualification as proxy | Included only qualifications attainments of those aged 35 and above (ignored 15-34) |
| Technology is not measurable | R&D and Export equations are tested |

Specification tested

- **Export equation:**

Export = f(world demand, export price, rest of the world price, ICT tech progress, skills, non-ICT tech progress, internal market dummy, German unification dummy)

- **R&D equation:**

R&D = f(investment (both ICT and non-ICT), skills, patents, productivity in R&D, Industry price for R&D sector, output, government spending,...)

- **Different skills definition tested: weighted, high, those 35 years and above**

Initial results

- **Best specification for export:**

$$QEX = b_0 + b_1QWXI + b_2PQRX + b_3PQRW + b_4YRKC + b_5RQU + b_6YRKN + b_7SVIM + b_8RDEU + ECM$$

RQU is high skills variables (ISCED 5-6)

- **Best specification for R&D:**

$$YRDS = b_0 + b_1RQU + b_2KR + b_3PROD + b_4RDEU + ECM$$

RQU is high skills variables (ISCED 5-6)

Initial results (cont)

- **Exports – results for most manufacturing and some services sectors are significant suggesting the links exist**
- **High skills (as opposed to all skills) produce more significant relationship**
- **Results are similar to the Ciccone and Papaioannou (2006) ‘schooling-intensive industries’**
- **R&D – higher skills lead to higher R&D especially in the manufacturing sectors**

Next steps

- **Model these relationships in E3ME**