New approaches to modelling the demand for skills

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

9-10 June 2009, Thessaloniki, Greece

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Outline

- **Focus on expansion demand**
- **Improved Data: Alphametrics (in two phases)**
- **Coverage (Eur27 + Norway & Switzerland)**
- **Modelling : New approaches will be tested**
- **Including more behavioural elements**
- **More detailed ISCED: 7 levels, ISCO 3digit**

Core LFS Data

- **1995-2007**
- **NACE, Rev 1, 2-digit sector of Activity**
- **ISCO-88, 2-digit Occupational Group**
- **Broad Educational Attainment Level (High/Medium/Low)**
- **ISCO-88, 3 digit will also be explored**

Other Data Available

- **E3ME economic indicators**

- **Micro-data from the EU-LFS**

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Modelling Occupational & Qualification Structure

- **Aggregate Data from Alphametrics**
- **Shares broken down by: Country, Year, Sector, Occupation, Education**
- **Analysis for each category separately**
- **Extension for ISCED 0-6**
- **More detailed occupations**

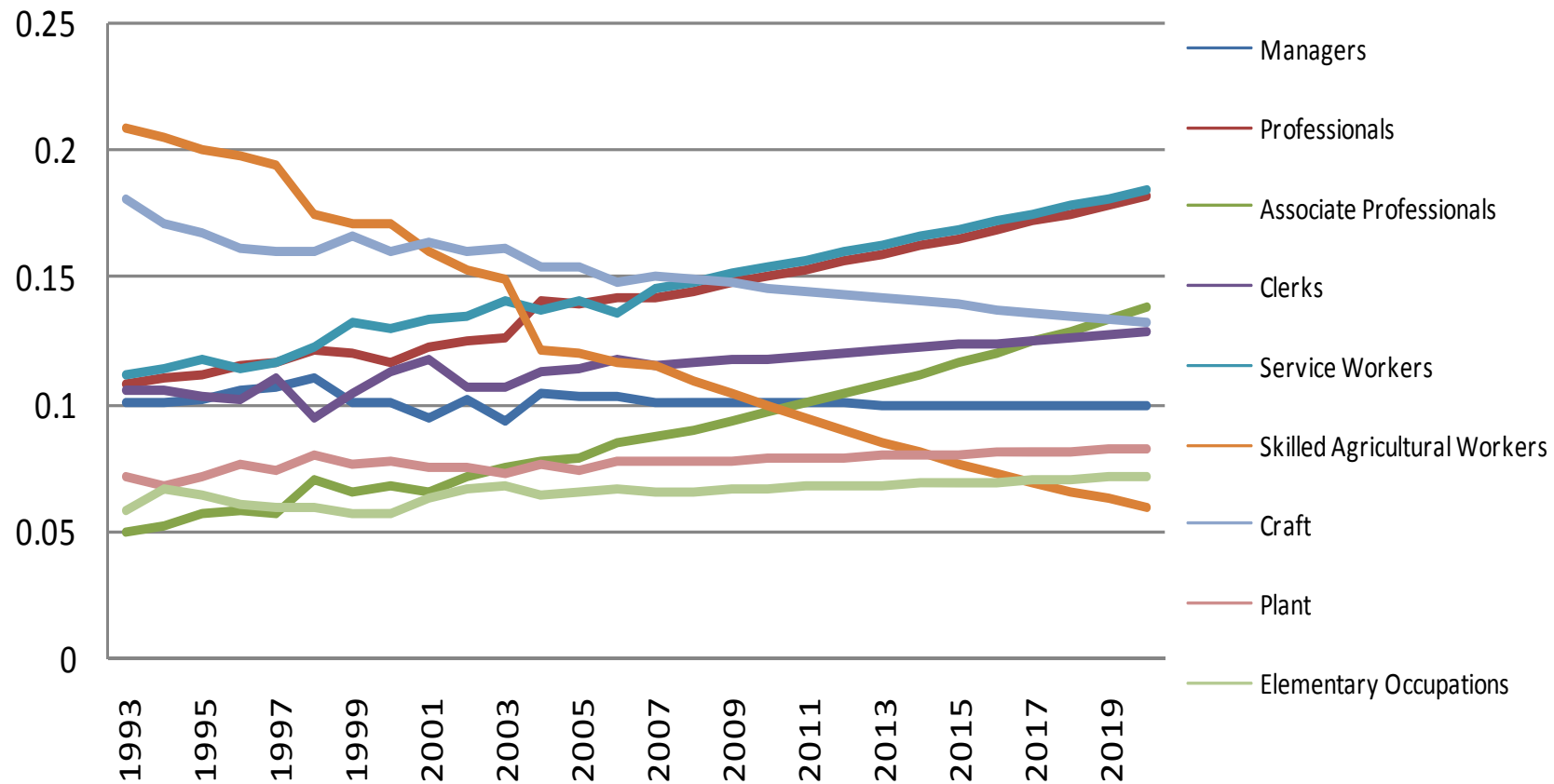WARWICK INSTITUTE *for* EMPLOYMENT RESEARCH IER

Logit transformation of Y

A Method for linearizing the sigmoid distribution of proportions

$$y^* = \log\left(\frac{y}{1-y}\right) = X\beta + \epsilon$$

y = proportion of occupational level *i*

The predictions are then expressed in units of y

Broad Occupational Shares - Greece

Legend:
- Managers
- Professionals
- Associate Professionals
- Clerks
- Service Workers
- Skilled Agricultural Workers
- Craft
- Plant
- Elementary Occupations

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Looking for common patterns

- The data available effectively form a panel

- Purpose: to identify common patterns in occupational structure across countries and sectors.

Determinants of Occupational Change

- **Sectoral structure (E3ME)**
- **Technology**
- **International Trade**
- **Levels of economic activity**
- **Impact of the recession**

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E3ME Data

- Exports
- Imports
- Value added
- ICT investment

  These indicators vary by sector and all Units are millions of Euros at 2000-based prices
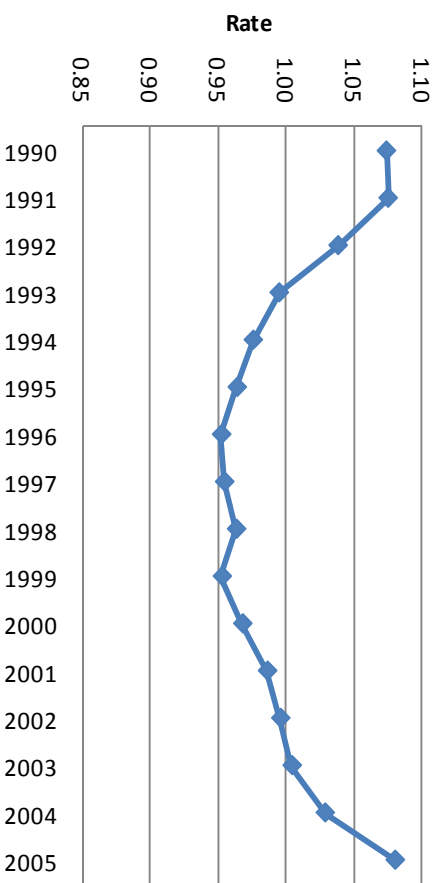
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Indicators

- Sectoral value added (this may be estimated as sectoral VA/ VA trend)

- Export volume share (exports as a percentage of domestic value-added)

- Import volume share (exports as a percentage of domestic value-added

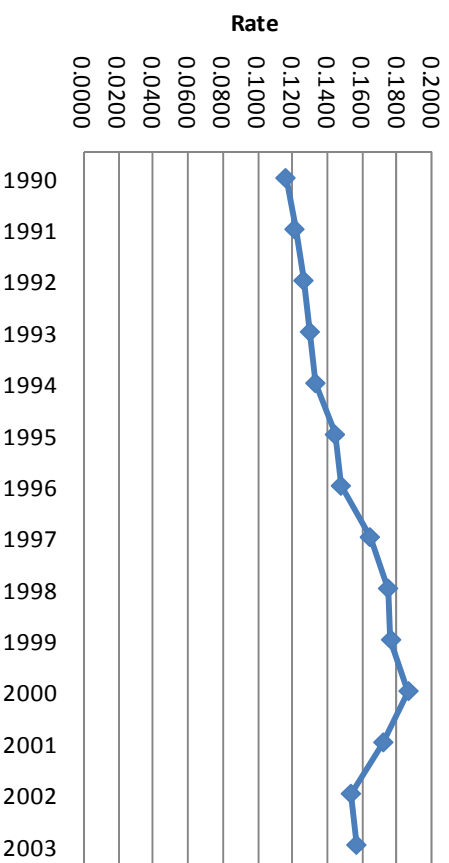- ICT investment as a % of GDP as a proxy of technological change
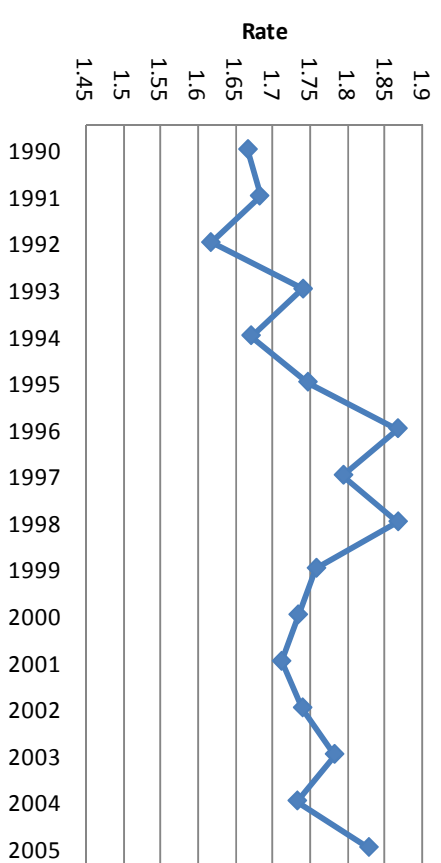
Exports / Value Added - GREECE

Imports / Value Added - GREECE
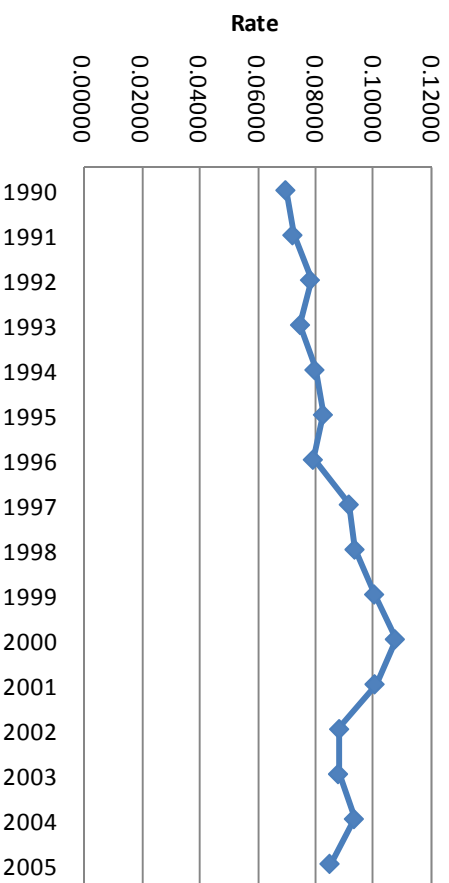
VA / VA Trend- GREECE

Imports / Exports - GREECE

Conclusions

- **Better quality data**
- **Exploration of alternative methods**
- **Further work to try to establish behavioural relationships**
- **Greater level of detail**
- **Impact of the crisis**

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