Approaches to modelling the supply of skills

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Outline

• Focus on stocks (WAP and EAP)
• Broader coverage
• Improved data: Alphametrics (Phase 1 & 2)
• Modelling: New approaches & methods
• Consistency of the results (activity rates & cohort effect)
• More Detailed ISCED: 3 vs. 7 levels
• New Dimension: Field of study
Core Data for the first phase (July 2009)

- Eur27 + Switzerland & Norway
- Broad Educational Attainment Level (ISCED-97)
- Gender
- 5 Year age groups (15-64)
Under investigation for the 2\textsuperscript{nd} phase
(December 2009)

- 1 digit ISCED
- Longer Time – Series
Additional Detail explored by IER

- 1 digit ISCED
- Field of Study

These can be modelled using a simple fixed shared approach + experts assessment.
Classification of educational level

- Level 0: Pre-Primary Education;
- Level 1: Primary Education or First Stage of Basic Education;
- Level 2: Lower Secondary or Second Stage of Basic Education;
- Level 3: Upper Secondary Education;
- Level 4: Post – Secondary, Non-Tertiary Education;
- Level 5: First Stage of Tertiary Education (not leading directly to research qualification);
- Level 6: Second Stage of Tertiary Education (leading to research qualification)
Fields of study in the LFS

000  General programmes
100  Teacher training and education science
200  Humanities, languages and arts
222  Foreign languages
300  Social sciences, business and law
400  Science, mathematics and computing (no distinction possible)
420  Life science (including Biology and Environmental science)
440  Physical science (including Physics, Chemistry and Earth science)
460  Mathematics and statistics
481  Computer science
482  Computer use
500  Engineering, manufacturing and construction
600  Agriculture and veterinary
700  Health and welfare
800  Services
Fields of Study: GREECE 2007 by level of education

Low

Medium

High

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Educational attainment: some theoretical considerations

- Human capital theory
- GDP growth, public expenditure etc.
- Supply side variables: gender, age, ethnic group, parents’ education, family income, parent’s occupation, social status
- In practice: severe data limitations (LFS)
Forecasting qualifications shares

- Aggregate data from Alphametrics
- Analysis on WAP, EAP
- Consistency of participation rates
- Shares broken down by: Country, Year, Gender, Age
- Extension for ISCED 0-6 & Field of study
Basic Method

Logit transformation of the proportions

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

\( y = \) proportion of educational level \( i \)

The predictions are then expressed in units of \( y \)
Advantages of the logit transformation method

- Values are within the unit interval
- Shares add to 100%
- There is no extreme growth
Shares of Educational Attainment
Greece Males 30-39
Looking for common patterns

- Analysis on panel data, pooling together all data, will be explored.

- Purpose: to identify common patterns across countries, and age & gender categories
LFS variables that can be included in the analysis

- Income information
- Rates of unemployment by educational attainment
Other variables to be explored

- Public expenditure on education (% GDP)
- Private expenditure on education (% GDP)
- Financial aid to students
Other issues to be addressed

• Consistency of Participation Rates by level of educational attainment

• The Cohort Effect

• Consistency with the demand side
Conclusions

• Data issues: resolution of gaps & discontinuities
• Behavioural element
• New dimensions
• Greater level of detail
• Consistency of results