CEDEFOP
European Centre for the Development of Vocational Training

Alphametrics (AM)

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Forecasting skill supply and demand in Europe: An overview of the new 4 year *Framework Programme*

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

9-10 June 2009, Thessaloniki, Greece

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ROA
Researchcentrum voor Onderwijs en Arbeidsmarkt
Research Centre for Education and the Labour Market

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IER

Summary

- **The Team**
- **Aims and approach**
- **The main Modules**
- **Data sources**
- ***Core elements* and *Moving Forward***

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The Team

- IER, CE and ROA from the previous two pilot projects; plus
- Alphametrics, EPC, and others from *Skillsnet*

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Introduction and background

- **Aims: Consistent Pan-European Skills Projections using existing data**
- **Background:**
  - **New *Framework Programme* supported by DG Employment funds under *New Skills for New Jobs* umbrella**
  - **The Financial crisis and recesssion**

Core Elements
Modular Approach: Demand

- **Module 1:** multi-sectoral macroeconomic model (E3ME) and forecasts;
- **Module 2:** occupational expansion demand model, (EDMOD);
- **Module 3:** qualifications module (QUALMOD);
- **Module 4:** replacement demand module, (RDMOD).

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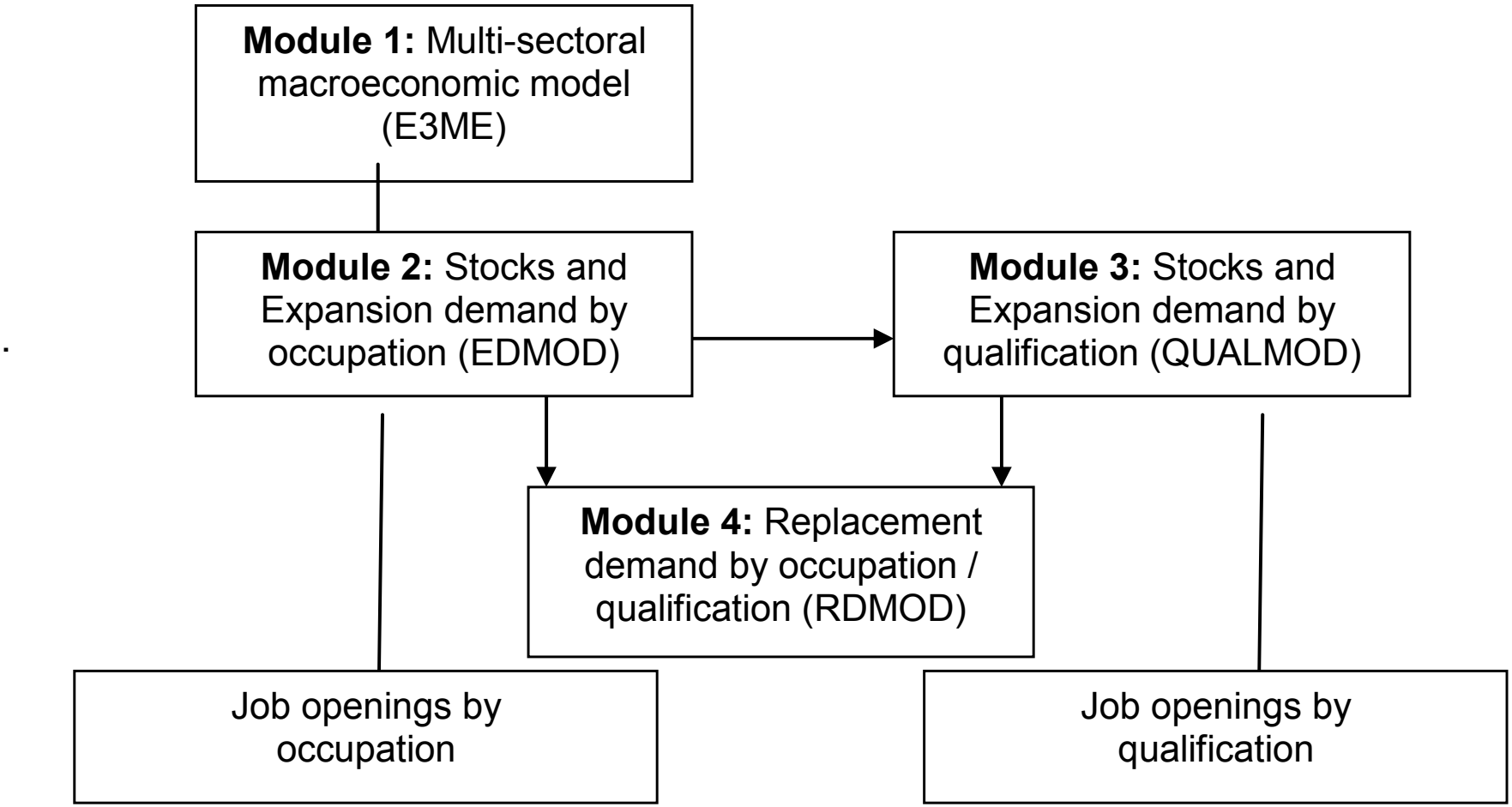
Modular Approach to Skills Forecasting: Overview of the Framework - Demand



Modular Approach: Supply & Mismatches

- **Module 1*:** multi-sectoral macroeconomic model (E3ME*) based forecasts of labour supply;
- **Module 5:** Numbers of people with formal qualifications (STOCKMOD);
- **Module 6:** Flows and graduate numbers (FLOWMOD);
- **Module 7:** Mismatches and Imbalances.

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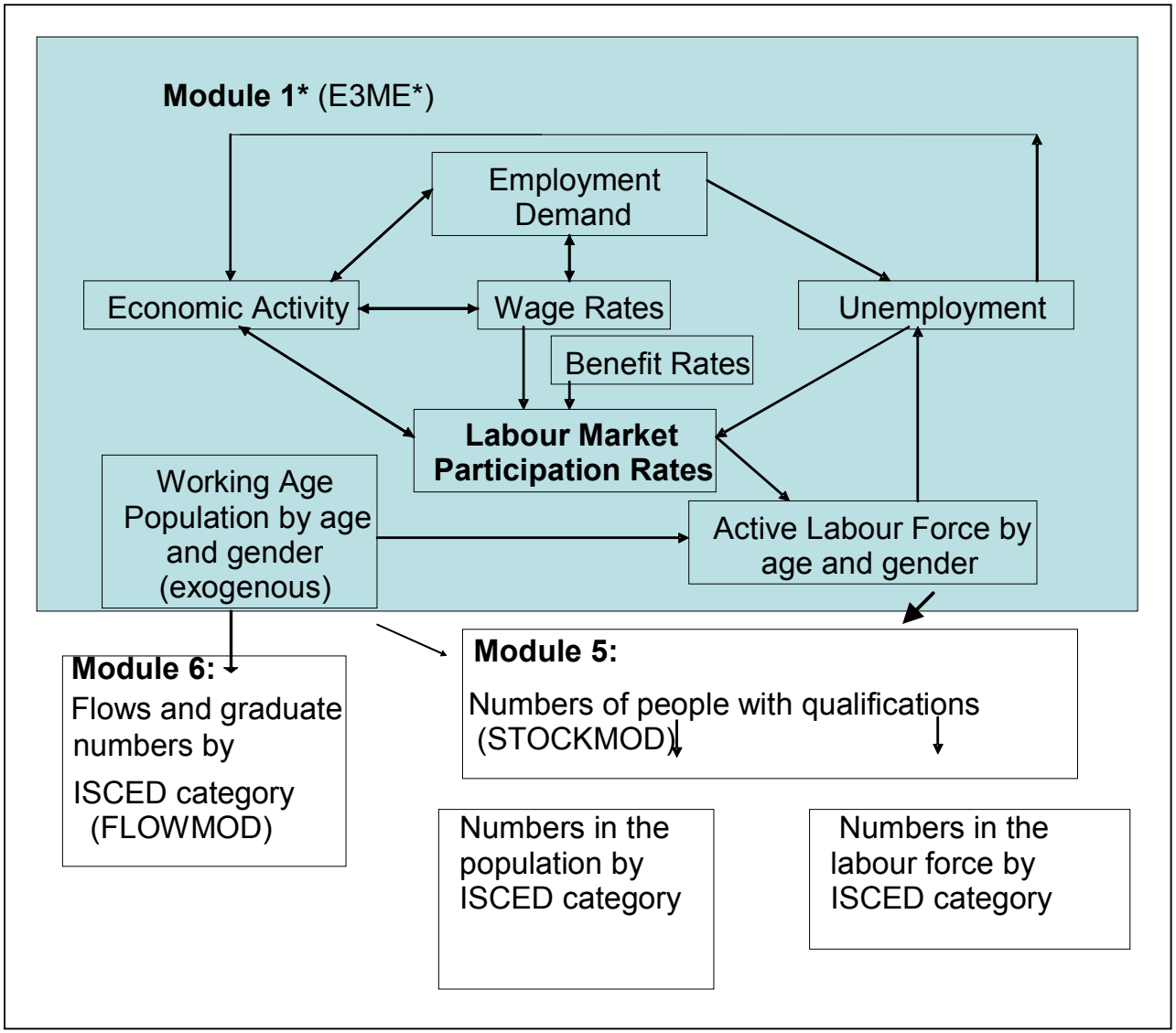
Modular Approach to Skills Forecasting: Overview of the Framework - Supply



Imbalances and mismatches

- Problems and issues in comparing demand and supply
- Mismatches, imbalances, shortages and over and under qualification
- Market and other adjustments

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Main tasks: the Demand side

a) Assemble consistent data on employment by occupation and qualification within sectors (AM);
b) Analysis of these data to develop models and projections, using various techniques (IER) ;
c) Development of E3ME macroeconomic and multi-sectoral scenarios (CE);
d) Integration of skill demand results within E3ME to produce projections of employment by country, sector, occupation and qualification CE/IER);
e) Further synthesis and analysis, including involvement of individual country experts in order to bring in country specific expertise and insights, and drawing upon EPC's analysis in *Moving Forward* projects

Data Issues

- LFS versus National Accounts estimates
- Published LFS versus Microdata set
- Data inadequacies and gaps (sparse industry by occupation matrices)
- Even more problems with qualifications

Refining the basic database (AM)

- Developing a new consistent database, focusing on LFS for both demand and supply of skills (occupations and qualifications)
- Detailed dialogue with Eurostat
- Addressing technical and other practical issues (data inadequacies (sparse industry by occupation matrices) and other gaps, problems of classification, etc)
- For demand side - Emphasis on employment
- Further extensions (e.g.adding more detail on occupations)

Module 1: Macroeconomic and Sectoral Scenarios (CE)

- **E3ME outline, extensions and modifications - overview**
- **Development of alternative macro and sectoral employment scenarios**
- **Estimating the impact of the recession**
- ***Moving Forward* - project on improving links between technical change (and skills and *vica versa*)**

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Modules 2 and 3: Expansion Demand by Occupation and Qualification (IER)

- **Previous research-**
  - **Limitations caused by data, filling country gaps**
  - **Attempts to introduce behavioural insights**
  - **Alternative approaches**
  - **Key drivers:**
    - Sectoral specifics; Cyclical indicators; Price (wage) indicators; Other economic factors (trade performance, etc)
- **Additional detail (e.g. more occupational categories), but practical limitations given current data (need to draw on other approaches (sectoral studies and individual country experiences)**

Module 4: Replacement Demands (ROA)

- The importance of replacement demands
- General approach (cohort components, but extended to consider migration)
- Data gaps and limitations
- Main developments planned

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Main tasks: the Supply side

- Develop consistent demographic and labour supply data by age and gender using Eurostat sources (AM);
- Analyse these data to develop models and projections using multilogit and other techniques (IER)
- Integration with E3ME, overall labour supply projections (CE);
- Further synthesis and analysis, including involvement of ICEs in order to bring in country specific expertise and insights
- Implications for mismatches and imbalances (ROA).

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Refining the supply database (AM)

- As demand side, but focussing on the labour force and population by age and gender
- Again, detailed dialogue with Eurostat
- Addressing technical and other practical issues (data inadequacies especially problems of classification of qualification levels, etc)
- Further extensions (adding more detail, e.g. discipline /field of study)

Module 1*: Macroeconomic Supply Scenarios (CE)

- **Refining the treatment of labour supply in E3ME - overview**
- **Development of linked (consistent) demand and supply scenarios (including implications for unemployment)**

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Module 5: Supply modelling using stock data (IER)

- **Previous research-**
  - **Limitations caused by data, filling country gaps**
  - **Treatment of activity rates and cohort effects**
  - **Alternative approaches to estimation**
  - **Introducing more behavioural insights -Key drivers (Group characteristics; Other economic and social factors)**
- **Additional detail (e.g. by discipline/field of study), but practical limitations given current data**

Module 6: Supply – update of treatment of flows (ROA)

- The importance of flows as well as stocks
- Advantages of a stock flow model but limitations of data available
- Reassessment in year 2 / 3

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Module 7: Imbalances and mismatches (ROA)

Demand:
- Sectors
- Occupations
- Qualifications

Supply:
- Gender/age
- Qualifications

Imbalances and mismatches:
- Unemployment
- Vacancies
- Over and under qualification
- Wages and other market adjustments

Moving Forward: Year 1

- Improving skills / technology links (CE)
- Modelling interaction between demand and supply, including mismatches and analysis of imbalances (ROA)
- Refinement of stock supply model (IER)
- Additional Country Expert Scrutiny based on Country Groups (Various)
- Analyses of social and economic determinants of changing skill structure (EPC)
- International comparisons of changing skill structures and projections (EPC)
- Implications for Generic skills and disciplines (EPC)
- A qualitative assessment of forecasts of skill supply and demand (GIBB)

Conclusions and Future research priorities

- ***Core Elements*** **will deliver consistent and comprehensive projections for Eur27+2**
- **The *Framework* and modular approach offers a sound foundation for further development**
- ***Moving Forward*****: beginning of refinement and extensions**
- **Continuing dialogue- importance of individual country expert input**
- **Outstanding data problems: need to refine basic data on industry by occupation and qualification**
- **Scope for further refinement in modelling (demand and supply side initiatives & other possibilities)**

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