



Medium-term forecast of skills supply in Europe: final results

Skillsnet technical workshop
11-12 December 2008, Cambridge, UK

Workshop summary and conclusions

The workshop was organised by the European Centre for the Development of Vocational Training (Cedefop), within its network on early identification of skill needs 'Skillsnet', and hosted by Cambridge Econometrics.

Participants: 38 experts from 22 European countries (20 EU Member States) attended the workshop (list of participants is available upon request).

Background

In October 2005, Skillsnet/Cedefop organised in Cyprus an expert workshop exploring the feasibility of a European skill needs forecasting approach. All participants agreed on the desirability of launching a European-wide skill needs forecasting exercise and asked Cedefop to continue with this initiative¹ and coordinate further steps. The decision taken was to proceed along two main paths:

- in the short term to create a Pan-European forecasting model which would use data available for all Member States (for example Eurostat data, such as LFS);
- in the longer term to involve all European countries in this exercise with the view to harmonise or match sources used at national level, creating a new core forecasting system for use by all European countries.

Following the decision Cedefop launched the project **Medium-term forecasts of occupational skill needs in Europe**, limited in its first phase to the demand side. A research team comprising IER, ROA and CE was entrusted to carry out this project. Some preliminary results demonstrating the feasibility of producing a regular and consistent set of Pan-European projections were presented. Regular expert workshops reported on developments towards producing a Pan-European forecasting model, presented results achieved, and discussed with experts related data quality issues, possible scenarios and approaches to modelling expansion and replacement demand. The final results were announced at Cedefop's Agora conference "Skills for Europe's future" which took place in Thessaloniki in February 2008.

¹ This initiative respects the needs of Member States and does not affect the subsidiarity principle: Pan-European skill needs forecasting will not replace existing national forecasting systems. It is a voluntary exercise intended to complement, rather than replace, national forecasting.

In the meantime, Cedefop/Skillsnet launched a second phase of the project **Medium-term forecast of skills supply in Europe**. The main objective of this project is to develop and carry out a forecast of the supply of skills in Europe based on available data, with the intention to try to compare the results with those of the demand side (the first phase) and provide an indication of possible imbalances between supply of and demand for skills on the labour market.

Workshop objectives

The workshop's main objective was to familiarise country experts with the draft final results of the medium-term forecast of skills supply in Europe and to get their feedback. The forecast is being developed by a team of researchers from the Warwick Institute for Employment Research (IER), Cambridge Econometrics (CE) and the Research Centre for Education and the Labour Market at Maastricht (ROA), within the framework of Cedefop's international network on early identification of skill needs 'Skillsnet' (www.trainingvillage.gr/skillsnet).

The workshop objectives were to:

- present the draft final results of the medium-term forecast of skills supply in Europe in detail, including details of the methodology used;
- discuss and verify with Member States the results, related data quality and applied scenarios;
- discuss identified obstacles and data gaps and possible ways to fill these gaps in the future;
- discuss possible ways to identify the nature and scope of possible skill imbalances based on the two forecasts.

Workshop summary

After the welcome and introduction by Cedefop, the project team (IER, CE and ROA) presented the methodology and progress to date with the development of medium-term forecasts of skill supply in Europe, together with the analysis of possible ways to identify future labour market imbalances. A session on detailed feedback and data provision from country experts followed on the second day.

The skills supply forecast builds on previous work developed by the project team and extends the modular framework by adding 3 new modules:

- a forecast of development in *labour supply by age and gender* (using macroeconomic model E3ME);
- a labour supply forecast of *population by qualification* (stocks);
- a labour supply forecast of *graduates by qualification* (flows).

The project uses various data sources mainly from Eurostat (NA, LFS, UOE collection), as well as from other international institutions (OECD, IMF, World Bank etc.). The project aims to cover the EU-27, plus Norway and Switzerland, although there are data problems in a few cases. The project team highlighted the main methodological and technical problems that have to be addressed in developing a system for producing regular projections of future skills supply at European level. The project is a part of an on-going process, and problems related to data and methodology are being treated continuously.

Detailed presentations and reports on the 3 main modules and a detailed approach to identify future imbalances are available on Skillsnet web-pages.

The following issues of more general character were discussed in detail:

- A number of additional explanatory variables were suggested by the team and country experts during the previous workshop as being useful in explaining labour supply equations. These were tested by the team for the labour supply forecast based within the E3ME model (as well as for the labour supply forecasts by population (stocks); and for graduates (flows)). Improvements were made where significant relationships were found. Some caveats were raised regarding the impact of unemployment rates in the general labour supply model. These rates are fixed for the forecast based on historical data. Queries were also raised regarding qualification mix, which is also assumed fixed over the forecast in the general labour supply module.
- Effects of the financial crisis were discussed. The full implications are only just emerging. This issue will become clearer in 2009 as new data become available. Because E3ME is an annual model we need to wait for 2008 data. It is also important to emphasize that the focus is on medium to longer-term results. The economy can be expected to have recovered over a 5-10 year horizon, with medium to longer term trends being re-established. Moreover, the recession is likely to affect the demand side more than the supply of skills. One suggestion was to link the current crisis to the less optimistic scenario developed as part of the present project to explore different aspects of the effects of the crisis. However, the current negative scenario does not fully reflect all the consequences of the financial meltdown.
- One of the crucial topics discussed was the interaction of the supply and demand sides and analysis of potential imbalances. Such direct comparison is not straightforward at this stage due to both conceptual and other reasons. The two forecasts (demand and supply) have not been produced simultaneously and are therefore based on different vintages of population forecasts, and different data sets. One also has to be careful when presenting such imbalances because adjustments might occur. Moreover, it is well known that all forecasts have errors, and differences between two forecasts are subject to even more uncertainty and may not provide enough precision. However, implications for policies are important and it would be helpful to consider policies to assist adjustment such as promotion of LLL and mobility for adults. The next phase of work will consider target policies in the scenarios (including how they might influence imbalances).
- The discussion also emphasized that there is a need to reflect upon the communication strategy for the project and its main results. Skillsnet work is not only an academic exercise but may influence policy decisions in many countries. Thus its high visibility will have implications. Given this high profile, country experts will be asked to scrutinize the results again before they are published (see timetable below).

The following issues were raised and discussed by country experts concerning methodology, and data, on both stocks and flows:

- internal data inconsistencies and problems with the LFS historical data compared to national estimates (e.g. different totals and shares) need to be checked by the team for the following countries: CY, EL, LT, EE, AT, IT and MT (the latter will provide data);
- problems with the definition of working age population (e.g. is the legal retirement age over 65 ?) need to be checked;
- need to recognise that there are sometimes problems with significant immigration flows in some countries (e.g. Greece, Malta) and related issues such as the impact of the Roma population in Slovakia, influences the patterns and levels of education; migration generally needs to be analyzed more closely;
- unemployment rates should preferably be endogenous – but there are statistical discrepancies between LFS and NA based estimates;
- some discrepancies might be caused by other factors than unemployment (e.g. migration and commuting in countries like Luxembourg);

- more attention should be given to small countries and new Member States (e.g. the use of annual data may cause problems in some new Member States (generally the time series available for these countries are very short and various structural changes have occurred));
- E3ME uses the 2008 Eurostat population projections for the supply side (while the earlier demand side projections used the 2004 population projections) – a direct comparison between the two is therefore problematic;
- the forecast of flows uses the old population projections (2004) and outflows are not measured yet
- a 2 part methodology was used for the flow based estimates - both elements suffered from persistent problem; (the participation ratio method for forecasts of graduates (too many missing values); and a similar approach for graduates that enter the LM (problem of double counting);
- the forecast of stocks models the educational attainment for the labour force and working age population using two different data sets (population and LFS), with only two explanatory variables (age and gender);
- ideally a stock-flow model should be used because educational propensity is crucial information for policy makers (but more data and resources are needed in order to build such model);
- there is a need to develop a common understanding/definition of labour market imbalance as it is difficult to predict numbers of shortages or excess supply, this should include labour market frictions and responses like wage changes, substitution and migration;
- there is scope for the country workbooks to include more economic data (GDP, etc.), a summary of the macroeconomic forecast for each country as well as more information about the flow approach (participation and graduation rates in time series);
- the special case of Italy – graduation rates are artificially high because of the special situation for some civil servants which means they acquire higher qualifications simply as a result of staying in their job.

The following suggestions for future developments and improvements were mentioned:

- it was recommended to consider the work of the working group on ageing (http://ec.europa.eu/economy_finance/epc/epc_ageing_en.htm); and similarly the EU KLEMS database (which does not have a long time series but is Pan-European);
- provide more information about the flow approach in the report (more data for all countries);
- the stock model makes it difficult to take into account policy measures and has other limitations; there is need also to improve the flow model as well (but this also needs more and better data);
- explore the less optimistic scenario as means of tackling of issues related to the current economic crisis;
- consider the possible impact of technological change (e.g. lower/higher employment, although this relates primarily to the demand side rather than supply);
- improvements in human capital (endogenous growth theories) and the contribution of skills to growth in particular should be taken into account in the future;
- the sorting algorithm to be used for analysis of imbalances should be linked to a discussion of various alternative adjustment channels;
- other aspects of economic and related labour market adjustments should also be considered within E3ME;

Workshop conclusions

A number of issues linked to imperfection in the data base at European level have been repeatedly raised since the beginning of Skillsnet's work. The draft final results of the supply-side projection confirmed that it is time to look at these in more detail and to undertake an initiative (e.g. prepare a working paper) which could motivate both the EC and Eurostat to improve the datasets. This might lead in the longer term to enhancement of the data collection processes and to better information coverage.

Among others the information gaps concern the following issues (some relating to demand): robust and more detailed data on employment by occupation and sector;

- detailed qualification data;
- data on non-formal and informal learning;
- flow data including migration (by nationality, age, gender, qualification),
- inflow and outflow data, including statistics on studying abroad;
- data on education of parents, etc. to improve modelling using micro data on individuals.

Many of the data concerns require a much larger LFS sample (especially when it comes to smaller countries), more detailed information at disaggregated level, inclusion of additional questions into the LFS questionnaire, and maintenance of the consistency of LFS time series.

There is also a need for better employer based data on occupational employment structure. Cedefop is considering this issue already within its project on the need for a pan-European employers' skills surveys..

Interaction of supply and demand and their mutual effects require closer evaluation. The comparison and analysis of potential labour market imbalances will be possible only when the two forecasts are carried out simultaneously. It has been decided not to publish detailed estimates of imbalances at this stage. The next stage of work will focus more on conceptual issues and the development of practical indicators that can be used by policy makers as well as individuals making career choices.

Overall the workshop enjoyed lively and constructive discussion. It has been agreed that although the project faces a lot of methodological and data problems, the open database developed so far is a big success and contributes visibly to European research and policy. The meeting ended with enthusiasm and commitment for future work.

Further steps/timetable

The research team will finalize the draft final reports (including country workbooks) by 23rd January 2009.

Reports and country workbooks will be immediately distributed to country experts for their feedback on the general approach and mainly the data and trends (especially for individual countries). The deadline for experts to submit their comments will be 20th February 2009 (giving 4 weeks time for comments).

The team will complete the exercise after incorporating final comments from country experts and send the revised reports to Cedefop by 20th March 2009, including the elaborated conceptual and theoretical foundation for comparisons (of stocks and flows, and demand and supply).

These reports will be edited by Cedefop and published. A Synthesis Report will be published at the Cedefop Agora conference announcing the final results. This will be organised in Thessaloniki on 11-12 June 2009.

In the meantime the enhanced research team will start working on a new set of projections of both skill supply and demand. The next expert workshop to discuss the interim results is planned for second half of June 2009. Experts will be informed about the exact date and location in due course.