

perspective of a country in transition
Olga Strietska-Illina

Extract from:

Susanne Liane Schmidt, Klaus Schömann, Manfred Tessaring (eds.)

Early identification of skill needs in Europe

Cedefop Reference Series; 40
Luxembourg: Office for Official Publications of the European Communities, 2003

Reproduction is authorised provided the source is acknowledged.

Additional information can be found on:

www.trainingvillage.gr/etv/Projects_Networks/Skillsnet

The publication is available from national EU sales offices or from Cedefop

(www.trainingvillage.gr/etv/publication/form1.asp)

Price in Luxembourg (excluding VAT): EUR 25

Addresses of the national sales offices can be found at:

<http://eur-op.eu.int/general/en/s-ad.htm>

For further information contact:

Cedefop

PO Box 22427, GR-55102 Thessaloniki

Tel.: (30) 23 10 49 01 11

Fax: (30) 23 10 49 00 20

E-mail: info@cedefop.eu.int

Homepage: www.cedefop.eu.int

Interactive website: www.trainingvillage.gr

or

Skillsnet – Network on early identification of skill needs

E-mail: skillsnet-team@cedefop.eu.int

Homepage: www.trainingvillage.gr/etv/Projects_Networks/Skillsnet

Qualitative versus quantitative methods of anticipating skill needs: perspective of a country in transition

Olga Strietska-Illina, National Observatory of Employment and Training, Prague, Czech Republic

In a state of economic turmoil, transition countries face a challenge of how to identify future skill needs of the labour market. Insufficient data and short time series cause added difficulties. This paper considers the major advantages and disadvantages of different methodological approaches and their usefulness. Conventional macroeconomic forecasts produce valuable national results but are not yet reliable enough, or valid at regional level. Qualitative research at regional and sectoral levels provide necessary information on current skills required by companies but it lacks a longer-term perspective. Further, because of costs such research cannot be produced for each region and sector regularly and comprehensively. The Czech Republic in a transnational project 'Regular forecasting of skill needs' tried to integrate the two methodological mainstreams. The problems, challenges and future tasks that came into view as a result of this work are discussed in this paper. The follow-up work should end in establishing a system where different components can work complementarily and consistently together: regular macro level forecasts linked to qualitative information, periodical regional and sectoral surveys and analyses, and regular monitoring and analysis of emerging skills and occupational shortages.

1. Introduction

This paper presents some methodological issues and achievements in early identification of skill needs in the Czech Republic. These findings resulted mainly from a transnational project 'Regular forecasting of skill needs'. The paper therefore tackles the rationale, main idea, and some results for the Czech Republic. We shall first glimpse some advantages and disadvantages of different methodological approaches, and then we shall consider whether they can work complementarily, as illustrated in an example from pilot testing in the project. Finally, we shall tackle some problems arising and arrive at conclusions on research questions and future tasks.

2. Qualitative or quantitative methods?

Qualification needs analysis is an old topic in a new guise in many central and eastern European countries (CEECs) today. Under the old regime, central planning authorities were keen on drawing up rather detailed workforce plans for providing full employment. Planning in this area was a key issue in the overall exercise of meticulously planning demand in all aspects of the socialist economy. The methods employed were subordinated to this overall purpose. The results were used for changing manpower supply in line with demands of a centrally planned economy by regulating investment and available places in education and training in certain vocations and types of schools. Previous planning practices are widely associated with lack of democratic provision of training, and therefore remain unpopular till today.

After the fall of the communist regime these practices were totally abandoned and often institutions in charge of manpower planning were dissolved. For obvious reasons, the term 'planning' is not very popular in CEECs and the idea of forecasting labour market needs for qualifications and skills requires a heavy push (including lobbying and reasoning supported by scientific arguments) to prove that such measures are necessary. Sadly, not only decision-makers and civil servants often fail to see the point; academics are also often equally dismissive.

The transitional nature of the economy in the CEECs and global changes have ensured that forecasting is ever more challenging but at the same time ever more necessary. Slowly but surely countries in transition are developing various approaches to analysing future needs of the labour market.

Several years of ignorance in prognostic research have, however, created their own obstacles to development. Zecchini (1997) rightly noted that existing statistical services in CEECs are not prepared to measure facts not directly observable in all their detail. He further noted 'the tradition of precisely and meticulously quantifying facts related to the implementation of the central plan was suited to an era in which the economy was dominated by few large firms over which the government held strong control...' (p. 4). Under new circumstances, with a growing number of SMEs, self-employed and increasingly widespread flexible forms of employment, the statistical services are not prepared to measure economic trends in a longer-term development perspective. Comparable and reliable retrospective data with sufficiently lengthy time spans are simply not available. Companies in transitional turmoil are unable to foresee recruitment and redundancy in the nearest future.

Mere analysis of the current situation or a very short-term estimation of labour market needs is not enough for policy development in education which requires a perspective of at least four years of the educational cycle. Medium to long-term macro level forecasting has several weaknesses and gives only a partial answer. In the economic turmoil of a transitional economy many occupations become outdated, with some jobs disappearing or changing. Under these circumstances, information on the quality of the workforce needed is essential. To find an elegant methodological solution we decided to look at the experience of other countries in methods of analysis and anticipation of skill needs (see Strietska-Iliina and Munich, eds., 1999).

By quantitative methods we assume macroeconomic forecasts that identify medium to long-term labour market needs in numerical terms by occupation and qualification. By qualitative methods we understand various analytical approaches that try to anticipate both qualifications and skills needs, i.e. identifying not only numerical expression of demand but also providing qualitative information on the labour force required. Dividing methods into two methodological mainstreams - quantitative and qualitative - is only conventional. Such division has its own limits, as in fact both mainstreams employ elements of qualitative as well as quantitative methods.

Both quantitative analysis of manpower needs at macro level, and qualitative or semi-qualitative analysis of labour market needs (meso, micro, sectoral, etc.) have their own advantages and disadvantages. Medium- to long-term regular forecasting of manpower needs provides information on national employment trends which is useful for decision-makers, counselling services and individuals enabling them to choose their future career and type of study for the next four to five years. Producing the forecasts is not costly,

once the method and all necessary data are available. Because of its 'futuristic' character, forecasting sounds attractive and exciting and plays a good informative role in raising public awareness of future trends. On the other hand, this is not the case in CEECs, where scepticism of forecasting and its added value prevails. Fear of forced planning of educational supply contradicts the nature of transformation to democratic principles in educational provision and in access to education and training. It is therefore important that all parties involved in forecasting have a common understanding of its objectives. It is not to ensure a perfect match between supply and demand (something hardly achievable anyway) but to provide information to those making their choice of education and career path.

As stated, macroeconomic forecasting cannot be performed in CEECs without a method adjusting to the economic turmoil and lack of data. Although quantified forecasts may be fairly detailed at national level, the reliability of results at regional level normally is questionable. Forecasting could be undertaken only for rather rough definitions of occupations and qualifications, which do not represent the actual picture of skills required. Also, forecasts can hardly consider newly emerging hybrid occupational profiles, whose share of the labour market increases with the greater involvement of modern information technologies in production and services. Conventional forecasts therefore lag behind the process of innovation, becoming hostages of revisions of classifications and systems of occupations and qualifications.

Analysis of labour market needs could be carried out by qualitative and semi-qualitative methods, performed at a sectoral or regional level. Although methods may and usually do require a questionnaire survey, contextual analysis, in-depth interviewing, focus groups, etc., the core principle is putting people from the demand and supply sides together with experts and other partners to discuss the results of surveys, verify available statistics, and validate occupational profiles. The highest added value of such an approach is not only in the result itself but also, and perhaps even more so, in discussions and attempts to develop common understanding and to achieve, if not a consensus at least a compromise. This approach is therefore more proactive than traditional manpower forecasting. In addition, anticipating labour market needs may bear 'soft' prognosis, developing scenarios rather than 'hard' linear quantified forecasts. We must, however, consider that such methods of anticipation also have several drawbacks. They are not pure scientific research, they stem from cooperation with social partners and industry experts, and therefore they deliver their opinion on where industry stands. Results may not be fully objective and final, and may be vulnerable to objective developments in the socio-economic or even cultural contexts.

Such analyses are always subject to the commitment of partners and experts involved. Methods used as a part of the overall anticipation exercise are often costly, are of one-off rather than regular character, and produce a forecast limited in its time perspective.

Finally, both qualitative forecasting and quantitative anticipation methods are based on current data or judgements and therefore build a view of future developments from the static perspective of today. They lack the dynamism of actual development, and perhaps only the scenarios approach may partially solve the problem. The qualitative approach of scenarios development is, however, subject to the limits of the human mind's ability to imagine the future while at the same time bound by determined criteria.

Table 1. **Quantitative vs. qualitative analyses: pros and cons**

Quantitative analyses (macro level)		Qualitative analyses (regional/local/sectoral)	
PROS	CONS	PROS	CONS
<ul style="list-style-type: none"> ■ Results available at the level of economy ■ Medium to long-term forecast ■ Cost-efficient ■ Attractive because of its future-oriented nature ■ Raises public awareness ■ Objectiveness of data (neutral to subjective judgements) ■ Serves various target groups ■ Data may suit counselling and guidance nationwide ■ Regular character 	<ul style="list-style-type: none"> ■ Lack of reliable retrospective data in CEECs ■ Lack of macroeconomic forecast data in the Czech Republic ■ Sensitive to unstable contexts ■ Scepticism in transitional societies ■ Problematic reliability at more detailed level ■ Occupational forecast may be only roughly translated to qualifications, no qualitative information on skills ■ Brings to the forecast a view of the state of the art and past trends 	<ul style="list-style-type: none"> ■ Reliability at sectoral or regional level ■ Detailed information ■ Information on the quality of required labour force ■ Possibility to update occupational profiles ■ Scenarios and shared diagnoses facilitate shared commitments ■ Shared commitments facilitate implementation 	<ul style="list-style-type: none"> ■ Results are available for limited territories or industries ■ Limited target level and number of users ■ Indispensability of involvement of experts and practitioners from the relevant field; difficult to commit partners ■ Short- to medium-term perspective ■ Second-hand judgement; subjective ■ Costly ■ One-off actions, difficult to introduce regularity

Considering the pros and cons of quantitative forecasts and qualitative analyses (summed up in Table 1), we have asked ourselves whether we need to make a choice between the two mainstream methodologies. Each method appears imperfect and inadequate on its own but may serve well by providing valuable information to a more complex and integrated methodological system. This is how the project 'Regular forecasting of skill needs: comparative analysis, elaboration and application of methodology' (*LABOURatory*) was initiated. ⁽¹⁾

3. The project

The objective of the project was to suggest a mid-term (five-year) forecasting model for producing information on future national trends useful for decision-makers, guidance services and individuals. We were, however, aware that considering the lack and deficiency of data structures on education and employment, the results would not be valid at regional and industry levels. Therefore, the project team also tried to work out an anticipation mechanism for analyses at regional or sectoral levels.

The project brought together various expertise from the experience of partners in applying different types of methods. The outcomes are therefore the result of collaborative work between the two project mainstreams - one part of the partnership worked mainly on elaborating and improving quantitative forecasting models and another on qualitative analyses. The difficulty in introducing a joint approach and a common understanding among partners specialised in each of the methodological mainstreams speaks for itself. For decades analyses, although undergoing significant methodological developments, were worked out in parallel. Research institutions supplying the results of macroeconomic skill forecasts at national level worked separately, and with limited exchanges of methodological ideas, from institutions performing analyses of skill needs in specific sectors and regions. The former were linked to national policy-making, while the latter, by looking at micro level demand, were driven mostly by the need to provide specific

⁽¹⁾ The project was implemented with the support of the Leonardo da Vinci programme. It involved a trans-European partnership [Czech National Observatory of Employment and Training (project leader), the Czech Centre for Economic Research and Graduate Education at Charles University, the Dutch Research Centre for Education and the Labour Market, the Irish Economic and Social Research Institute, the Regional Employment and Training Observatory of Burgundy, the French private consultancy company Quaternaire, an interinstitutional research team in Poland, and the National Observatory and regional HRD Fund of Slovenia]. The project lasted for over two years (1998-2001).

information to schools and training organisations on the quality of the labour force required. The idea was as unique as was it simple: to link the two different approaches and research experiences and make them work together.

The results of the project could be seen as a testing stage which helped to identify methodological problems rather than introduced ready-made answers and solutions. We believe, however, this is already a big step forward. We shall now look at some successes and failures from the findings of the Czech project team.

3.1. Phase 1: The quantitative model

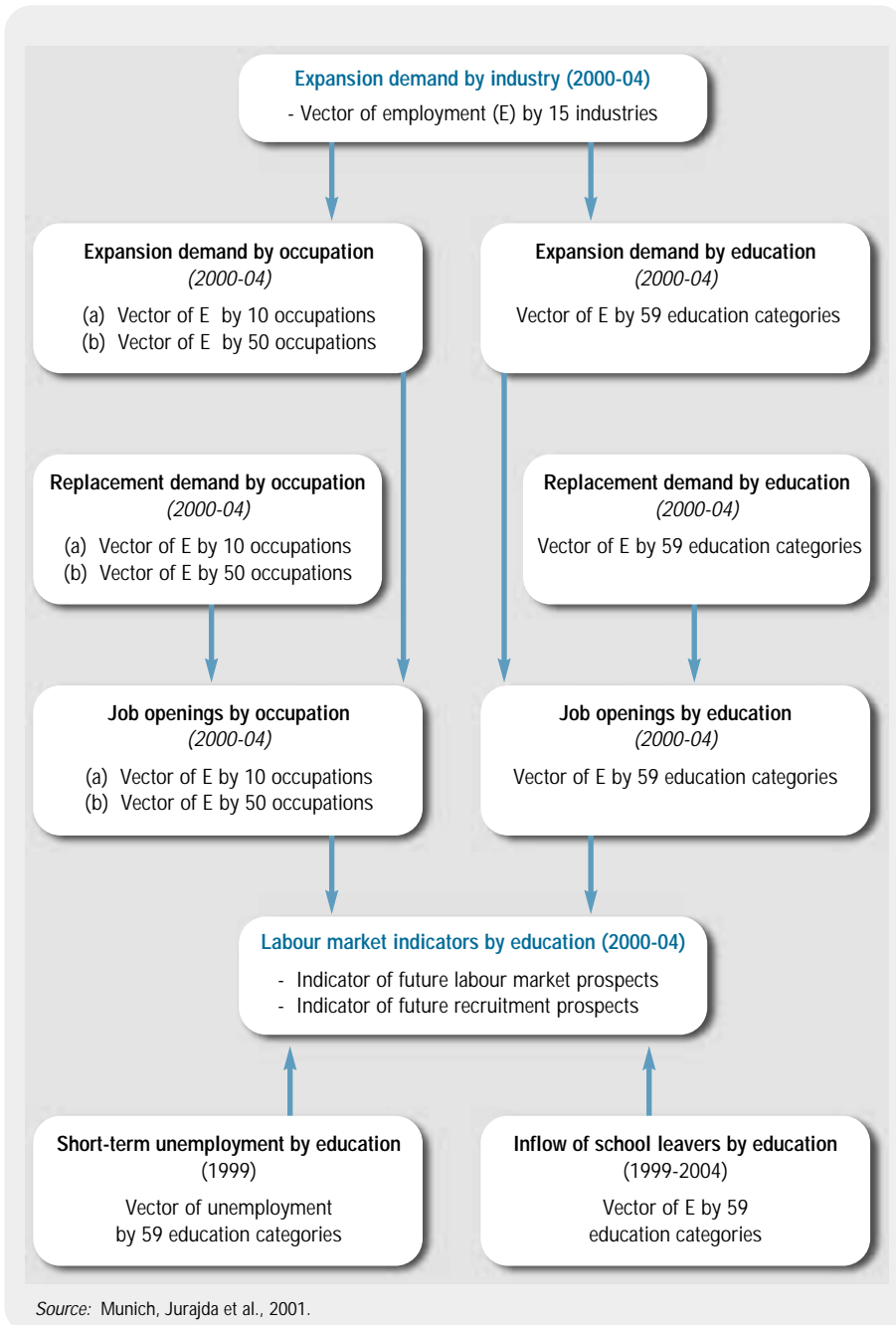
One of the suggested quantitative models in the Czech Republic is macroeconomic forecasting elaborated by the Centre for Economic Research and Graduate Education (CERGE) based on the Dutch model of the Research Centre for Education and the Labour Market (ROA). The Czech team faced many data limitations. Therefore the model is not yet fully functional or reliable. It requires further efforts in research and enrichment with data. The model compares the forecast of demand for labour by education or occupation with the projected supply of labour. The model is presented in Figure 1.

The model considers expansion demand, based on the macroeconomic projection of employment by industry, and replacement demand which captures the need to replace workers (e.g. due to retirement). Because of data limitations the forecast is only available for a maximum of 50 occupational clusters and 59 educational types (see Annex 1). The major drawback is the absence of a reliable macroeconomic forecast of employment by industry in the Czech Republic. These important data were therefore substituted by the available demand-side macromodel 'Hermin', which was not initially designed as a standard forecasting model. It is also not sufficiently detailed at industry level to supply reliable information on employment demand. Elaboration of a standard macroeconomic sectoral model is therefore an important task for the future.

The CERGE-model is mainly based on the labour force survey (LFS) and on the labour supply projection from statistical records on enrolments by education. Developing the model involved many efforts in matching different classification systems and clustering occupations to ensure data validity. ⁽²⁾ The model eventually predicts shortage by type of education (Annex 2, Figure 1A) and introduces two indicators: first, future labour market prospects

⁽²⁾ Full information on the model and its methodology is available in Munich, D. et al. (2001).

Figure 1. Czech Forecasting Model (ROA-CERGE)



Source: Munich, Jurajda et al., 2001.

for those looking for jobs (Annex 2, Figure 2A), and second, future recruitment prospects for employers (Annex 2, Figure 3A).

Developing the model in a transition economy with huge restructuring and introducing technological innovation was a breakthrough in prognostic research. We have to consider, however, the fact the forecasting model relies on past data series whose pattern might be altered significantly under economic transition and qualitative changes on the labour market. Also the results of the forecast are too general. Because of the limited size of LFS, the model cannot be interpreted at regional level. This represents an important constraint: regional mobility of labour is low in the Czech Republic, and the national labour market therefore is to a certain extent composed of regional submarkets (Munich et al., 2001). That is why more regional qualitative analyses appear an important additional source of information.

3.2. Phase 2: The qualitative survey on tourism in a selected region

The pilot analysis of qualification and skill needs in tourism was held in one selected region in three countries (Czech Republic, France and Slovenia). The strikingly similar results for the three countries are briefly summarised in the Table 2 ⁽³⁾.

The Czech team employed rather a straightforward method:

- analysis of sectoral development at European, national and regional levels;
- analysis of policy plans and developments;
- socio-economic analysis of the region;
- company survey (24 face-to-face interviews with a qualitative questionnaire);
- several focus groups with experts from the region and firms;
- SWOT analysis;
- development of scenarios.

Pilot results of a macroeconomic forecast were used as one source of information. Thus, both quantitative and qualitative methods were applied as additional to each other (see below).

⁽³⁾ The synthesis and detailed results of the three surveys can be consulted in Strietska-Ilina, O. et al. (2001); Zelenka, J. et al. (2001); Giffard, A. and Guegnard, K. (2001); and Karnicnik, M. et al., (2001).

Table 2. Required skills in the sector of tourism in selected regions

Slovenia - Podravje region	Czech Republic - North West	France - Burgundy
German language English language	Language knowledge	Language knowledge
Social communication	Social communication Managing and working with people	
Food preparation	Manual skills specific to the sector Broad professional base	Hygiene, food security
<i>Food/desserts decoration</i>	Technical skills Specific professional knowledge	<i>Conservation techniques, lighter cuisine, more diversified food</i>
IT skills	IT skills	IT skills
<i>Designing travel arrangements</i>	Strategic planning Creativity	
Commercial skills Selling travel arrangements Marketing	Financial skills Sales skills Marketing	Sales skills
Expertise in wine		
Management skills	<i>Management skills</i>	

Note: This table sums up the required skills as mentioned by companies during the survey. **The shaded** sections indicate those most needed, the skills *in italics* are those mentioned by some, and the skills in normal characters are rarely mentioned.

3.3. Phase 3: Integration and some results

The qualitative sectoral analysis included confrontation with major trends displayed in the quantitative forecasting model. During this phase, we discovered several drawbacks in the quantitative macro level forecasts, which we will consider in our follow-up work. Thus, the two methods present a complex methodological cycle (Figure 2).

Figure 2. Methodological cycle



This was only a first step towards integration of the two approaches. Much still needs to be done. To make this phase more understandable, we shall briefly illustrate this research step with one specific line of reasoning.

The first problem we faced was the definition of tourism. In our qualitative survey we assumed tourism includes hotel and catering as well as travel agencies and tourist information centres. This did not correspond to the conventional division by industry in the NACE classification, used in the macroeconomic projection. Results of the mid-term macroeconomic employment forecast in the hotel and catering industry (Annex 2, Figure 4A) in fact corresponded to predicted employment trends in qualitative scenarios: fairly modest but steady employment growth is forecast whereby the pessimistic qualitative scenario assumed slight growth or stagnation of employment opportunities. Apart from the numerical forecast, the qualitative scenarios considered such factors as entrance to the EU, access to structural Funds, introducing the new concept of government policy in tourism in the Czech Republic, and many others.

The qualitative analysis showed a twofold nature of trends in tourism. The attractiveness of the hospitality sector is largely linked to its traditional nature, with old roots and long-standing customs. Its traditional character represents the mainstream, conservative, part. It is often characterised by high labour turnover, high proportion of low-skilled workers, and low investment in training employees. This traditionalism is in contrast with dynamism. New and modern forms of organisations with complex and comprehensive information systems ⁽⁴⁾, such as tourist information centres, represent dynamic features and, most importantly, a driving force for development. This dynamic part is characterised by vast application of information and communication technologies (Zelenka et al., 2001). The key to success in the tourism business is therefore a highly qualified, multiskilled labour force capable of providing traditional services with new technologies, and offering complex travel packages maximally adjusted to the diverse expectations of clients.

Let us now look at the macroeconomic forecast for the three most common educational categories for tourism. We are already aware of the inadequate detail in educational categories. We need therefore a compromise for selecting categories that suit the educational fields we are interested in (e.g. gastronomy, hotel and tourism, cook, waiter, etc.). We need to select a higher level of groupings, where the educational fields in question are combined with 'kin' fields. These are for instance: No 12 of the project code (see Annex 1) -

⁽⁴⁾ Such information systems integrate information from travel agencies, hotels, transportation, guides, interpreters, regional development agencies, local administration, etc.

trade and services at apprenticeship level, No 43 - economics, trade and services at secondary vocational education level with final exam, and No 55 - economics, trade and services at higher education level.

Let us first see the mid-term supply and demand on the labour market for these three educational categories. Trade and services at apprenticeship level (No 12), and especially economics, trade and services at higher education level (No 55) are forecast to be in excess supply (negative values, Annex 2, Figure 1A); unlike economics, trade and services at secondary vocational education level with final exam (GCSE, No 43) where there will be a significant shortage (positive value, Annex 2, Figure 1A). Roughly the same trend is forecast by the indicator of future labour market prospects (Annex 2, Figure 2A), and the indicator of future recruitment prospects (Annex 2, Figure 3A).

The trend of shortage and surplus qualifications was determined by the traditional nature of the sector where skill needs are mostly targeted at the intermediate level of qualifications (four-year vocational education with final exam providing GCSE). With greater involvement of modern technologies, low-qualified workers can no longer keep up with the needs of businesses. In fact, apprenticeship-type school leavers (mostly three-year vocational programmes) were the only category whose quality was criticised by employers in our qualitative survey. The surplus of higher education graduates in relevant fields of education cannot, however, be interpreted in the same straightforward way. In cases of shortage of intermediary qualifications, excess supply of higher education graduates in similar study fields may force them to occupy jobs initially designed for lower levels of qualification. This is an important observation for methodological findings, as the current macroeconomic forecasting model does not include these substitution effects. The latter are likely to be especially important during economic transition and significant skill mismatch (Munich et al., 2001). Incorporating substitution effects into the forecasting model is therefore a future task.

Apart from possible compensatory effects of demand in workers with intermediary skills being replaced by higher qualified labour, it is also important to consider the effects from changes in the sector. Current stress on providing traditional services with predominantly lower-skilled labour could change markedly demand during qualitative development in the sector. Should new technologies continue to be the driving force and its share in the sector grow further, the forecast based on past trends will be overturned. Growing demands from employers for use of information technologies, integration trends in regional socio-economic and territorial planning, including infrastructure and the environment, and the growing importance of

information networks at various levels are increasing demands for comprehensive services in tourism. This, in turn, increases the need for higher qualifications and skills. Expert surveys have shown that demands on the skills and professionalism of middle management will grow. In such a scenario, more people with top-level qualifications in relevant study fields will be needed and university graduates in economics and business subjects will enjoy increasingly good job prospects. The question, however, arises of how far the trend will be affected by the rather modest wages on offer in the tourism sector (Zelenka et al., 2001).

This is one of many examples we found during the integrative phase of the project. Trying to combine results of the quantitative forecasts and the qualitative sectoral analysis was pilot testing only and many problems remain unsolved. However, it helped to provide some conclusions on improving the forecasting technique, the data and their structures. For instance, it became clear that clustering occupations and grouping educational types provide inadequate information for drawing any significant conclusions from quantified forecasting. Therefore, in future much work will be needed to provide information at disaggregated levels.

4. Some conclusions, further challenges and tasks

The project was only a first attempt at integrating different methodological approaches. The Czech team has now started follow-up work planned during 2002 and 2003. ⁽⁵⁾

Much work on harmonising data structures for qualitative and quantitative components, and on improving data input, structures and methods is needed in future. The first attempts at integrating the quantified forecast by occupation and education with qualitative information on skills needs proved useful. It would be naïve, however, to imagine that to produce a reliable and sufficiently detailed interpretation of the macroeconomic forecast, it is necessary to run another qualitative survey and research in every region and sector. Although such surveys are important and useful, they are also costly and time-consuming. Such studies should be undertaken in special circumstances, for instance, in a sector where a significant skill shortage is forecast, or where supply provides enough qualified workers for certain occupations but they choose different occupations leaving demand unfulfilled.

⁽⁵⁾ All follow-up activities are supported by the Czech Ministry of Labour and Social Affairs.

We are now looking for a nationwide perspective of skill needs at an early stage with enough detail, more reliability and some information on the quality of the required labour force. To succeed without needing to run extra surveys for each sector and region, we now face the major challenge of linking the macroeconomic forecasting model to the 'Integrated system of typical positions' ⁽⁶⁾ (ISTP). ISTP is genuinely an information system which currently includes a catalogue of more than 1 000 standardised working positions with a description of each working activity, and its requirements for skills, personal aptitudes and educational background. Further, each working position is linked to the classification of educational fields used in supply-side statistics and to over 500 occupations. It is an open system complemented and updated continuously with the direct involvement of social partners.

It is obviously of high relevance for forecasting labour market training and education needs. Describing each working activity for the whole set of standardised working positions provides a unique opportunity to study substitution between occupations. ISTP links the highly stratified fields of the Czech education system to a catalogue of occupations, providing a labour market forecaster with a solid base for aggregating occupations and translating macroeconomic forecasts into information on the quality of qualifications and skills required. Such integration, however, demands further clustering of occupational groups in ISTP and richer data input (e.g. extension of the LFS sample) for the forecasting model. We are also looking at using alternative data sources to LFS to ensure more detail in forecasting results.

The greatest challenge is to ensure the various methodological approaches complement one another in identifying skills needs and the system works regularly. This will require developing interinstitutional cooperation for data supply, interpretation and dissemination as well as producing a system for ordering, tendering, financing and recognising results of analyses of skill needs. A major development will be to ensure legitimacy of the system, whereby tripartite arrangements (between both sides of the industry and the government) are indispensable.

Another challenge is to guarantee accuracy of results and reliability of analysis over time. Considering the unstable profiles of occupations and general changes in the world of work influenced by global developments, it is ever more important to find a way to make cooperation between experts and social partners ongoing. Particular stress therefore was put on verifying

⁽⁶⁾ ISTP was developed by the Czech company Trexima with the support and initiative of the Ministry of Labour and Social Affairs.

results in focus groups with direct involvement of experts, social partners and educators, where the process of verification progressed to 'shared diagnosis' and collective commitments. Such activities should be more actively used in future where scenario building may become a justifiable qualitative part of a macroeconomic forecast. This could make it possible, for instance, to verify macroeconomic sectoral employment forecasts with the help of Delphi methodology and later design scenarios with direct involvement of experts, practitioners and politicians. It is important identified needs receive the necessary recognition for possible follow-up measures at policy and implementation levels. Scenario building and shared diagnosis increases commitment of participants to further implementation steps.

Another important challenge emerges from the qualitative change on labour markets in CEECs. Evidence in the Czech Republic shows that almost 90% of companies increased demands for quality of the workforce over past two years (Kaderabkova, Strietska-Illina et al., 2001). Restructuring and the high rate of technological change in CEECs brought about the problem of skill gaps and qualification shortages. One third of Czech companies consider skill shortages a problem. In more dynamic and new technology-oriented sectors about half of companies are aware of skill shortages on the labour market. The higher the level of occupation, the more skill shortages are reported by firms. The shortage skills reported across sectors and levels of occupations are mostly social skills, foreign languages and IT skills.

About one quarter of all companies experience recruitment difficulties at all occupational levels. However, the reasons are different: lower skill occupations are often difficult to fill because of poor working conditions, lack of job stability, low wages, etc., while more skill demanding vacancies are often difficult to fill because of shortage of appropriate qualifications on the labour market. Shortage occupations are reported sporadically. Most are either specific with hybrid specialisation requirements (such as doctors with clinical accreditation for work in spas, publicity workers with thorough ICT skills for work in tourism), or linked to fast developing businesses in dynamic industries (IT educators, programmers, system analysts, etc.). The qualitative change on the labour market is also shown in changing occupational profiles. Although the latter are reported by only 8% of firms, multiskilling and job interchange are often introduced by employers (40% and 44% respectively; see Kaderabkova et al., 2001) leading to a larger share of hybrid occupational profiles and demand for combined skills.

Shortages of skills and qualifications on the labour market is made worse by low awareness in CEECs against often better awareness and therefore more thorough policy measures in neighbouring EU Member States. The latter often introduce attractive packages for foreign qualified workers which can cause an increase in the brain drain in CEECs. It is therefore important to have a transparent system for monitoring and early recognition of skill shortages on the labour market. This task shall be tackled in the Czech Republic in 2002-03 by developing a methodology and conducting a pilot analysis of skill shortages and shortage occupations in the Czech Republic. The analysis shall include an investigation of existing methods, a questionnaire survey among regional employment services on repeatedly announced job vacancies, a survey among personnel agencies, analysis of vacancy advertisements in the media, focus groups and interviews on new occupations and job profiles, a company survey, an analysis of needs and shortages recorded by investors, and others. Identifying and monitoring skill shortages on the Czech labour market should then become an integral part of the overall system of early identification of skill needs in the Czech Republic.

The project should end in establishing a system where different components can work complementarily and consistently together: regular macro level forecasts possibly linked to the ISTP information system, periodical regional and sectoral surveys and analyses, and regular monitoring and analysis of emerging skill shortages and shortage occupations. The Czech team has also come with a proposal to set up a national information platform to incorporate information on various activities in early recognition of skill needs at national, regional and local levels. Such platform can be a useful reference point for researchers and practitioners. Exchanging knowledge on modern methods of research on early recognition of skill needs appears useful at European level. Further, the Czech team would welcome the creation of an international network of researchers preferably including countries outside Europe where much forecasting research has brought interesting high-quality results. Such a network must bring together researchers applying conventional macroeconomic quantitative forecasting and those performing qualitative research to enable both sides to share their experiences and find common solutions.

References

- Giffard, A.; Guegnard, K. Forecasting methodology for qualification and training needs: the case of the hotel and catering sector in Burgundy - France. In Strietska-Ilina, O. et al.; Havlickova, V., tech. ed. *Forecasting skill needs: methodology elaboration and testing*. Prague: National Observatory - NVF, 2001, pp. 315-340.
- Kaderabkova, A.; Strietska-Ilina, O. *Human resources in the context of regional development. Company skills survey in selected industries of North West Bohemia*. Prague, Turin: European Training Foundation, 2001.
- Karnicnik, M.; Luzar, D.; Gerzina, S. Analysis and forecasting of the training needs in the sector of tourism - Podravje region - Slovenia. In Strietska-Ilina, O. et al.; Havlickova, V., tech. ed. *Forecasting skill needs: methodology elaboration and testing*. Prague: National Observatory - NVF, 2001, pp. 341-364.
- Munich, D.; Jurajda, S.; Babeckij, J.; Stupnickyy, O. Regular forecasting of training needs: quantitative models for the Czech Republic. In Strietska-Ilina, O. et al.; Havlickova, V., tech. ed. *Forecasting skill needs: methodology elaboration and testing*. Prague: National Observatory - NVF, 2001, pp. 17-129.
- Strietska-Ilina, O.; Munich, D., eds.; Havlickova, V., tech. ed. *Forecasting education and training needs in transition economies: lessons from the western European experience*. Prague: National Observatory - NVF, UIV, TAURIS, 1999.
- Strietska-Ilina, O.; Giffard, A.; Guegnard, K. Regional and sectoral analyses as a methodology of forecasting labour market needs. Case study: the hotel, catering and tourism sector in the Czech Republic, France and Slovenia. In Strietska-Ilina, O. et al.; Havlickova, V., tech. ed. *Forecasting skill needs: methodology elaboration and testing*. Prague: National Observatory - NVF, 2001, pp. 221-230.
- Zecchini, S. Transition approaches in retrospect. In Zecchini, S., ed. *Lessons from the economic transition: Central and Eastern Europe in the 1990s*. Dordrecht, Boston, London, 1997, pp. 1-34.
- Zelenka, J.; Strietska-Ilina, O.; Havlickova, V.; Beranek, J.; Riha, J. Qualification and skill needs in the sector of tourism: the case of North West Bohemia - Czech Republic. In Strietska-Ilina, O. et al., eds. *Forecasting skill needs: methodology elaboration and testing*. Prague: National Observatory - NVF, 2001, pp. 231-314.

ANNEX 1

Educational classification (LFS-based, linked to national classification)

PC	Education	Specialisation	PC	Education	Specialisation
1	Without school education	No	29	Apprenticeship with GCSE	Chemistry, food industry
			30		Textile, clothing industry
2	Primary (9 years)	No	31		Wood processing, shoe industry
3	Grammar school with GCSE	No	32		Construction
			33		Agriculture and forestry
4	Apprenticeship	Machine control and operation	34		Trade, services
5		Mechanical engineering, metallurgy	35		Other
6		Electrical engineering, transport, communication	36		Natural sciences
7		Chemistry, food industry	37		Mechanical engineering
8		Textile, clothing industry	38		Electrical engineering
9		Wood processing, shoe industry	39	Construction	
10		Construction	40	Other technical subjects	
11		Agriculture and forestry	41	Agriculture, forestry	
12		Trade, services	42	Health	
13		Other	43	Economics, trade, services	
14	Secondary vocational	Natural sciences	44	Law	
15		Mechanical engineering	45	Teacher-training	
16		Electrical engineering	46	Other social subjects	
17		Construction	47	Other sciences and disciplines	
18		Other technical subjects	48	Natural sciences	
19		Agriculture, forestry	49	Mechanical engineering	
20		Health	50	Electrical engineering	
21		Economics, trade, services	51	Construction	
22		Law	52	Other technical subjects	
23		Teacher-training	53	Agriculture, forestry	
24	Other social subjects	54	Health		
25	Other sciences and disciplines	55	Economics, trade, services		
26	Apprenticeship with GCSE	Machine control and operation	56	Law	
27		Mechanical engineering, metallurgy	57	Teacher-training	
28		Electrical engineering, transport, communication	58	Other social subjects	
			59	Other sciences and disciplines	

PC = Project Code

Source: Munich, Jurajda et al., 2001.

ANNEX 2

Figure 1a: Shortage by type of education, 2000-2004

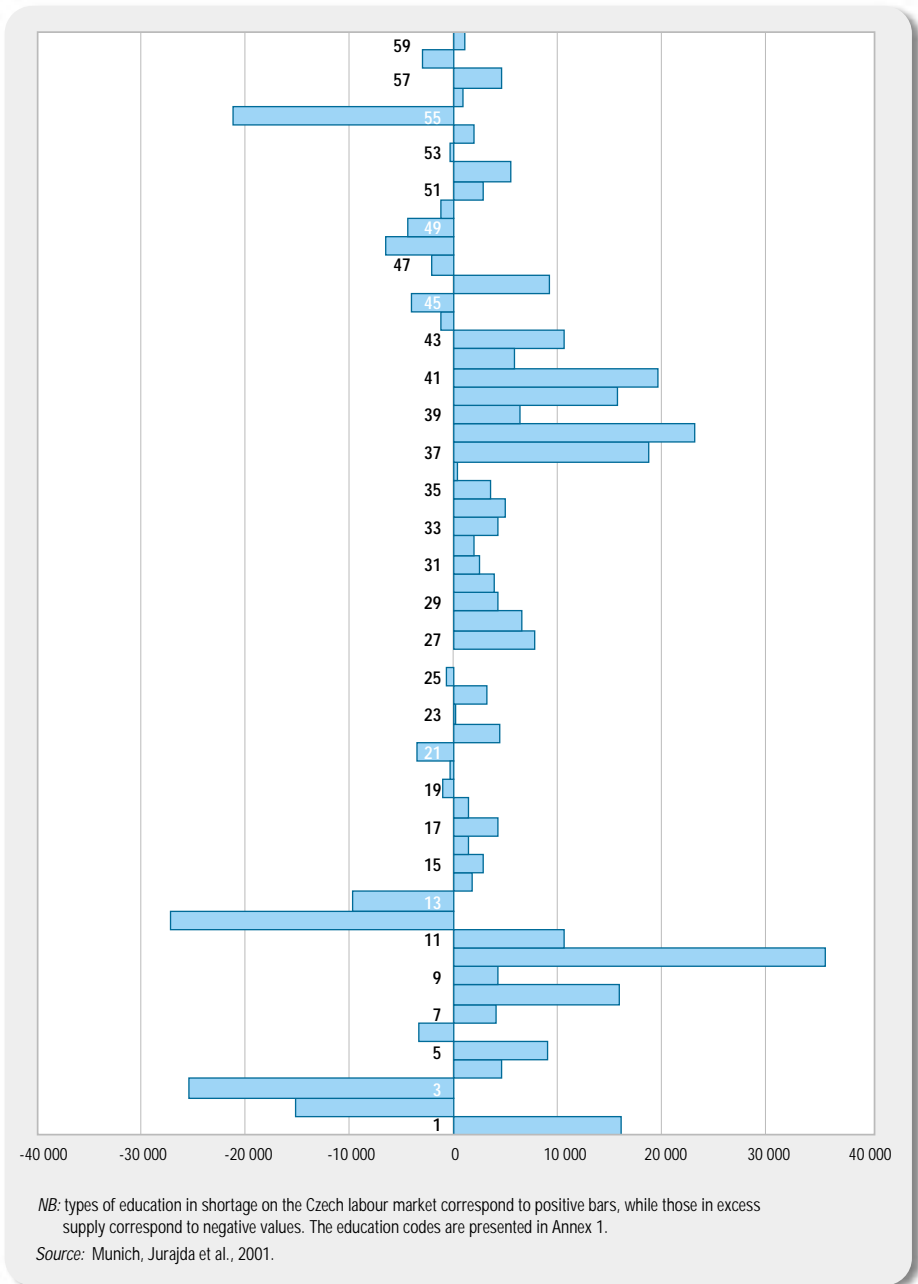


Figure 2a: Indicator of future labour market prospects, 2000-2004

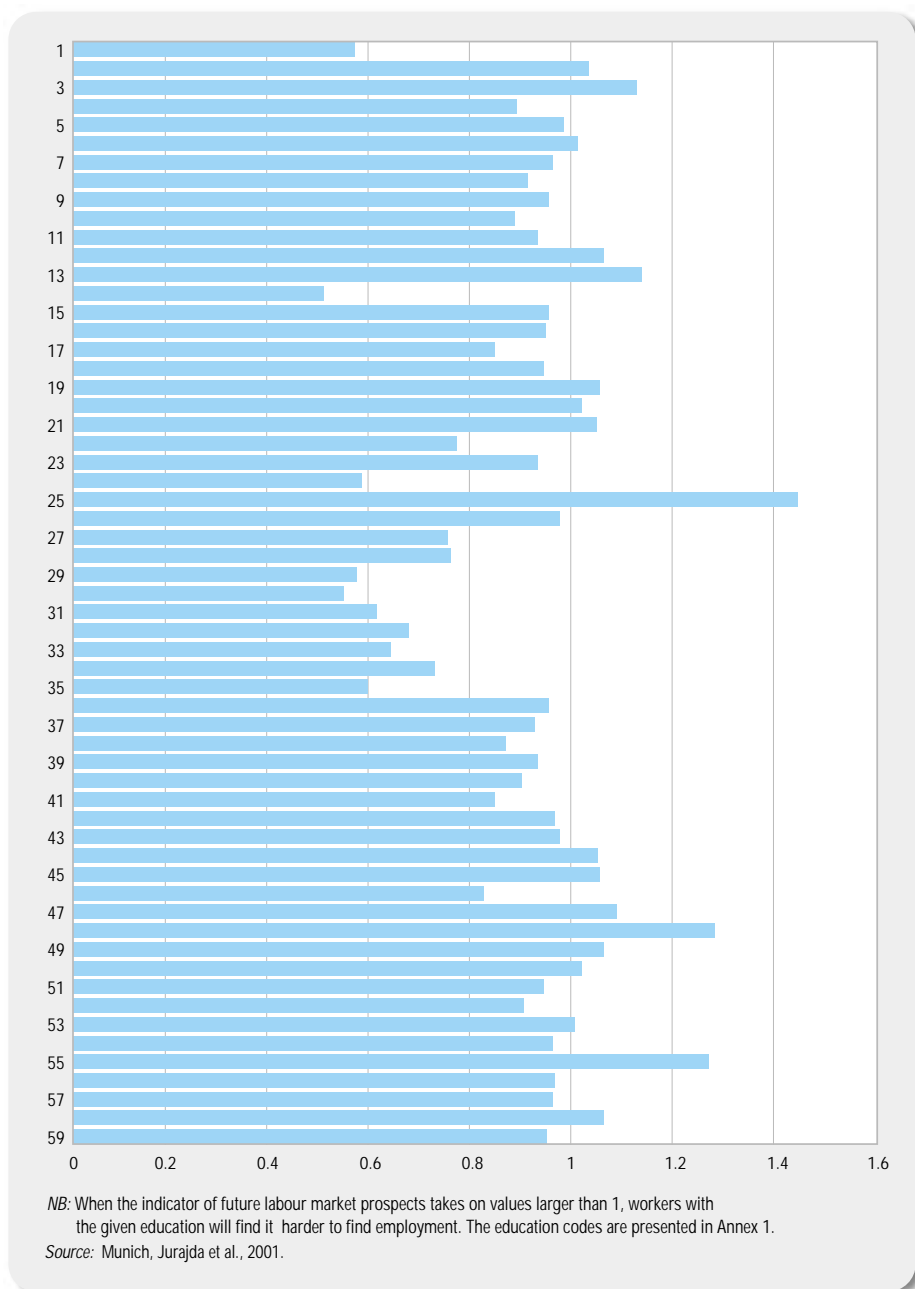


Figure 3a: Indicator of future recruitment prospects, 2000-2004

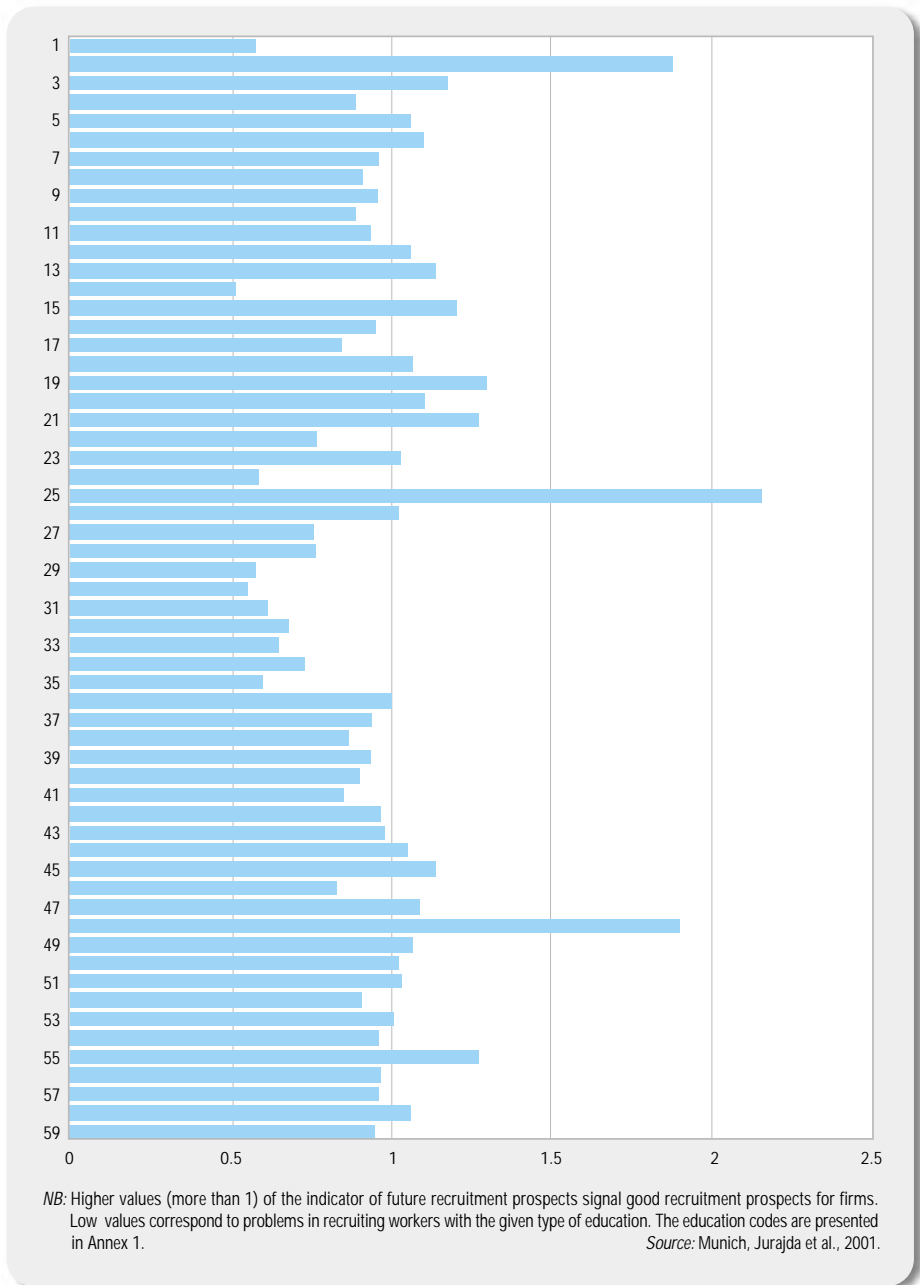


Figure 4a: **Employment in hotels and catering – forecast up to 2000-2005**

