

HUMAN RESOURCES

IN THE CZECH REPUBLIC

2003

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and Social Affairs and the European Training Foundation**



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Dear reader,

This is a publication entitled “Human Resources in the Czech Republic 2003”, which implements an aim set out in 1998 to set up a series of editions devoted to the issue of human resources. The first publication in this series entitled “Human Resources in the CR 1999” was written with support from the EU Phare programme and it analysed initial and continuing education, the developments in the labour market, functional literacy and motivation mechanisms in human resources development.

The development and publication of this material was funded only from national resources – from the resources of the Ministry of Labour and Social Affairs. Neither the previous nor this publication was designed exclusively for Czech readers – it is also published in English. Both versions and the previous publication are available on the website of the National Training Fund. (www.nvf.cz/observatory/index.htm).

The subject areas discussed in this publication were chosen in the light of the approaching accession of the CR to the EU. The principal theme is the question concerning the extent to which Czech human resources are ready to join the EU and what are their strengths and weaknesses in comparison with the situation in the existing member states and other candidate countries.

Catching up with the EU as regards the quality of human resources development is not matter of a one-off meeting of standards formulated so far. It is a process of continuous improvement of systems and their effectiveness, because the EU's objectives in this area are still developing. The commissioner for education and culture Ms Viviane Reding stressed: „So far, the reforms of education and training systems in the Member States are still falling short and are being implemented too slowly to enable the Union to attain the objectives which it has set itself.“ This statement is even more true for the Czech Republic.

It has been stated in various documents that the Czech population has a good qualification base in the form of its secondary education. But is this level appropriate in view of the fact that the European Union and other developed countries are rapidly progressing towards tertiary education? What are the CR's capacities in term of human resources to develop technology and skill-intensive industries? How do we cope with the trends initiated by the global development of information and communication technologies? The quality of human resources is increasingly being affected by the process of continuing education, acquisition of new knowledge and the capacity to respond to changing employment opportunities in a flexible

manner. Is the level of participation of the Czech population in continuing education appropriate? Do Czech enterprises realise the importance of HRD and the need to invest in the skills development of their employees? These are only some of the questions the publication seeks to answer.

It has not been our intention to publish a publication of this scope every year. We believe that the four-year interval is appropriate in view of the issue in question, and that we will again be able to find the necessary resources and professional authors for the next issue of the “Human Resources in the CR” publication, which will, again, analyse the relevant topics. By then the first findings about the process of the CR’s incorporation into the EU will be available, as well as its actual impact on the Czech labour market, employability and quality of human resources.

We would like every reader to find a topic of interest in this publication and hope that it will enrich him/her in term of new knowledge and provide a certain stimulus for people to ask questions and seek appropriate answers.



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INTRODUCTION

Human resources are generally recognised to be a decisive factor in development. Their importance is currently increasing as a result of globalisation and the increasing role of knowledge in the socio-economic development of each country. Globalisation interlinks national labour markets which compete to attract major investments. In addition to toughening competition between national labour markets, individuals must also face growing competition as the mobility of the workforce increases. The level of educational attainment and flexibility is becoming a competitive advantage not only for individuals, but also for the economy as a whole.

The importance of knowledge for economic and social development can also be seen in the growing frequency in the use of terms such as knowledge-based products, knowledge-intensive industries or the knowledge economy. Economic development follows the direction set in terms of design and provision of products and services that make use of new technological processes, information and communication technologies. New forms of labour organisation are being introduced and the introduction of products in the market is accompanied by sophisticated marketing. Transition to a knowledge economy is indicated by means of a growing proportion of R&D-intensive industries in the structure of the economy, and by means of a growing proportion of skill-intensive industries in overall employment.

The accelerating technological changes result in a situation where an individual experiences a number of changes in his/her career that he/she must handle. The only way of succeeding in the labour market is to keep abreast with these changes and to acquire new knowledge and skills. Lifelong learning is becoming a necessity.

At present, accession to the European Union is of extraordinary importance for the Czech Republic. The CR's membership of the EU constitutes, among other things, a commitment that the CR will, as the situation allows, contribute to the implementation of various EU strategies and policies and that it will respect the relevant general recommendations of the EC in its national policies and apply them in specific national circumstances.

The existing EU strategies and policies share a highly ambitious aim that was formulated at the European Council summit in Lisbon in March 2000. The EU aims to become, by 2010, the most competitive and dynamic knowledge-based economy in the world. The following areas where positive developments must occur for the target to be attained have been identified as contributing to the attainment of this target: the development of a broadly accessible information society, the establishment of a European area for research and innovations, completion of the integration of the market for the services sector and utilities, the development of efficient and integrated financial markets, promotion of entrepreneurship by means of softening the regulatory burden on companies and improving the conditions for starting SMEs, social inclusion of economically inactive and low-skilled people and modernisation of the social protection system, (environmentally) sustainable development ensuring long-term quality of life. It is clear from this overview that most of these areas directly or indirectly concern human resources.

The EU is not a grouping of states with comparable economic standards – neither is the quality of their human resources comparable. There are relatively large differences between member states, which will grow even larger upon the accession of the new ten countries. The stability of the EU is conditional upon a gradual convergence of socio-economic standards of the member states. Although the EU allocates resources to support development in less developed countries, their own effort is what is decisive. The success of these efforts depends particularly on human resources. It is therefore important to analyse the skills level of human resources in the CR (including ICT skills), and assess whether it is appropriate in terms of increasing competitiveness and technology-intensity of Czech products and services in the EU's single market and whether Czech human resources are flexible enough to meet employers' requirements.

This publication therefore aims to cast some light on the current state of affairs as regards the development of human resources in the CR in comparison with the EU and selected member and candidate countries. Moreover, it attempts to identify shortcomings and weaknesses and to suggest ways in which they may

be overcome. It is designed for all those concerned with these issues, i.e. civil servants, politicians, scholars, teachers and students, as well as a lay readership. The authors therefore worked to ensure that the issues explored are treated in a comprehensive manner so that readers who are only beginners in this area can understand it. The development of human resources and the situation in the labour market are affected by the relevant policies. This is why each chapter begins with an overview of the relevant national and EU policies and programmes.

The publication is divided into three chapters and contains a methodological and table annex. **Chapter I** deals with qualifications and skills. The first part of this chapter provides an overview of EU objectives in the area of education to be achieved by 2010 and their implementation. It is concerned with characteristics of the knowledge-based economy and the related requirements for the workforce. The way society, enterprises and individuals operate is increasingly being affected by information technologies. The accessibility and use of information and communication technologies is the subject of the second part of Chapter I. The third part of this chapter is concerned with issues related to the quality of school leavers and their transition to the labour market. It also contains an overview of counselling services young people may use when deciding on their educational path and career.

Chapter II is focused on the issue of continuing education and training. It charts the situation in enterprises both in terms of the provision of continuing training to employees and in terms of its scope, form and the relevant costs. Continuing training organised by employers only constitutes one part of lifelong learning. This is why attention is also paid to the overall level of participation of individuals aged over 15 in all forms of education and training.

The labour market is and will be ever more demanding in terms of the flexibility of the workforce. This issue is the subject of **Chapter III** which analyses decisive forms of flexibility and factors that affect flexibility and mobility of the workforce. The second part of this chapter deals with the development of entrepreneurship in the CR, since entrepreneurs may be considered as one of the most flexible components of the workforce. In view of the fact that entrepreneurship virtually did not exist in the CR before 1989 an analysis has been undertaken showing who the current entrepreneurs are, what qualifications they hold, and attention is also paid to changes in their numbers and structure.

A methodological annex is added to the publication for the readers to facilitate their understanding of the definitions pertaining to the ICT sector, the organisation of career counselling and the ISCED-97 classification.

The publication also contains an extensive annex containing tables which are related to the individual topics and also provide an overview of basic macro-economic data.

The publication does not aim to provide a comprehensive coverage of the issue of human resources. It intentionally concentrates on a limited group of issues that are believed to be decisive in view of the CR's accession to the EU. The authors believe that the readers will find a lot of valuable information here, as well as inspiration in their own work.

CHAPTER I.

QUALIFICATION AND SKILL REQUIREMENTS IN RELATION TO INTEGRATION INTO THE EUROPE LABOUR MARKET

I. QUALIFICATION AND SKILL REQUIREMENTS IN RELATION TO INTEGRATION INTO THE EUROPEAN LABOUR MARKET



I.1 SKILLS AND COMPETENCIES

The performance and competitiveness of the Czech economy will be increasingly determined by the skill and competence levels of the labour force – the more so in view of EU accession. The importance of human capital is growing in pursuit of a knowledge-based economy and quality-based competitive advantage. This chapter aims to assess the position of the Czech Republic in terms of education and training, which constitute the prerequisites for the implementation of the so-called Lisbon strategy. Attention is also devoted to the level of human capital in the Czech economy in relation to the changing sources of competitive advantage towards more technology and skill-intensive activities and an employment structure favouring a highly-skilled labour force. Their shortage poses a large obstacle to the development of skill-intensive industries. The results of surveys carried out by Czech as well as international organisations show the extent to which this problem is being acknowledged by the Czech business sector.

I.1.1 Skills and competencies policies

Education and training are viewed as the key pre-conditions for the achievement of strategic aims formulated for EU member countries at the European Council's summit at Lisbon in March 2000 and specified at the subsequent summits in Stockholm (2001), Barcelona (2002) and Brussels (2003). In the conclusions of the **Lisbon summit** the European Council stressed that the EU's confrontation with the consequences of globalisation and a knowledge-based economy requires not only a radical transformation of the European economy, but also modernisation of the welfare and education systems. The future of the European economy (and society) in this context depends on a systematic enhancing of the skills of its population as the key characteristic of growth-oriented performance and competitiveness of knowledge-based society.

The priorities derived from the aims of the Lisbon summit and the related policy recommendations for the member countries (see Box) are gradually being elaborated upon and specified in action plans and

work programmes. As part of the European Employment Strategy a requirement was formulated concerning the development and implementation of systemic and comprehensive lifelong learning strategies, which has been reflected in the European Commission's recommendations in this area.¹ The **Stockholm summit** approved that the work programme should be focused on quality and efficiency, accessibility and openness of

education and training systems. The **Barcelona summit** adopted a detailed work programme containing the objectives of education and training systems and highlighted their importance as factors promoting economic growth, research and innovations, competitiveness, sustainable employment, social inclusion and active citizenship.²

The Lisbon strategy is centred on transition to a **knowledge-based economy**. Policy measures therefore aim to enhance the educational achievement of the population, to promote R&D and innovations and to support the use of information and communication technologies. The three pillars of the development of the **European Knowledge Area** as the key component of the Lisbon strategy therefore concern activities related to education, innovations and research. The following main objectives have been set out for the domain of education (they are specified in a detailed work programme):³

- considerable increase in expenditure on human resources per capita
- support for lifelong learning

¹ Making a European Area of Lifelong Learning a Reality. Brussels, European Commission 2001.

² Detailed Work Programme on the Objectives of Education and Training Systems in Europe. Brussels, European Commission 2002.

³ Choosing to grow: Knowledge, innovation and jobs in a cohesive society. Commission staff working paper in support of the report from the Commission to the Spring European Council. Brussels, European Commission 2003.

- better adjustment of skills to the needs of a knowledge society
- enhancing the system of skills recognition
- promoting the learning of EU languages and introducing the European dimension of education
- promoting partnerships of between schools via the Internet

Education contributes to growth more than investment in equipment or capital. Economic growth in some EU member countries in the 1990s is attributed to investment in human capital. However, **public expenditure on education** in the EU has risen only slightly in recent years and there are still large differences among the member states. The level of private investment in education and training also varies. The Commission therefore asked EU member states in 2002 to set national objectives for increasing total investment in human resources, which should be directed towards the most profitable areas in terms of quality, efficiency and importance. In this context, attention is paid to the development of appropriate incentives to achieve these objectives.⁴

Access to lifelong learning is viewed as inadequate (the situation varies considerably country by country), and so is the **effectiveness of the system of initial and continuing education** expressed as a proportion of the 18-24 age group with basic education who are out of the education system (early school leavers). The number of S&T (science and technology) graduates constitutes a specific problem, since the supply of new researchers considerably improves the future research potential of individual countries. The proportion of women is particularly low. The low share of researchers in the EU also poses a problem.

Attention is devoted to the development of language competencies that are considered to be important for business activities in the internal market and for integration. In addition to the differences among the member states, differences between social and age groups within the countries are also being stressed. A European language competencies indicator facilitating comparison of levels of achievement in various countries is in the making.

The efforts to promote free movement of persons within the EU for the purpose of education, training

and employment have prompted initiatives in the area of **skills recognition and transparency**. The measures include, for example, a single format of certificates and professional CVs – however, the need for fundamental changes (including updated rules) is emphasised concerning mutual recognition of professional skills and competencies particularly in vocational education. This includes, in particular, the introduction of a uniform instrument promoting recognition of skills, transfer of credits and common criteria for quality assurance.

The regular Spring Report of the European Commission, which reviews the progress of member states in the Lisbon strategy implementation, included assessment of the **future members** for the first time in 2003. In their case the development of human capital is viewed as a continuing problem caused by the quantitative as well as qualitative skills gap within the adult population. Participation in secondary education is very high, but plummets after the age of 17 and limits the supply of a skilled labour force. Education systems in the former centrally planned economies concentrated on specific work demands, rather than on training for lifelong adjustment of individuals' skills and competencies. The introduction of **lifelong learning** as a general concept of education and employment policy is therefore considered to be a key priority.

Political priorities of the Lisbon Strategy

In the 1990s the competitiveness gap between the European Union and the United States widened. This prompted the formulation of the **Lisbon Strategy** in March 2000 which aims for the EU to become by 2010 the most competitive and dynamic knowledge-based economy in the world. This ambition is expressed more specifically as an increase in employment rate to 70% (which constitutes the creation of 20 million new jobs) and as an average annual GDP growth of 3%. The Lisbon Strategy includes a comprehensive programme combining short-term political initiatives and medium and long-term economic reforms.

The Strategy covers seven basic areas to be developed to promote EU competitiveness and growth potential: the development of a broadly accessible information society, the establishment of a European area for research and innovations, completion of the integration

⁴ Communication on European benchmark on education and training. Brussels, European Commission 2002.

of the market for the services sector and utilities, the development of efficient and integrated financial markets, promotion of entrepreneurship by means of softening the regulatory burden on companies and improving the conditions for SMEs start-ups, social inclusion of economically inactive and low-skilled people and modernisation of the social protection system, and (environmentally) sustainable development ensuring long-term quality of life.

The progress in implementation of these objectives is assessed based on an integrated set of structural indicators, which are continuously updated by EUROSTAT and the development of which is presented in the EC's annual Spring Report. Selected data is also available for candidate countries. The indicators are divided into five subgroups: employment, innovation and research, economic reform, social cohesion, and the environment, and the data is complemented by basic economic data concerning performance and balance (the economic background).

1.1.2 The importance of education and training

The contribution of education and training to the achievement of the **Lisbon Strategy objectives** is primarily seen in growth performance, competitiveness, the development of a knowledge-based economy, creation of new and better jobs, social inclusion and citizenship and regional cohesion.

The contribution of education and training to **economic growth** is determined by its rate of return for individuals (private return) and for society (social return), which is comparable with return on investment in physical capital.⁵ The increasing share of services in the economy, the rate of technological change, the growing share of knowledge and information in production value and the scope of economic and social restructuring – all this highlights the importance of the quality of human capital and investment in its improvement. In OECD countries one additional year added to the average educational attainment is estimated to increase economic growth by roughly 5% in the medium term and by an additional 2.5% in the long term.⁶

As concerns **competitiveness and economic dynamics**, the importance of education and training is stressed in relation to attracting and

keeping talented individuals. As for narrowing the productivity gap (catching up), investment in human capital is underlined in addition to investment in research and development and ICT. The reasons for Europe's faltering competitiveness go beyond the apparent mismatch between skill supply and needs – they are rather attributed to the inappropriate educational attainment of the population of working age. The brain drain of high-skilled individuals, particularly in science and technology, poses another problem. Last but not least, education promotes entrepreneurship both in terms of the capacity to choose a business activity as a professional career and a means of self-fulfillment, and in terms of the development of the relevant skills and competencies.⁷

The quantity and quality of human resources are considered to be the main factors determining the **development of new knowledge and its dissemination**. The key factor is an appropriate supply of new scientists and engineers, promotion of university research, continuous upgrading of the quality of researchers, the overall educational achievement of the labour force of working age and the intensity of lifelong learning. Education also plays a key role in promoting the development of science and technology in transition to a knowledge-based economy. The knowledge sector rests on the capacity of educational providers, particularly universities, to provide top quality programmes in knowledge-intensive fields and to attract enough skilled specialists in science and technology.

Education and training contributes largely to the achievement of goals in the area of employment and the creation of **new and better jobs**. Educational attainment is the principal factor determining an individual's level of income and qualitative position in the labour market. In terms of the positive relation between education and income, secondary education constitutes a break-even point – any additional educational achievement brings along a high premium. In the EU, one additional year of education results in an average wage increase of 6.5%. In practical terms the unemployment rate drops along with higher educational attainment (which decreases the related social costs). Conversely, the rate of employment rises (even in disadvantaged groups

⁵ Psacharopoulos, Patrinos, Returns to Investment in Education: A further update. Washington, World Bank 2002.

⁶ De la Fuente, Ciccone, Human Capital in a Global and Knowledge-based Economy. Final report for DG Employment and Social Affairs. Brussels, European Commission 2002.

⁷ Entrepreneurship in Europe. Green Paper from the European Commission. Brussels, European Commission 2002.

such as the elderly and women). The quality of jobs also has a favourable impact on employment, productivity and social cohesion – part of which is training during a lifetime career.

The higher premium for additional skills contributes to the polarisation of society which disadvantages the less educated and skilled groups. This disrupts **economic and social cohesion**. Access to training opportunities financed by employers is often limited to individuals with higher initial skills, which makes certain groups stagnate in the worse labour market segments. The systems of education and training in the course of an individual's life should therefore ensure that economic change and re-structuring do not affect social cohesion in a negative manner. In addition to the growth factor, improving the quality of human resources constitutes a key instrument for social inclusion (particularly in view of the speed of technology change). An increasing proportion of the more highly skilled labour force helps in reducing income inequalities. Education and training also contributes to the increased political and social accountability of citizens in a civic society.

Top quality education and training is an important part of **regional policies** and constitutes an instrument for narrowing disproportions in the level of development between regions. The regional and local dimension of learning is one of the basic pillars of lifelong learning strategies in European countries. Its importance will still increase after enlargement, which will be accompanied by widening inter-regional disparities. This aspect is played out in the European Commission's Action Plan on Skills and Mobility, which points to the need for larger investment in human resources in underdeveloped regions (see Box).⁸

Action Plan on Skills and Mobility

The Action Plan on Skills and Mobility of 2002 follows from the conclusions of the Stockholm summit and pursues the development of an environment fostering better openness and accessibility of European labour markets by 2005. The focus is on the increase of occupational and territorial mobility through improved skill levels and adaptability of the labour force and

elimination of barriers to mobility. In this context, the Action Plan concentrates on three basic areas. The first one includes **occupational mobility**, which calls for adjustment of education and training systems to labour market needs, promotion of lifelong learning and acquisition of skills and competencies (particularly in ICT), and improvement of systems for recognising qualifications and skills. The second area covers **territorial mobility** within member countries and between them, which is still restricted by various obstacles – e.g. inappropriate language competencies. The third area is focused on accessibility and quality of information about mobility and individual industries which promote alternative approaches to career choice.

1.1.3 Objectives of education and training

In relation to the objectives of education and training formulated in the European Commission's documents following from the Lisbon Strategy priorities, benchmarks have been quantified against which the progress of various countries under review may be measured (see Box). The EU-15 average and the averages of three best member countries are used for each indicator. Specific benchmarking objectives are set for the following six areas (targeted for 2010):⁹

- (a) Investment in education and training
- (b) Early school leavers
- (c) Graduates in mathematics, science and technology
- (d) Population with completed upper secondary education
- (e) Key competencies
- (f) Lifelong learning

The Detailed Work Programme for the Objectives of Education and Training Systems

Following from the Lisbon Summit priorities a *Detailed Work Programme on the Objectives of Education and Training Systems in Europe* was adopted in 2002. The objectives should be achieved by 2010. The programme contains three strategic objectives specified in 13 related partial goals and 42 key areas.

⁸ Action Plan on Skills and Mobility. Brussels, European Commission 2002.

⁹ European Benchmarks in Education and Training: Follow-up to the Lisbon European Council. Brussels, European Commission 2002.

The first strategic objective concerns improvement of the quality and efficiency of education and training systems in the EU and focuses on the following areas:

- Improvement of education and training for teachers and trainers,
- Development of qualifications for a knowledge society,
- Ensuring broad access to information and communication technologies,
- Increasing the number of science and technology students,
- Increasing investment in human capital and efficiency in the use of resources.

The second objective concerns support for facilitating as broad an access to education and training as possible and includes:

- Development of an open learning environment,
- Enhancing attractiveness of learning,
- Support for active citizenship, equal opportunities and social cohesion.

The third objective concerns the opening of education and training systems to the wider population by means of the following:

- Strengthening links between education, practice, research and society,
- Promoting the development of entrepreneurship,
- Improving foreign language teaching,
- Improving mobility and exchanges,
- Strengthening European co-operation.

The following part analyses the position of the Czech Republic in these six areas in comparison with the current and future EU member countries.

ad a) Investment in education and training is most often expressed as a proportion of expenditure on this area as % of GDP (table I.1-1, Statistical Annex, table B.1). As regards the EU-15 average, in recent years this ratio has tended to decline, which is in contradiction to the Lisbon Strategy priorities. The data for candidate countries point to a similar development. A particular emphasis is placed on the need for an appropriate increase in investment in lifelong learning in the future as part of the active ageing strategy, which should contribute to higher rates of employment among elderly people and, in general, to prolonging working life. However, there are considerable differences between member as well as candidate countries in the proportion of expenditure on education and its development. Scandinavian countries show the highest figures in the EU – Denmark and Sweden outlaid over 8% of GDP on education in 2001 and there was a growing trend in the previous years. The Baltic states top the list of candidate countries – the expenditure on education in Estonia amounted to over 7% of GDP in 2002, in Latvia and Lithuania it was almost 6%.

The Czech Republic, together with Slovakia and Greece, rates among the lowest of member and candidate countries for 2001. Moreover, the ratio of expenditure to GDP dropped considerably compared to 1994 when it was the highest in history. This must be viewed as an illustration of deeds falling behind proclamations on the part of political representatives where promoting the development of a knowledge society is concerned. Furthermore, in view of the growing difficulties in public finances in the CR, the room for any significant changes in spending that would lead to increased investment in human resources is limited. The long-term low growth performance of the Czech economy (compared to most

Table I.1-1 Public expenditure on education (as % of GDP)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
EU-15	..	..	5,18	5,17	5,06	5,02	4,96	4,94	..	..
CC-10	..	..	5,30	4,97	5,04	5,06	4,99	..	..	..
B	..	..	..	..	..	5,20	5,53	5,22	..	..
IRL	5,86	5,90	5,49	5,33	5,16	4,89	4,56	4,49	..	..
NL	5,17	5,07	5,01	4,96	4,79	4,87	4,78	4,83	4,96	..
FIN	6,86	6,71	6,86	6,96	6,47	6,24	6,22	5,98	..	..
CZ	5,34	5,41	4,91	4,96	4,71	4,20	4,34	4,38	4,31	4,44
HU	6,28	6,13	5,04	4,48	4,61	4,56	4,66	4,55	4,53	..
PL	5,40	4,90	5,50	5,05	5,17	5,42	5,18	..	..	..

Source: EUROSTAT, Structural Indicators (data of 15.4.2003).

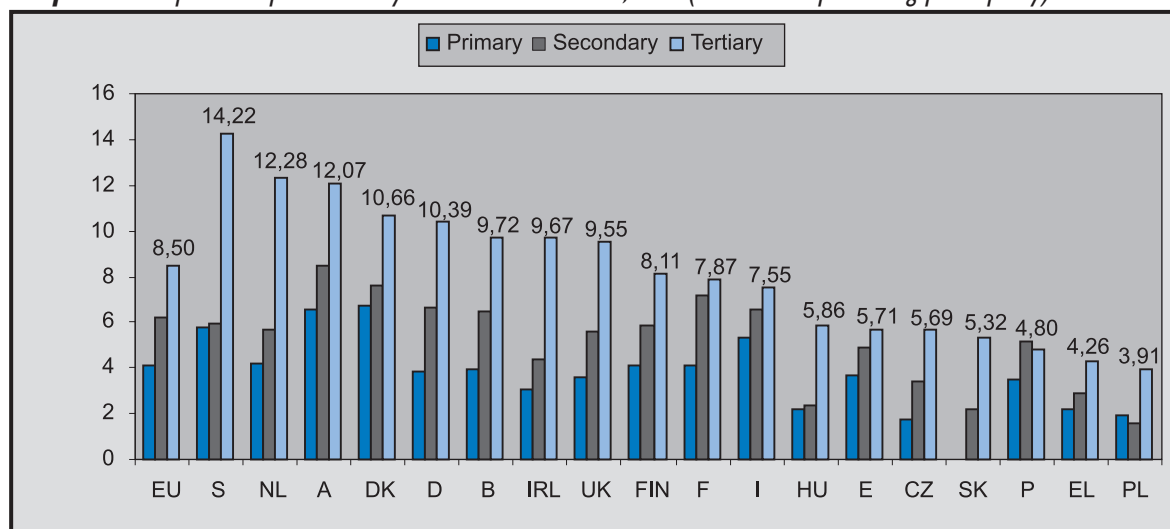
candidate countries) and the resulting slow real convergence to the EU-15 average of GDP per capita (see Statistical Annex, table B.2) constitutes another limiting factor affecting the resources available. The relevant increase in expenditure is a necessary (however not sufficient) prerequisite for implementation of qualitative and structural reforms facilitating the meeting of the requirements of a knowledge-based economy and society in candidate countries – the more so since they still lag behind more developed countries.

The ratio of public expenditure to GDP fails to provide all the information about the resources allocated to education and training, since it does not cover **company and household expenditure**. The availability of this data is still limited. For international comparison an indicator of company expenditure on continuing vocational training as a proportion of total labour costs is used. The data from the last CVTS2 (Continuing Vocational Training Survey 2) for 1999 (analysed in detail in Chapter II.) point to a favourable position of the Czech Republic in comparison with other candidate countries and to a far worse position compared to the EU average (1.1% compared to 2.3%)¹⁰. Again, there are large differences among EU countries and the CR lags far behind the best of them. In view of the low economic growth in the CR mentioned above and the resulting bad financial situation of companies, the role of the business sector in education and training,

which would at least partially offset the lack of public finances, is unlikely to grow in the future. The unfavourable development of public finances also restricts the possibility for introducing efficient systemic incentives for the business sector to increase spending on training (e.g. in the form of tax allowances).

The economy level (GDP per capita) is reflected in the **level of expenditure on education** per pupil/student, which is broken down by the level of education (primary, secondary, tertiary) – see Graph I.1-1.¹¹ The expenditure per pupil/student in the Czech Republic in 1999 reached 43%, 56% and 67% of the EU average in primary, secondary and tertiary education respectively, which places the CR among the lowest achievers on the list. In terms of development over time, the CR ranks among the countries where the expenditure per student decreased (1995=100) and this decline was the steepest within the OECD. The drop was by 8 p.p. in primary and secondary education programmes, and 34 p.p. at tertiary level. The latter was caused by a larger increase in the number of students compared to an only slight increase in total expenditure. A similar trend of growing student numbers was also seen in Poland and Hungary, but the decline of expenditure per student was lower in these countries (26 pp and 20 pp respectively) due to a higher increase in total spending).¹²

Graph I.1.-I Expenditure per student by educational attainment, 1999 (1000 USD in purchasing power parity)



Source: Education at a Glance. Paris, OECD 2002, Tab. B1.1, own calculation.

¹⁰ For details see chapter II.1.6

¹¹ For the purpose of international comparison the data in national currencies is translated into a single currency (USD) using purchasing power parities which eliminate differences in price levels among countries.

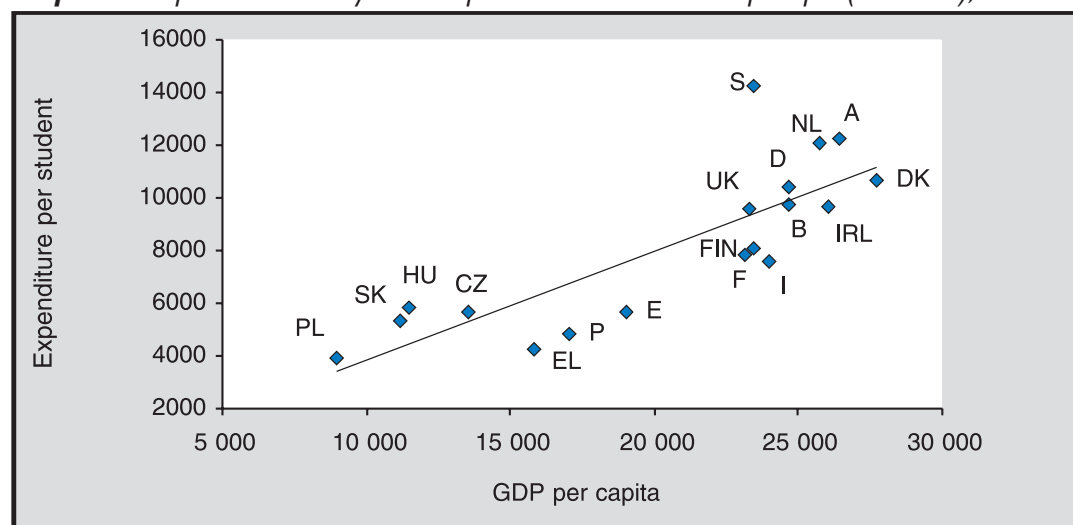
¹² Education at a Glance 2002. Paris, OECD 2002, s. 149.

In international comparison expenditure on education per pupil/student in relation to the **economy level achieved** (GDP per capita) takes into account the relative wealth of the country. At the lower levels of education this indicator may be interpreted as the resources invested in the young generation in relation to the country's economic wealth. With higher levels of education the indicator is affected by the combination of national income, expenditure and the number of students. Overall, the relationship between spending on education per student and GDP per capita is positive – i.e. wealthier countries provide more resources per student compared to less developed countries (this difference is larger in tertiary education). Nevertheless, there are often

large differences between countries both in the developed and the less developed group (at a similar level of economic development).

Candidate countries show comparable or higher expenditure on tertiary education per student in relation to GDP per capita than less developed EU countries (Graph I.1-2). In the less developed group the differences in expenditure per student in relation to the level of economic development are smaller than in the group of developed countries. The position of the Czech Republic is less favourable in comparison with other candidate countries. In 1999, expenditure per student in the CR accounted for 42% of GDP per capita (it was 60% in 1994), in Hungary it was 51% (81% in

Graph I.1-2 Expenditure on tertiary education per student in relation to GDP per capita (USD in PPP), 1999



Pramen: Education at a Glance. Paris, OECD 2002, Tab. B1.1, X2.1, own calculation.

1994), in Slovakia 48% and in Poland 44%.¹³ This means that higher spending on education in the Czech Republic is, besides raising the level of economic development, conditional upon prioritising this area in terms of expenditure policies, which should reflect the importance of the quality of human resources for economic growth in the medium and long term.

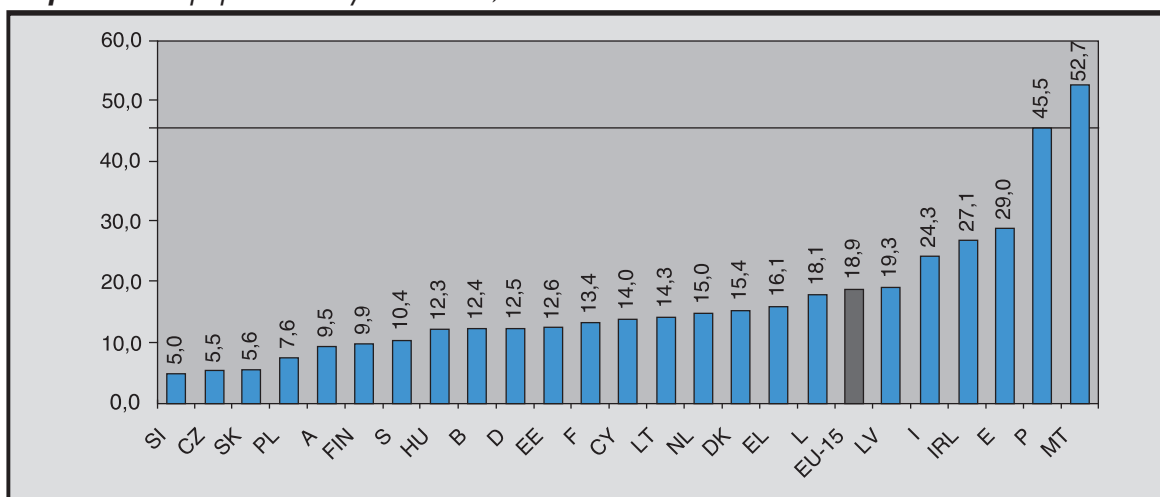
ad b) As regards **early school leavers** the quantified objective is to reduce, by 2010, the proportion of 18-24-year-olds who have only completed lower secondary education and do not take part in education or training to one half (i.e. to 10% and less). Similarly to the ratio of public expenditure on education to GDP this is one of the

structural indicators. In international comparison (Graph I.1-3) the Czech Republic occupies, together with Slovenia, the first place – the proportion of early school leavers is almost twice as low compared to the aim formulated at the Lisbon summit. The difference between women (5.7%) and men (5.3%) in the CR is also very small. This strongly contrasts with the EU-15 average (18.9%) where the difference is far higher for men (16.4% for women, 21.5% for men).

The position of the Czech Republic is less favourable as regards the proportion of 15-29-year-olds in education (Statistical Annex, table B.3). Compared to the EU-15 average, the proportion of the population participating in education in the

¹³ Data for 1994: Education at a Glance 1997. Paris, OECD 1997.

Graph I.1-3 The proportion of early school leavers, 2002



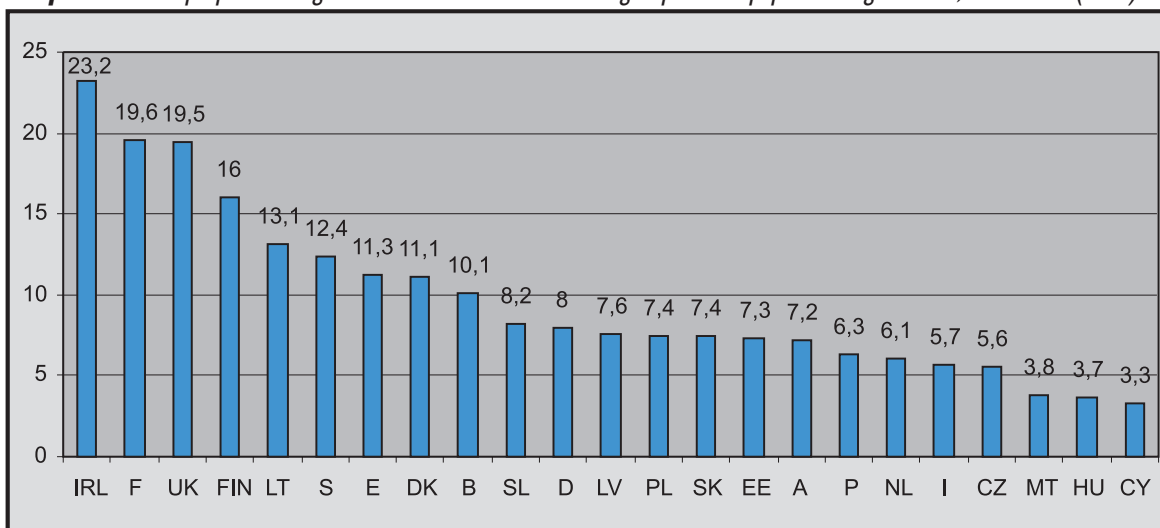
Source: EUROSTAT, Structural Indicators (data of 15.4.2003).

CR is higher in the 15-19 age group, but drops significantly in the 20-24 and 25-29 groups. This declining trend continues in the older age groups.

ad c) Another objective of education and training systems formulated by the European Commission is to increase, by 2010, the number of graduates in mathematics, science and technology¹⁴ and to reduce the existing inequality (disadvantaging women) to one half. A related objective is to increase the proportion of these graduates working as researchers and engineers – i.e. to ensure the appropriate position in the labour market and to

make use of their research potential in practice. According to a 2001 comparison of EU member and candidate countries the Czech Republic is rather below average (Graph I.1-4, Statistical Annex, table B.4). Men predominate among the graduates (women only account for 37%, in Ireland it is over 60%). The CR is therefore one of the countries targeted by the European Commission's recommendation on enhancing motivation for studying research and engineering fields in general and with a particular focus on women. Overall, countries with a higher proportion of engineering graduates show a higher

Graph I.1-4 The proportion of graduates in science and technologies per 1000 population aged 20-29, 2000-2001 (as %)



Source: EUROSTAT, Structural Indicators (data of 15.4.2003).

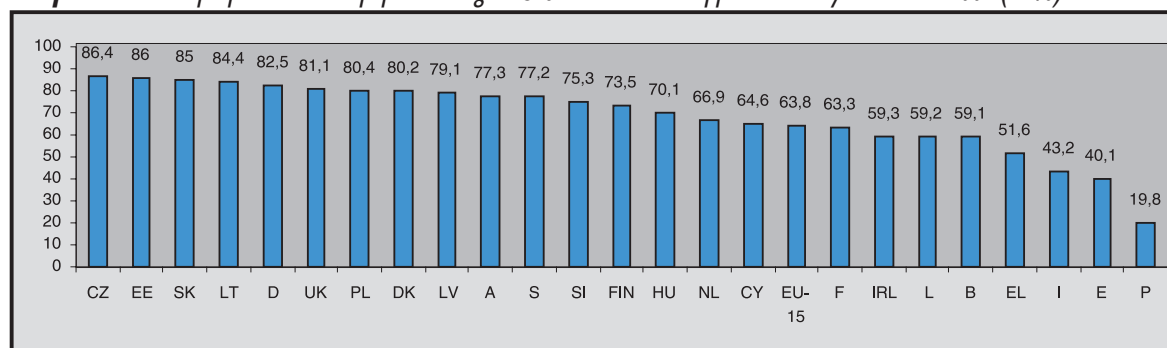
¹⁴ The proportion of tertiary programmes graduates (ISCED 5-6) per 1000 people in the 20-29 age group

proportion of women among them (in comparison to men) and vice versa. Higher motivation for studying and research is conditioned by the corresponding labour market demand (including remuneration and working conditions). Motivation and demand are strong in economies with a high or growing proportion of knowledge-based activities and industries.

ad d) The objective of increasing educational attainment is expressed as an increase in the proportion of 25-64-year olds **with at least upper**

secondary education to 80% and more by 2010. This proportion went up in the EU from an average of 50% in the early 1990s to 64% in 2001. However, there are considerable differences among member countries. Candidate countries score better for this indicator and the differences among them are much smaller. Six candidate countries out of ten already exceed the 2010 target set by the EC (this only holds true for three member countries). The Czech Republic occupies the top place in international comparisons (Graph I.1-5).

Graph I.1-5 The proportion of the population aged 25-64 with at least upper secondary education. 2001 (as %)



Source: EUROSTAT, Labour force principal results, Candidate countries. Statistics in Focus 3-20/2002, pp 4-5, EUROSTAT, Labour force principal results, EU and EFTA Countries. Statistics in Focus 3-20/2002, pp 4-5.

ad e) Basic educational standards also include **key competencies**, which are described as a set of knowledge, skills and approaches necessary for employment, social inclusion, continuous learning, self-fulfilment and personal development (see Box). These competencies should be acquired by the end of compulsory education and are considered to be a prerequisite for participation in lifelong learning. The results of the international PISA survey conducted by the OECD, which assesses the levels of reading, mathematical and scientific literacy of 15-year-olds, are viewed by the European Commission as a reliable approximation of the comprehensive body of competencies needed for a knowledge-based society. The results identify the groups in the population insufficiently equipped to meet the existing challenges of lifelong learning. The European Commission aims to lower the proportion of 15-year-olds with low achievement in the three types of literacy (competencies) by at least one half by 2010.

Key competencies and their measuring

Key competencies are specified in the Detailed Work Programme for the Objectives of Education and Training Systems. They include basic skills (numerical and language literacy), basic skills in mathematics, science and technology, foreign languages, ICT skills, learning skills, social skills, entrepreneurship and general culture. At present, the most reliable indicator of key competencies is the PISA survey which explores the skills of 15-year-old pupils in reading, mathematics and science. **Reading literacy** is the capacity to understand a written text, to use it and think about it in order to achieve one's objectives, to develop his/her skills and potential and to play an active role in society. **Mathematical literacy** is the capacity to recognise and understand mathematics, to deal with it and to make an informed judgment about the role of mathematics in one's private life and employment.

Table I.1-2 The proportion of pupils by level of reading literacy in the CR

Level of competence	Lower than 1	1	2	3	4	5
Proportion in pupil population	6,1	11,4	24,8	30,9	19,8	7,0

Source: OCED (2001) – Knowledge and Skills for Life, First Results from PISA 2000, Paris
Competence Scale: 1 – the worst level, 5 – the best level

Scientific literacy is the capacity to use one's knowledge in science, to ask questions and to make conclusions based on evidence which promote understanding and facilitate decision-making concerning the world of nature and the changes caused by human activities.

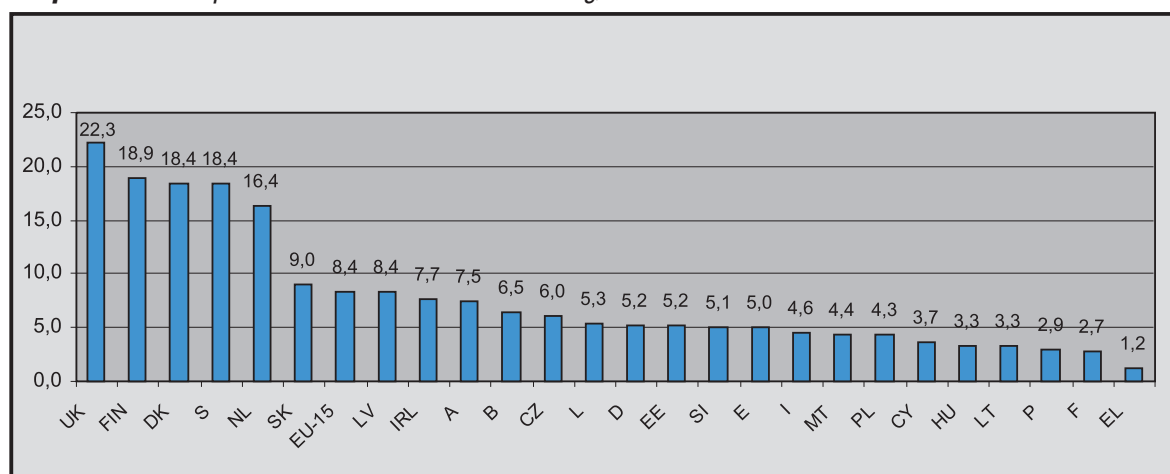
The testing in reading literacy was detailed enough so that the competence levels could be defined. If level 3 of reading literacy defined in the PISA survey is taken as a minimum to be sufficient, then 42.3% of 15-year-old pupils in the CR have low functional literacy in this dimension. Since the average results of Czech pupils in mathematics and science are relatively better compared to the OECD countries, it may be assumed that the proportions of pupils with low literacy in these two dimensions will at most reach the same level as in the case of reading literacy.

If Czech education policy was to aim at reducing the proportion of pupils with low levels of functional literacy by one half, it would mean that – in quantitative terms – at least one fifth of 15-year-olds would have to “shift” from lower levels to reach at least level 3. However, this trend would have to be built on increasing the achievement of the entire 15-year-old population with low functional literacy. The target group for which any relevant measures would be designed would

therefore cover over two fifths of 15-year-olds. It is obvious that such an ambitious goal would require systemic measures to be implemented in the education system, since specifically targeted interventions would probably not suffice. A number of components of this systemic change are set out in strategic papers delineating education policy in the Czech Republic (e.g. documents of the MEYS – 2001).

ad f) The last indicator concerns **participation in lifelong learning** on the part of the population aged 25-64.¹⁵ Lifelong learning is viewed as the most important need of all individuals in a knowledge-based economy. They must update and complement their knowledge, skills and competencies throughout their lives in order to maximise their personal development and maintain and improve their position in the labour market. Particular importance is accorded to the promotion of participation in lifelong learning among individuals with low skills who face disadvantages in terms of access to education and training. The importance assigned to lifelong learning is also reflected in the target of the minimum EU average of 15% rate of participation of the population in working age by 2010, while this proportion should not be lower than 10% in any country. In the context of international comparison, the current position of the Czech Republic and most candidate countries is much

Graph I.1-6 Participation of adults in education and training, 2002



Source: EUROSTAT, Structural Indicators (Data of 15.4. 2003)

¹⁵ The indicator includes participation in any type of education and training within four weeks before the labour force sample survey.

worse than the EU-15 average (Graph I.1-6), although there are clear differences among the member countries. (Participation in continuing education is analysed in detail in Chapter II.).

1.1.4 The level of human capital and a knowledge-based economy

A **knowledge-based economy** is marked by new production structures, forms of technological progress and sources of competitive advantage. Performance and competitiveness in a knowledge-based economy increasingly depends on the capacity to create, process and market knowledge-based products, to use information and communication technologies and marketing, and to introduce new technologies and forms of organisation. The structure of production shows a growing importance of industries which are intensive in intangible production factors and an ever larger emphasis on investment in intangible and human capital.

One important factor of economic growth in a knowledge-based economy is accumulation of human capital. The differences in its levels among countries help explain differences in long-term growth performance (see Box). In terms of an international comparison the level of human capital accumulation is most frequently expressed¹⁶ by means of proportions of the working population, or the labour force, with a particular educational attainment. (Table I.1-3, Statistical Annex, table B.7). However, the data must be interpreted with caution in view of the differences among countries in terms of the focus of programmes included in various levels of education.¹⁷ Bearing this in mind, the position of the Czech Republic in terms of the share of the labour force with tertiary education of ISCED 5A, 6 is unfavourable not only in comparison with the EU-15 average, but also with Hungary and, to a lesser degree, with Poland.

The comparison of the educational attainment of the Czech population and labour force with that of most EU countries illustrates, above all, the

Table I.1-3 Educational attainment, 2001 (as %)

ISCED	Population aged 25-64					Labour force aged 25-64 let				
	1,2	3,4	5B	5A,6	5,6	1,2	3,4	5B	5A,6	5,6
EU-15	38,0	39,2	10,6	12,9	22,8	32,2	41,3	12,0	15,3	26,4
NL	35,0	41,0	3,0	21,0	24,0	28,0	45,0	3,0	24,0	27,0
HU	29,8	56,1	..	14,1	14,1	18,4	63,8	..	17,7	17,7
IRL	42,4	22,0	21,6	14,0	35,6	35,1	23,2	24,7	17,1	41,8
FIN	26,2	41,5	17,5	14,8	32,3	21,5	42,7	19,1	16,7	35,8
B	41,5	31,4	15,0	12,1	27,1	32,3	34,7	17,9	15,1	33,0
PL	19,4	68,7	..	11,9	11,9	14,1	71,7	..	14,2	14,2
CZ	13,8	75,1	..	11,1	11,1	10,1	77,2	..	12,7	12,7

Note: The EU-15 data is expressed as un-weighted average

Source: OECD Education at a Glance. Paris, OECD 2002, Table A.3.Ia, A3.Ib, own calculation.

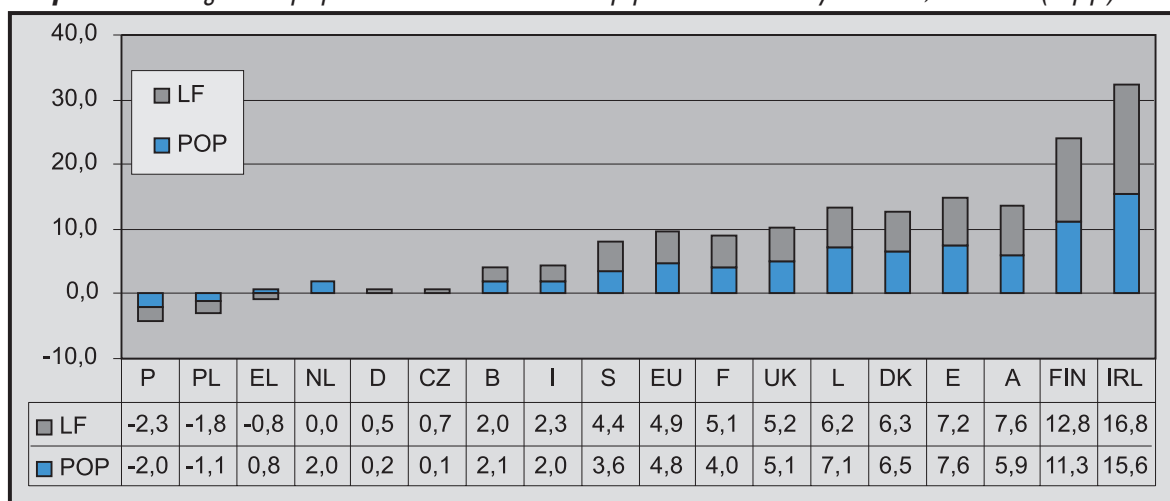
inappropriate representation of groups with shorter tertiary programmes (ISCED 5B). On the other hand, it must be noted that, in some countries, this category also includes graduates from ISCED 4 programmes – i.e. post-secondary, non-tertiary programmes (Ireland, Sweden). The insufficient number of graduates from shorter tertiary programmes in the

CR is, to a large degree, the reason for the low increase in the proportions of both the population and the labour force with tertiary education as compared to 1995 (Graph I.1-7). The highest increase of these proportions occurred in the EU countries precisely because of the increased rate of participation in shorter tertiary programmes.

¹⁶ With the use of ISCED-97 (International Standard Classification of Education)

¹⁷ The ISCED 1997 classification includes 7 levels of education (0 to 6), each of which may be divided into A-C. ISCED 1 covers basic education at first and second stage, ISCED 3 includes secondary education and ISCED 4 concerns post-secondary (non-tertiary) education. The proportions of population and labour force with ISCED 3 and 4 predominate in four pre-accession countries, which only state data for ISCED 5A and 6 and not for shorter tertiary programmes (ISCED 5B). A table relating ISCED to the levels of the Czech education system and a standardisation of the national structures of educational programmes are in the Methodological Annex, table3).

Graph I.1-7 Change in the proportion of the labour force and population with tertiary education, 1995-2001 (in p.p.)



Note: The EU-15 data is expressed as an un-weighted average

Source: OECD Education at a Glance 2002. Paris, OECD 2002, Table A.3.1a, A3.1b, Education at a Glance 1997. Paris 1997, Table A2.1, A2.4, own calculation.

The importance of human capital for economic growth

OECD research (see *The Sources of Economic Growth in OECD Countries*, Paris, OECD 2003), points to the importance of upgrading skills (the quality of human capital) for productivity growth and, as a result, for long-term sustainable economic growth. In the 1980s and 1990s the increased level of human capital contributed to GDP growth particularly in Greece, Ireland, Italy and Spain (the contribution was over one half of percentage point to the average annual GDP growth per capita), see Statistical Annex, tab. B.8. Human capital plays a key role in economic growth due to the related **positive externalities (spillovers)**. Their presence means that the social rate of return from education exceeds the private rate. Externalities occur when accumulation of knowledge results in innovation and expansion of the use of technology, when knowledge constitutes a complementary factor in the introduction and efficient use of new technology, or when threshold effects of human capital accumulation stimulate the development of new knowledge and enlarge the range of economic and scientific opportunities. Countries with a high level of educational attainment are able to adopt new technology faster and at a lower cost compared to countries with a lower level of human capital, and they also have better preconditions for developing domestic scientific, technology and economic innovations. A higher level of human capital is linked to R&D intensive activities, and it speeds up technological progress and the introduction of new capital and, as a result, it increases the rate of economic growth. Increasing educational attainment is also

associated with higher rates of economic activity on the part of the population (this is particularly true of women).

I.1.5 Employment in knowledge-intensive industries

The transition to a knowledge-based economy is linked to the growing demand for a skilled labour force and the ever mounting requirements for its quality. In the context of on-going structural changes the qualitative characteristics gain in importance. The development of employment in knowledge-intensive sectors reflects the impact of technological changes on the industry structure, and the development of the skill intensity of industries reflects the capacity to adapt to new technologies and potential for productivity growth.

Technological progress has a favourable effect on long-term growth performance. However, its impact on employment is **asymmetrical**. On the one hand, innovation saves labour and releases it as a result, on the other hand product innovations create new industries and demand for labour. The rate of technology change in a knowledge-based economy is accelerating, which calls for the continuing adjustment of skills and competencies to the changes in demand. The introduction of new technology requires a highly skilled labour force and its shortage therefore constitutes a restricting factor. On the other hand, low demand for a skilled labour force reflects low technology- and a low skill-intensity of economic activities.

Technology and skill intensity of industries

The technology and skill intensity of industries is determined using selected characteristics. The assessment of **technology intensity** is based on an analysis distinguishing industries by the requirements concerning R&D and technology obtained in the form of inputs. The classification used in OECD analyses combines three principal indicators: (1) R&D expenditures divided by value added; (2) R&D expenditures divided by production; and (3) R&D expenditures plus technology embodied in intermediate and investment goods divided by production. The breakdown of industries according to **skill intensity** is derived from the International Standard Classification of Occupations (ISCO 0-9), which takes account of the occupation type (non-manual and manual occupations – or “white” and “blue” collars) and the skill level (high and low): (I) high-skilled non-manual occupations (white collars and high skills): a) legislators, senior officials and managers, b) scientists and professionals, c) technicians, health care personnel and teachers; (II) non-manual occupations with medium and low skills (white collars and low skills): a) lower administrative

staff (clerks), b) service workers and shop and market sales workers; (III) skilled manual occupations (blue collars and high skills): a) skilled agricultural and forestry workers, b) craft and related trades workers; (IV) non-skilled manual occupations (blue collars and low skills): a) plant and machine operators, b) semi- and unskilled workers.

Technology and skill intensity is **industry specific**. Transition to a knowledge intensive economy is manifested both by the growing share of industries with high and higher technology and skill intensity, and by an increasing industry specific technology and skill intensity. The industry perspective therefore helps explain qualitative development trends in employment.

Total employment in the Czech Republic declined between 1997 and 2002 by 2.8% (in the EU it increased by 7.1%). The development of employment was varied largely depending on **the level of educational attainment** (skills) of the labour force (Table I.1-4). In the Czech Republic as in the EU on average (and in most member countries) employment among people with a medium and, particularly, high level of skills grows faster than that among people with low skills. In

Table I.1-4 Average annual growth of employment and population by educational attainment, CR (1997-2002), EU (1995-2000), as %

	Education	EU	CZ	A	B	D	DK	E	FIN	F	EL	I	L	P	S	UK
Employment	Total	1,5	-0,6	0,6	1,1	0,7	1,2	3,0	2,3	1,3	0,6	1,0	1,9	1,9	0,8	1,4
	Lower secondary	-3,2	-6,4	-5,3	0,5	1,7	2,2	0,7	-0,5	-0,6	-3,3	-3,3	-6,5	0,4	-3,2	-23,9
	Upper secondary	3,6	-0,5	-0,1	0,9	-0,8	0,5	6,6	1,2	0,7	4,4	5,0	9,7	1,9	0,9	10,2
	Tertiary	4,6	3,3	11,6	3,8	1,3	-0,4	8,7	9,7	4,5	4,0	4,2	4,5	-3,8	2,1	4,1
Population	Lower secondary	-3,9	-0,1	-3,2	-1,3	-2,3	0,8	-2,6	-3,2	-0,5	-2,7	-3,7	-7,7	-1,6	-2,2	-21,3
	Upper secondary	2,6	0,2	0,1	-0,1	-1,0	-0,4	1,5	-1,1	0,1	3,6	3,7	9,5	-0,9	0,9	9,6
	Tertiary	4,2	2,2	12,3	3,0	1,2	-0,8	6,9	9,2	4,0	3,6	4,3	4,0	-4,2	3,2	3,5
Difference (p.p.)	Lower secondary	-0,7	6,3	2,1	-1,8	-4,0	-1,4	-3,3	-2,7	0,1	0,6	-0,4	-1,2	-2,0	1,0	2,6
	Upper secondary	-1,0	0,7	0,2	-1,0	-0,2	-0,9	-5,1	-2,3	-0,6	-0,8	-1,3	-0,2	-2,8	0,0	-0,6
	Tertiary	-0,4	-1,1	0,7	-0,8	-0,1	-0,4	-1,8	-0,5	-0,5	-0,4	0,1	-0,5	-0,4	1,1	-0,6

Source: own calculations from LFS CSO database¹⁸ and AMECO database; European Competitiveness Report 2002. Brussels, European Commission 2002, s. 29.

the CR the difference between the pace of growth in employment of the group with low and that with high skill levels amounts to almost 10 pp (it is 8 pp in the EU). Nevertheless, employment of the latter increased less than in the EU on average. The

growth of employment outlines the development of demand, while the increase in population outlines the development of supply. In this respect, supply is growing far more quickly than demand in the group with low skills. The same is true, to a

¹⁸ Background material for calculations from the LFS CSO database in this subchapter was prepared by Mgr. Jaromíra Kotíková of Research Institute of Labour and Social Affairs.

lesser degree of the group with medium skills, while the group with high skills shows an opposite trend.

Differentiation in the development of employment according to the level of educational attainment is also apparent in **industry classification**. The contribution of various industries (NACE A-Q) to the decrease in employment in the CR between 1997-2002 varied.¹⁹ Employment grew only in non-market and business services. This contribution to

overall employment was 1.94 pp, while the decrease in employment in the sectors concerned amounted to 4.72 pp. The largest increase in employment occurred in health care, veterinary care and social work (N), other community, social and personal service activities (O) and property, renting and business activities (K). These industries also scored the highest growth in employment in the EU (1995-2000) – the increase was considerably higher in business services in comparison with health and social services (tab.I.1-5).

Tab.I.1-5 Average annual growth of employment by NACE and educational attainment, CR (1997-2002), EU (1995-2000), in %

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	A-Q
CR	Lower secondary	-4,3	-4,3	-7,1	-0,7	-1,7	-2,2	-1,1	0,8	-0,6	-0,1	1,5	0,4	0,3	2,5	2,5	-0,6
	Upper secondary	-10,2	-7,6	-12,6	-5,2	-13,2	-11,1	-8,5	-7,1	-8,4	-18,7	-6,0	-3,0	-6,0	3,8	-2,6	-6,4
	secondary	-3,7	-3,3	-6,5	-0,1	-1,5	-2,0	-0,8	1,4	-0,2	-1,6	1,2	-0,1	-1,2	1,8	2,6	-0,5
	Tertiary	5,9	-7,9	-4,2	1,1	3,8	3,6	2,3	12,8	5,2	5,6	3,2	3,7	3,2	4,4	5,2	3,3
EU	Lower secondary	-3,8	-4,5	-5,6	0,5	-2,3	1,3	1,2	1,5	1,6	1,0	6,5	1,7	1,9	3,3	2,3	1,5
	Upper secondary	-6,2	-4,5	-9,1	-2,9	-6,2	0,2	-3,9	-2,6	-3,8	-12,5	0,9	-2,8	-5,5	-3,7	-4,3	-3,2
	secondary	0,4	-4,4	-4,8	2,2	-2,0	1,8	4,3	5,8	4,1	2,1	7,5	2,4	3,9	5,8	5,1	3,6
	Tertiary	2,1	-4,7	0,0	3,7	0,4	3,6	4,9	5,1	6,4	5,7	8,4	4,4	2,5	4,4	5,1	4,6

Source: Own calculations from the LFS CSO database; European Competitiveness Report 2002. Brussels, European Commission 2002, p. 27.

In all industries (except fisheries and mineral exploitation), employment grew in the group with tertiary education. Employment among people with upper secondary skills grew in certain service industries and, as regards the group with lower secondary skills, employment increased only in health care, social and other public services. Overall, groups with lower secondary skills are most affected in all industries with declining employment, and, conversely, industries with growing employment show the highest increases in the group with tertiary skills. These developments are reflected in the trend of employment upskilling, which can be viewed as positive. However, the disproportionate levels of redundancy among workers with lower and upper secondary educational attainment causes tensions in the labour market where these groups face difficulties (the rate of unemployment in the group with lower secondary educational attainment was 20.8% in 2002, which is approximately double the average in the CR).

The employment structure in the Czech Republic is still quite different from the EU-15 average, which is the result of a high share of employment in industry and a low share in services (Table I.1-6, Statistical Annex, table B.11). Industry (including construction) in the CR accounted for 39.6% of employment in 2002 (compared to 28.6% in the EU), while the share of services in employment was only 55.5% (66.9% in the EU). The employment structure differs not only from the EU average, but also from other candidate countries. The share of industry in employment in the CR is the highest of EU member and candidate countries.

An analysis of the employment structure in industry, carried out in terms of educational attainment, makes it possible to identify skills contents in industry. Various industries have different shares in total employment according to the skills level of the labour force. When comparing the share of industries in total employment and

¹⁹ A – Agriculture, hunting, forestry, B – Fishing, C – Mining and quarrying, D – Manufacturing, E – Electricity, gas and water supply, F – Construction, G – Wholesale and retail trade, H – Hotels and restaurants, I – Transport, storage and communications, J – Financial intermediation, K – Real estate, renting, business activities, L – Public administration, defence, compulsory social security, M – Education, N – Health and social work, O – Other community, social and personal services, P – Private households, Q – Extra-territorial organisations and bodies, A-Q – Total. The data for P and Q sectors and not stated. These two sectors only accounted for 0.09% of total employment.

Table I.I- 6 *Employment and skills structure by NACE (in %)*

	CR 1997				CR 2002				EU 2001			
	Total	Lower secondary	Upper secondary	Tertiary	Total	Lower secondary	Upper secondary	Tertiary	Total	Lower secondary	Upper secondary	Tertiary
A-B	5,8	11,0	5,6	2,4	4,8	9,2	4,7	2,4	4,2	8,1	2,8	1,1
C	1,8	2,3	1,9	0,7	1,3	1,6	1,4	0,5	0,3	0,4	0,3	0,3
D	27,8	37,3	28,4	14,8	27,6	39,7	28,9	13,3	19,7	24,0	20,5	13,8
E	1,9	1,5	2,0	1,4	1,8	1,1	1,9	1,5	0,7	0,5	0,9	0,8
F	9,7	7,7	10,6	5,2	8,9	6,0	9,8	5,3	7,9	11,5	7,9	3,6
G	13,4	9,8	14,6	7,8	13,0	8,7	14,3	7,5	14,7	16,6	17,0	7,9
H	3,3	3,9	3,7	0,6	3,6	3,7	4,0	0,9	4,0	6,1	4,0	1,4
I	7,7	7,8	8,4	3,2	7,7	7,0	8,5	3,5	6,2	6,4	7,3	3,8
J	2,0	0,3	1,9	3,9	2,0	0,1	1,8	4,4	3,4	1,1	4,3	4,5
K	5,1	2,6	4,2	13,7	5,7	2,7	4,6	13,7	8,9	5,5	8,0	15,0
L	6,5	3,0	6,4	10,1	6,8	3,6	6,6	10,2	7,6	5,3	8,5	9,4
M-Q	15,0	12,8	12,4	35,7	16,6	16,4	13,3	36,5	22,1	12,2	18,0	38,1
Agriculture	5,8	11,0	5,6	2,4	4,8	9,2	4,7	2,4	4,2	8,1	2,8	1,1
Industry	41,2	48,8	42,9	22,2	39,6	48,3	42,0	20,6	28,6	36,4	29,6	18,5
Services	53,0	40,1	51,5	75,1	55,5	42,3	53,1	76,7	66,9	53,2	67,1	80,1
Market services	31,5	24,3	32,7	29,3	32,0	22,3	33,2	30,0	37,2	35,7	40,6	32,6
Non-market services	21,5	15,8	18,8	45,8	23,5	20,0	19,9	46,8	29,7	17,5	26,5	47,5

Source: own calculations from the LFS CSO database; EUROSTAT, European Social Statistics: Labour Force Survey Results 2001. Luxembourg, EUROSTAT 2003, s. 90-91; Employment in Europe 2002. Brussels, DG for Employment and Social Affairs 2002, p. 30, own calculation.

the shares in employment of various groups of the labour force by their skills level, service industries clearly predominate (except G, H, I) in terms of shares of high-skilled labour force. The disproportional share of the same industries in high-skilled employment is also apparent in the EU. In 2002, the proportion of the service industries mentioned above in total employment in the CR was 31.1%, and these industries accounted for 64.9% of high-skilled employment (the disproportion was narrower in the EU – 41.9% in total employment and 67% in high-skilled employment). Overall, services accounted for 55.5%

of employment in the CR and for 76.6% of workers with a high skills level. Conversely, the share of industry and construction in total employment was 39.6%, while in high-skilled employment it was only 20.6% - a difference of almost 20 p.p. (only 10 p.p. in the EU).

The exceptional position of the aforementioned services is also apparent in their structure of employment according to skills level as compared with other industries (Table I.1-7). In 2002, the share of employees with high skills accounted for 13.3% in the CU, which is an increase by 2.3 p.p.

Tab.I.1-7 *Industry structure by educational attainment (as %, change in p.p.)*

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	A-Q
1997	Lower secondary	19,1	18,1	12,5	13,2	8,1	7,8	7,2	11,5	9,9	1,5	5,0	4,6	7,9	7,2	11,4	9,9
	Upper secondary	76,4	75,9	83,0	80,9	83,6	86,3	86,3	86,6	85,5	76,2	65,4	78,4	52,1	75,1	74,0	79,1
	Tertiary	4,4	6,0	4,5	5,9	8,3	5,9	6,4	1,9	4,6	22,0	29,4	17,0	39,8	17,7	14,4	11,0
2002	Lower secondary	13,9	15,2	9,2	10,5	4,4	4,9	4,9	7,6	6,6	0,5	3,4	3,9	5,7	7,7	8,8	7,3
	Upper secondary	78,8	79,6	85,3	83,1	84,7	87,3	87,4	89,0	87,3	70,5	64,4	76,2	48,4	72,8	74,5	79,4
	Tertiary	7,2	4,9	5,2	6,4	10,9	7,9	7,6	3,3	6,1	29,0	32,1	19,9	45,9	19,4	16,5	13,3
Change	Lower secondary	-5,2	-3,0	-3,3	-2,8	-3,7	-3,0	-2,3	-3,8	-3,3	-1,0	-1,6	-0,7	-2,2	0,5	-2,6	-2,6
	Upper secondary	2,4	3,7	2,4	2,3	1,1	1,0	1,1	2,4	1,8	-5,7	-0,9	-2,2	-3,8	-2,3	0,5	0,3
	Tertiary	2,9	-1,1	0,7	0,5	2,6	2,0	1,2	1,4	1,5	6,9	2,6	2,9	6,1	1,8	2,0	2,3

Source: Own calculations from the LFS CSO database.

compared to 1997. The position of various industries may therefore be compared with this core data. The highest share of employees with high skills is seen in J-O services industries, while the proportion of this labour force is far below average in the other industries. The largest increase in the proportion of high-skilled labour force occurred in insurance and finance (J) and education (M) – i.e. industries where the proportion was high initially. Conversely, the smallest increase occurred in manufacturing (D). Inter-industry differences in terms of the share of high-skilled labour force are on the whole quite large and they have broadened since 2002. The fact that, over the long term, agriculture and some industry fall behind in this respect must be viewed as a barrier to growing productivity and efficiency. This lagging behind is partly caused by the low attractiveness of these sectors for the skilled labour force, and partly by the low skill intensity.

In terms of **knowledge intensity** industries may be divided into several groups (see Box). The derived classification makes it possible to identify the proportion of knowledge-based industries in total employment.

Knowledge-based industries

According to EUROSTAT, knowledge-based industries are broken down into three groups. (I) the group with **high and medium high-technology intensity** includes industries of manufacturing and services which are R&D intensive. The manufacturing industries with high-tech intensity are (according to NACE): manufacture of office machinery (30),

manufacture of radio, television and communication equipment and apparatus (32), manufacture of precision instruments (33); industries with medium high-tech intensity include: manufacture of chemicals and chemical products (24), manufacture of machinery and equipment (29), manufacture of electrical machinery (31), manufacture of motor vehicles (34) and other transport equipment (35). High-tech intensity services sectors include post and telecommunications (64), computer and related activities (72), and research and development (73). (II) The group with **high education** includes some sectors presented in the previous group (30, 72, 73) and also other business activities (74), education (80), health and social work (85). (III) The group of **knowledge-intensive services** includes water transport (61), air transport (62), post and telecommunications (64), finance (65), insurance (66), activities auxiliary to financial intermediation (67), property (70), renting of machinery and equipment (71), computer and related activities (72), research and development (73), other business activities (74), education (80), health care and social work (85), recreational, cultural and sports activities (92).

In the case of manufacturing (Table I.1-8) employment dropped by 3.3% between 1997 and 2002 and its share in total employment in 2002 totalled 27.6%. The proportion of **manufacturing industries** with high and medium high-tech intensity (VT) was 8.8%, of which 1.3% were high-tech industries (VTI), and 7.5% were medium high-tech industries (VTII).

Table I.1-8 Employment in manufacturing sectors with high and medium high-tech intensity by educational attainment (as %)

	Share in total employment ¹⁾ and the employment structure by skills level ²⁾						Average annual growth in employment 1997-2002		
	1997			2002					
	VTI	VTII	VT	VTI	VTII	VT	VTI	VTII	VT
Total	1,1	7,5	8,6	1,3	7,5	8,8	3,3	-0,6	-0,1
Lower secondary	9,9	9,2	9,3	7,5	8,5	8,4	-2,3	-2,2	-2,2
Upper secondary	78,3	82,9	82,3	81,9	82,4	82,3	4,2	-0,7	-0,1
Tertiary	11,4	7,9	8,4	10,7	9,1	9,3	1,8	2,2	2,1

Note: VTI = high-tech intensity, VTII = medium high-tech intensity. Source: Own calculations from LFS CSO database.

1) Total employment in the economy = 100 %

2) Employment in the group of sectors = 100 %

These figures are close to the EU-15 average for 2000 (7.6% and 1.4%).²⁰ However, it must be noted that employment in the EU in high and medium

high-tech industries grew annually by an average 1.1% between 1995 and 2000 (most in Ireland – 6.9% and Finland – 4.9%), while in the CR it

²⁰ The data for EU countries are presented in the Statistical Annex – Table B.12.

dropped by 0.1%. In view of the productivity levels still faltering in the Czech economy a further drop in employment is likely to occur in the future – particularly in the case of the lower-skilled labour force.

Compared to 1997, an increase only occurred in the share of high-tech industries, which showed an increase in employment by 17.5%. The proportion of the medium high-tech industries stagnated and employment dropped by 3%. The share of the high-skilled labour force in the two groups showed divergent developments. It decreased in the high-tech group, and increased in the medium high-tech group – the former points to either a declining skill intensity, or insufficient supply of the relevant skills. Overall, both the proportion of the labour force which was high-skilled and their increasing employment in groups of high and medium high-tech industries is lower

compared to the CR average, although it is slightly higher compared to Czech manufacturing.

As regards **services**, the proportion of **high-tech industries** dropped by 3.2% from 1997, showing an annual average decrease in employment of 1.4% (in the EU-15 this industry group accounted for 3.4% and annual growth in employment was 2.9% between 1995 and 2000). However, there was a considerable increase in the proportion of high-skilled labour force in this group, which is far above average compared to total employment – in 2002 it was 26.8%.

Overall, however, the proportion of high-skilled labour force in the high and medium high-tech groups is low in the CR (Table I.1-9, annual employment growth Table I.1-10), does not differ much from the CR average and falls far behind the EU figures (13.9% compared to 30%). In the EU

Table I.1-9 Share of employment in high and medium high-tech industries and in knowledge-intensive services (as %)

	High and medium high-tech intensity		High education		Knowledge-intensive services		High-tech services	
	1997	2002	1997	2002	1997	2002	1997	2002
Total ¹⁾	11,9	12,0	16,6	18,3	22,6	24,1	3,3	3,2
Lower secondary ²⁾	8,7	6,9	6,8	5,8	6,6	5,2	7,2	2,8
Upper secondary ²⁾	80,5	79,2	63,1	61,0	67,4	64,7	76,0	70,3
Tertiary ²⁾	10,6	13,9	30,0	33,2	25,9	30,1	16,6	26,8

Source: Own calculations from LFS CSO database.

Notes: 1) Total employment in the economy = 100 %

2) Employment in the group of sectors = 100 %

this proportion is the highest in Spain and Finland (40%), and the lowest in Italy (15%).

The proportion of **high education services** reached 18.3% in the CR in 2002 (25% in the EU – from 15.7% in Portugal to 38.3% in Sweden), which constituted a slight increase on 1997. The proportion of high-skilled labour force in this group far exceeds the average and reached 33.2%

in 2002. The proportion of **knowledge-intensive services** was 24.1% in the CR (32.3% in the EU, ranging from 18.9% for Portugal to 45.7% for Sweden). Again, the proportion of high-skilled labour force in this group was far above average.

The different relationship between the proportion of high and medium high-tech industries in total employment and their skills level expressed as a proportion of the

Table I.1-10 Average annual employment growth in high and medium high-tech industries and in knowledge-intensive services, 1997-2002 (in %)

	High and medium high-tech intensity	High education	Knowledge-intensive services	High-tech services
Total	-0,4	1,4	0,7	-1,4
Lower secondary	-5,0	-2,0	-3,9	-18,3
Upper secondary	-0,8	0,7	-0,1	-2,9
Tertiary	5,1	3,5	3,8	8,5

Source: Own calculations from LFS CSO database

high-skilled labour force in employment is also made apparent through **inter-regional comparison** in the Czech Republic (Table I.1-11).

The regions are listed in a descending order by the proportion of high and medium high-tech industries in total employment in the particular

Table I.1-II *Employment in high and medium high-tech industries, 2002 (NUTS 3, in %)*

Region	Share in total employment				Share of high-skilled labour force			
	VTS	VTI	VTII	VS	VTS	VTI	VTII	VS
Pardubický	15,7	3,6	9,9	2,2	7,8	7,3	5,6	18,6
Středočeský	13,9	1,3	9,3	3,3	7,6	9,7	6,2	10,8
Plzeňský	13,3	1,8	8,9	2,7	13,5	19,1	7,6	29,1
Vysočina	13,1	0,6	10,6	2,0	7,7	0,0	7,2	12,5
Jihomoravský	12,6	1,7	7,3	3,7	20,5	15,1	14,0	35,7
Královéhradecký	12,5	1,6	8,5	2,4	6,8	8,5	4,0	15,9
Olomoucký	12,4	1,3	9,3	1,9	8,8	0,0	9,3	12,6
Liberecký	12,0	1,3	8,6	2,2	8,9	7,3	7,6	15,3
Jihočeský	10,7	1,9	6,6	2,1	8,7	8,7	5,9	17,7
Praha	10,6	0,6	3,2	6,8	32,4	22,8	25,3	36,6
Moravskoslezský	9,3	0,6	6,0	2,7	17,7	11,2	11,5	32,9
Ústecký	8,6	0,7	5,5	2,4	12,5	11,0	8,1	23,3
Zlínský	7,8	1,1	5,5	1,2	12,6	4,2	9,0	36,3
Karlovarský	7,6	0,7	5,1	1,8	6,9	7,8	5,7	10,1

Note: VTS = sectors with high and medium high-tech intensity, VTI = high-tech intensity manufacturing, VTII = medium high-tech intensity manufacturing, VS = high-tech services. Source: own calculations from LFS CSO database.

region. The first three places are occupied by the Pardubický, Středočeský and Plzeňský regions. The order of regions is rather different in terms of the proportion of high-skilled labour force. The first place goes to Praha with a big margin (the proportion is slightly higher than the EU average), which is followed by the Jihomoravský and Moravskoslezský regions. Conversely, the proportions of high-skilled labour force in the Pardubický and Středočeský regions are among the lowest in the CR. Similar differences can be observed in the position of regions with similar proportions in individual subgroups. For example, the Plzeňský and Jihočeský regions show similar proportions of high-tech industries in total employment, but in the former the proportion of high-skilled labour force in this subgroup is more than double.

Overall, the development of employment in the CR in terms of skill and technology intensity may be assessed as follows:

Similarly to the EU, the development of employment in the CR is sharply differentiated depending on the level of educational attainment of the labour force. Total employment dropped

between 1997 and 2002, while employment of the high-skilled labour force increased and, conversely, employment in the group with lower secondary education decreased considerably. The trend of growing employment among the high-skilled labour force in the CR (again, similarly to the EU) was apparent in all sectors of the one digit NACE (except in fisheries and mineral exploitation). Compared to the EU, there are still larger disparities in the CR in employment structure, particularly in favour of employment in industry and to the detriment of employment in services. The industry distribution of the high-skilled labour force in the CR shows a particularly high proportion of this labour in services (compared to the share of this sector in total employment). Conversely, this proportion is strikingly low (compared to the EU) in manufacturing. The employment development trends in the CR are similar to the EU – i.e. a relatively strong increase in the number of high-skilled workers (demand), and a severely faltering increase in the number of high-skilled individuals in the population (supply).

Compared to the EU Czech manufacturing was marked by declining employment in high-tech

industries and the increase in the employment of a high-skilled labour force in these industries was lower than the increase in overall employment of this group of the labour force. The share of the high-skilled labour force in high-tech industries even dropped in 1997. The relatively low skills content of Czech manufacturing industry tended only slightly to improve, which must be viewed as one of the unfavourable features affecting the preconditions for enhancing competitiveness of this industry which is of key importance in terms of exports. The CR's lagging behind in this area is particularly striking in comparison with dynamic EU economies (namely Finland and Ireland).

As for knowledge-intensive services, the situation in the CR is different from that in manufacturing. The share of high-skilled labour force is far above average in all qualitatively differentiated industry groups. Compared to the EU, however, the proportion of knowledge-intensive services in total employment in the CR is still low as well as the proportion of the high-skilled labour force.

1.1.6 The quality of human resources as a precondition for competitiveness

Evaluation of the quality of human resources and the preconditions for its improvement in the economy is part of the **competitiveness yearbooks**

published by the World Economic Forum (WEF *Global Competitiveness Report 2001-2002*. Oxford, Oxford University Press 2002) and the Institute for Management Development (IMD *World Competitiveness Yearbook 2002*. Lausanne, IMD 2002). The data presented are mostly drawn from executive opinion surveys (soft data), i.e. the possibility of international comparison is limited and only informative. Both surveys were conducted in 2001.

In the **WEF survey**²¹ (Table I.1-12, Statistical Annex, table B.13) the least favourable indicator for the CR is the availability and quality of management schools, the level of business investment in human resource development and training, and attention devoted to this area in general. The home market for a high-skilled labour force in the area of ICT and the quality of education in this field is, too, a weak point. On the contrary, the availability of scientists and engineers in the economy has achieved quite positive ratings, and so has, to a lesser degree, the quality of public schools.

In the **IMD survey**²² (Table I.1-13, Statistical Annex, table B.14) the best rating within the Czech Republic was given to the general availability of a skilled labour force. The figures are not so good in the case of specific skills, particularly in finance where the CR even ranks the last among the countries under review. Availability of skilled

Table I.1-12 Evaluation of competitiveness characteristics (WEF), 2001

Scientists and engineers		Brain drain		Market for IT skills		Training in IT		Quality of public schools		Availability of quality managers		Managers international experience	
FIN	6,4	FIN	6,1	NL	6,7	FIN	6,3	FIN	6,6	NL	6,1	NL	5,8
HU	6,2	NL	5,5	FIN	6,6	NL	6,3	B	6,4	FIN	5,8	FIN	5,7
CZ	5,8(17)	B	5,4	IRL	6,4	IRL	5,6	NL	6,4	B	5,5	IRL	5,7
IRL	5,8	CZ	5,1(16)	B	6,1	B	5,1	IRL	6,3	IRL	5,2	B	5,5
NL	5,6	IRL	4,6	PL	5,3	HU	5,0	HU	5,8	HU	4,3	HU	5,0
PL	5,3	HU	4,0	CZ	5,2(29)	CZ	4,8(27)	CZ	5,7(19)	CZ	4,1(35)	PL	4,7
B	4,9	PL	3,9	HU	4,8	PL	3,9	PL	4,7	PL	3,8	CZ	4,5(42)
EU	5,7	EU	5,0	EU	6,1	EU	5,3	EU	5,6	EU	5,3	EU	5,4

Source: WEF Global Competitiveness Report 2001-2002. Oxford, Oxford University Press 2002. Executive Opinion Survey Database 2001.

²¹ 75 countries were compared, the rating ranges between 1 (the worst result) and 7 (the best result). In addition to data for individual countries, the EU average is also stated and, in the case of the Czech Republic, also the position among all the countries. The responses in the WEF survey range from 1 to 7 in individual indicators as follows: (a) **Scientists and engineers**: availability of scientists and engineers in the country is very low (1), very wide (7); (b) **Brain drain**: scientists and engineers leave the country (1), mostly stay in their home country (7); (c) **Market for IT skills**: high-skilled IT workers leave the country (1), find well-paid, attractive jobs in their home country (7); (d) **Training in IT**: IT training programmes are very bad in international comparison (1), they are world top quality (7); (e) **Quality of public schools**: public schools have low quality (1), rank among the best in the world (7); (f) **Human resource development**: companies invest little in human development and training (1), companies invest a lot (7); (g) **Quality of management schools**: management schools have low quality (1), rank among the best in the world (7).

²² 49 countries were compared. The rating ranges between 1 (the worst result) and 10 (the best result).

Table I.1-13 *Evaluation of competitiveness characteristics (IMD), 2001*

Importance of human resource development		Availability of skilled labour force		Brain drain		Availability of finance skills		Availability of ICT skills		Availability of quality managers		Managers' international experience	
FIN	7,89	FIN	7,77	NL	7,63	NL	7,97	FIN	8,88	NL	7,47	NL	7,50
NL	7,27	B	7,46	FIN	7,45	FIN	7,87	IRL	7,93	FIN	7,25	IRL	6,60
B	6,34	NL	7,34	IRL	7,33	B	7,51	B	7,72	IRL	7,18	B	6,38
IRL	6,00	CZ	7,33(18)	B	6,09	IRL	7,47	NL	7,69	B	6,90	FIN	6,23
HU	5,78	HU	7,11	CZ	6,06(20)	HU	6,52	HU	7,26	HU	6,37	HU	5,78
CZ	5,61(29)	IRL	7,05	HU	5,93	PL	5,26	CZ	6,72(32)	PL	5,21	CZ	4,17(40)
PL	3,74	PL	6,38	PL	4,54	CZ	4,78(45)	PL	6,59	CZ	4,92(44)	PL	4,00
EU	6,15	EU	6,58	EU	6,39	EU	6,78	EU	7,15	EU	6,52	EU	5,60

Source: IMD World Competitiveness Yearbook 2002. Lausanne, IMD 2002. Executive Opinion Survey Database 2001.

managers and their international experience is rated as very negative. Availability of ICT skills is viewed as slightly better. Similarly to the WEF survey, a rather bad rating was given to the importance of human resource development in corporate policies.

The results of the surveys examining the opinions about availability of the labour force with specific skills and the quality of education point to an unfavourable position of the Czech Republic, particularly as regards more demanding skills. This qualitative drawback is undoubtedly a manifestation of the faltering proportions of the labour force with tertiary education. In addition to this, the quality of skills acquired is also rated as rather unsatisfactory.

Another feature viewed as a problem in the CR is the rather low attention of companies devoted to training and human resources development in general. Investment in human capital is viewed by organisations as insufficiently beneficial, which reflects the limited perception of human resources as an investment good and a source of competitive advantage. This limitation may be partially attributed to pressures of external conditions, but also clearly marks the inadequate level of development of the Czech business environment. (This evaluation is justified by far better figures in all indicators concerning HRD in companies with foreign capital compared to domestic ones.) The inappropriate perception of the importance of HRD is reflected in the scope of training organisations arrange for their workers.

The approaching accession of the Czech Republic to the EU constitutes a great challenge for Czech companies' competitiveness. Their capacity to identify areas suffering competitiveness problems

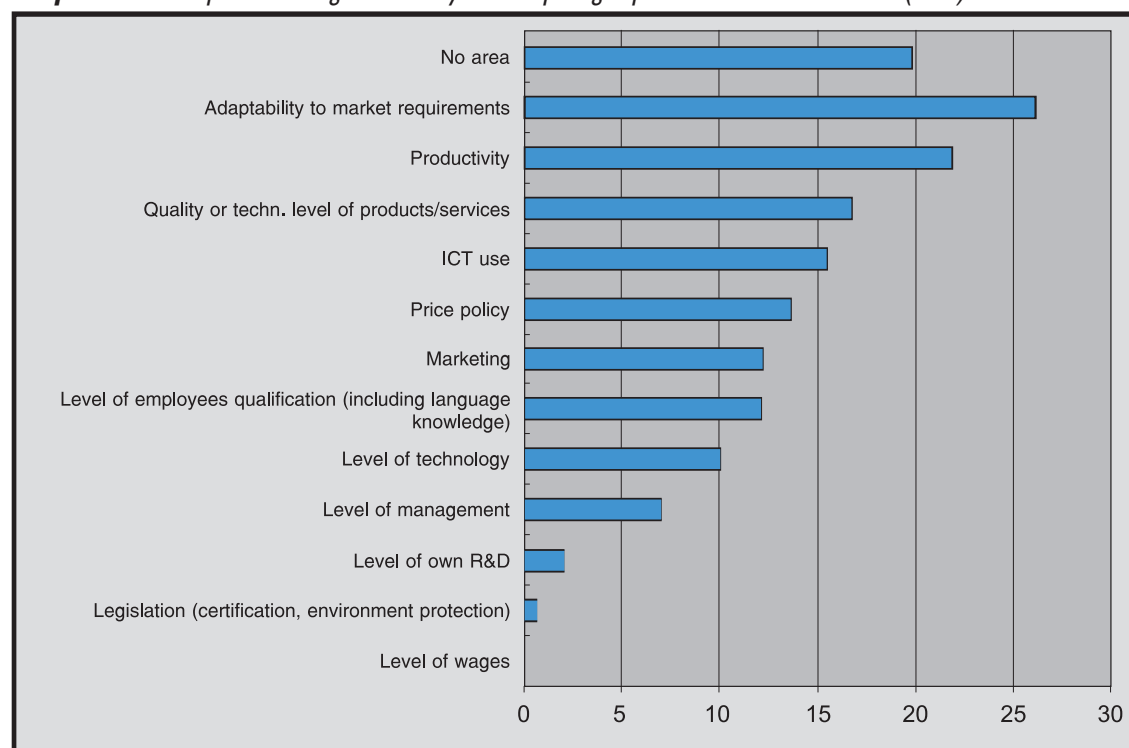
after accession will be a prerequisite for addressing the related drawbacks.

A survey entitled **Development of human resources and skills needs in companies** carried out in 2002 for the National Observatory of Employment and Training explored competitiveness problems in the light of EU accession. Special attention was devoted to skill shortages.

A quarter of the companies surveyed (Graph I.1-8) stated adjustment to labour market requirements among the areas to be improved **to face competition** after accession (26.1%), a fifth mentioned performance and productivity (21.9%). Other areas requiring improvement included: quality and technology standards of products or services (16.8%), the level of using information sources and information technology (15.5%), pricing policy (13.6%), marketing (12.2%), the standards of production technology (10%), management and work organisation standards (7%). A meagre 12.1% of companies believes that skills of their workers (including language competencies) should be improved. One fifth of companies stated that nothing will have to be improved to face competition after EU accession (19.8%).

Considering the degree of the CR's falling behind the EU average in the level of productivity, the small proportion of organisations which realize this drawback is rather surprising. Still smaller is the share of organisations which see a problem in the level of their production technology, management or even R&D. These are the features that constitute the capacity to adapt to market needs, which, conversely, is stated as a problem area in most organisations. Taking account of the objective

Graph I.1-8 – Proportions of organisations by areas requiring improvement after EU accession (as %)



Source: Development of human resources and skills needs in companies. A survey by the National Observatory of Employment and Training, Prague, 2003.

measurements placing the Czech economy behind developed countries in terms of skill and technology intensive activities it is clear that only a small number of organisations realise the importance of qualitative characteristics for long-term sustained competitiveness in demanding markets.

Roughly one fifth of companies (22.1 %) perceive labour shortages as a hindrance to the development of their organisation. Only 9.5% companies expect **recruitment problems** two years after EU accession. These companies mostly expect labour shortages in the category of craft and related trades workers (37.1 %), scientists and professionals (28.4 %), service workers and shop and market sales workers (25.8 %), senior officials and managers (17.3 %) and technicians, health care personnel and teachers (9.6 %). Other categories were mentioned by less than 5 % of companies.

When assessing the **knowledge and skills of workers in comparison with European competitors**, the drawbacks are distinguished by the level of formal education (upper secondary without “maturita”, secondary with “maturita” and tertiary) – see Table I.1-14. The largest is the share of companies considering knowledge and

skills as comparable to competitors in the group of workers with tertiary skills (37.2 %), followed by workers with upper secondary skills without “maturita” (30.4 %) and with upper secondary skills with “maturita” (25.9 %). The only competence that the respondents often mention in terms of falling behind Europe in the group with tertiary education is the knowledge of foreign languages (28.2%). In the group with secondary education with “maturita” insufficient computer skills (16.4%) and problem-solving skills (12.2%) were often mentioned – in addition to language skills (38.3%). As regards the group with secondary education without “maturita”, besides foreign languages (22.8% of companies) work-related characteristics are often stated: willingness to work overtime or on flexible terms (13.1%), reliability and accuracy (12.8%), integrity, honesty and loyalty (12.4%) and computer skills (11.7%).

The drawbacks identified by organisations may be interpreted in various ways. A larger degree of dissatisfaction may be attributed to a low quality of the labour force, which is a reflection of the worse labour market supply. This may be seen as a stimulus for a more active role of companies in human resources development and training. The dissatisfaction may also be explained by tougher requirements on the part

Table I.1-14 The shares of companies mentioning insufficient knowledge and competencies of workers as worse in comparison with European competitors (as %)

Population with tertiary education		Population with secondary education with "maturita"		Population with secondary education without "maturita"	
No knowledge and skills	37,2	No knowledge and skills	25,9	No knowledge and skills	30,4
Foreign languages	28,2	Foreign languages	38,3	Foreign languages	22,8
Manager/supervisor skills	9,9	Computer/IT skills	16,4	Willingness to work overtime/flexible hours	13,1
Leadership	8,1	Problem-solving skills	12,2	Reliability/accuracy	12,8
Computer/IT skills	7,4	Willingness to work overtime/flexible hours	9,4	Integrity/honesty/loyalty	12,4
Info management/work with info	6,5	Manager/supervisor skills	8,6	Computer/IT skills	11,7
Team work	6,2	Reliability/accuracy	8,2	Problem-solving skills	10,2
Willingness to work overtime/flexible hours	6,0	Leadership	7,6	Manual dexterity	7,9
Problem-solving skills	5,9	Team work	7,6	Capacity to learn	7,6
Acquaintance with business world	5,8	Integrity/honesty/loyalty	6,9	Acquaintance with business world	7,1
Integrity/honesty/loyalty	5,7	Acquaintance with business world	6,5	Creativity/initiative	5,4
Creativity/initiative	5,6	Capacity to learn	5,8	Basic professional skills	5,3
Interpersonal/communication skills	5,1	Creativity/initiative	5,7	Leadership	5,0
Basic professional skills	4,2	Basic professional skills	5,2	Manager/supervisor skills	4,9
Versatility	3,9	Info management/work with info	5,0	Team work	4,3
Reliability/accuracy	3,9	Interpersonal/communication skills	4,5	Versatility	4,2
Manual dexterity	2,5	Versatility	4,1	Info management/work with info	2,5
Capacity to learn	2,2	Manual dexterity	3,0	Interpersonal/communication skills	2,5

Source: Development of Human Resources and Skill Needs in Companies. A survey by the National Observatory of Employment and Training, 2003.

of employers or their better access to information about the quality of their European counterparts and their own employees. A lower degree of dissatisfaction may be similarly attributed to a higher (as required by employers) quality of the workers, but also to softer requirements for worker quality – e.g. as a result of a lower technology and skill intensity of the company activities.

External pressure as a source of motivation for organisations to pursue training depends on the extent to which they are **aware of their competitors' activities**. This awareness also reflects interest in the experience of competing organisations. One third of companies said they had information about the type and scope of training or other HRD activities pursued by their competitors in the home market (34.6%), only less than one fifth of companies are acquainted with these activities in foreign markets (18.5%). As regards the anticipated change in the ratio of **expenditure on training** to total labour costs after EU accession, 34.7% of organisations expect the proportion to increase, 46.8% do not expect any change and 4.3% expect a decrease in the proportion.

The quality of the labour force as one of the characteristics of competitiveness was the subject of another survey conducted in manufacturing

companies as part of a study for the Government Council for Social and Economic Strategy (GCSSES) entitled **"Social and Economic Impacts of the Czech Republic's Integration into the EU"**.

The quality of the labour force and the social environment in organisations is assessed and compared to domestic as well as EU competitors. The rating ranges from 1 (far better) to 5 (far worse) and covers the situation at present, expectations at the time of EU accession and three years later (Table I.1-15). Among the 11 technological and economic conditions the labour force quality ranks among the better-rated factors. It is assessed as being slightly worse compared to EU competitors than domestic ones. The rating hovers between 2 (we are rather better than the competition) and 3 (we are neither better nor worse). The anticipated change in rating in the period of three years after accession in comparison with the present situation is also stated.

The rather lower skill intensity of Czech manufacturing is reflected in the evaluation of the importance of various categories of workers **by their skills level** for the development of companies. The availability of skilled manual workers with experience and graduates from secondary

Table I.I-15 *Assessment of technological and economic conditions in comparison with competitors*

		At present	At the time of accession	3 years later	Anticipated change
Domestic market	Environmental competitiveness	2,10	2,02	1,95	-0,15
	Production process parameters in terms of environmental protection	2,16	2,02	1,95	-0,21
	Organisation and management	2,26	2,05	1,92	-0,34
	Workers quality and social environment in the company	2,32	2,19	2,06	-0,26
	Labour productivity level	2,44	2,19	2,04	-0,40
	Production technology level	2,49	2,31	2,15	-0,34
	Quality of subcontractors	2,49	2,28	2,12	-0,37
	Use of information technologies	2,56	2,30	2,14	-0,42
	Raw materials and energy costs	2,74	2,64	2,53	-0,21
	Availability of capital funds	3,04	2,72	2,50	-0,54
	Research and development costs	3,46	3,17	2,98	-0,48
European Union Market	Environmental competitiveness	2,36	2,23	2,14	-0,22
	Production process parameters in terms of environmental protection	2,43	2,24	2,16	-0,27
	Organisation and management	2,46	2,22	2,06	-0,40
	Workers quality and social environment in the company	2,53	2,34	2,22	-0,31
	Quality of subcontractors	2,67	2,42	2,27	-0,40
	Labour productivity level	2,69	2,41	2,19	-0,50
	Raw materials and energy costs	2,80	2,71	2,60	-0,20
	Production technology level	2,84	2,59	2,39	-0,45
	Use of information technologies	2,88	2,55	2,35	-0,53
	Availability of capital funds	3,28	2,92	2,67	-0,61
	Research and development costs	3,58	3,26	3,04	-0,54

Source: GCSSES, Social and Economic Impacts of the Czech Republic's Integration into the EU – Study background. Tab. A2, A4. Prague, GCSSES 2002.

vocational schools (SVS) is considered to be the most important. The least importance is assigned to availability of non-skilled and on-the-job trained workers, but also workers with tertiary education. The rating ranges from 1 (it is very important to have enough workers with these skills) to 5 (entirely unimportant). The actual figures range from 2 (availability is rather important) to 4 (rather unimportant) – see Table I.I-16. In view of the rather low skill intensity it is understandable that

companies evaluate the quality of their workers to be relatively good in comparison with domestic and foreign competitors (as part of a wider spectrum of technology-economic conditions).

In terms of development over time (i.e. at the time of EU accession and three years later) there is no change in the ordering of categories of workers by their skills level in terms of their importance for the company development. In other words, the

Table I.I-16 *Importance of categories of workers by their skills level*

	At present	At the time of accession	3 years later	Change
Skilled workers with experience	1,88	1,84	1,82	-0,06
Graduates from secondary schools (without “maturita”)	2,28	2,21	2,15	-0,13
Graduates from secondary schools with “maturita”	2,42	2,27	2,16	-0,26
Persons with tertiary education	2,95	2,66	2,49	-0,46
Unskilled workers, only introductory training	3,61	3,58	3,58	-0,03

Source: GCSSES, Social and Economic Impacts of the Czech Republic's Integration into the EU – Study background.. Tab. D4. Prague, GCSSES, 2002.

companies do not anticipate a large increase in the skill intensity of their activities. Nevertheless, the largest increase in importance over the three-year period after EU accession as compared to the present is expected in the category with tertiary education, which is followed by “maturita” holders and SVS graduates.

When comparing the results of surveys from competitiveness yearbooks and the situation in the Czech business sector, the degree to which companies are able to reflect on human resource quality is on the whole limited. This is also clear from a comparison of Czech companies and those with foreign capital. In the survey of the National Observatory of Employment and Training companies with foreign capital scored better results virtually in all indicators compared to other companies (in terms of systematic approach to HRD and awareness of their importance for competitiveness). Companies with foreign capital are also more aware of their weaknesses in the European context, including skills shortages and the quality of their workers, and earmark more resources to redress these shortcomings. Conversely, the predominating satisfaction of domestic companies in this context must be viewed as bad in terms of future development, since it softens the pressure for the necessary systemic change in approach to the development of HR (and, in general) sources of quality-based competitiveness.

1.1.7 Opportunities and limitations concerning further development

The appropriate supply of a skilled labour force is one of the prerequisites for a successful transition to a knowledge-based economy and its development. The acceleration of technology change and intensity of the related structural adjustment call for continuing updating of knowledge and skills throughout individuals’ professional lives. The importance of education and training goes beyond the immediate target of enhancing production performance levels and competitiveness, as it also promotes social cohesion by means of enhancing the position of disadvantaged groups in the labour market and, in general, the adaptability of the labour force to the changes in demand and supply. Higher production performance is the precondition for approaching the economic level of more developed

countries. However, the catching-up process also results in alleviation of the price and cost-based competitive advantage, which must be offset by quality-based competitiveness.

These processes and their characteristics constitute **challenges for the future position of the Czech economy** in the enlarged European Union, for which the transition to a knowledge-based economy is one of primary aims of the long-term development strategy. In the course of the transformation of the Czech economy, major qualitative restructuring occurred resulting in an **increased proportion of technology and skill intensive activities**, although their contribution to economic growth and competitiveness is still limited. A number of industries are struggling with low production performance and stagnating or declining competitiveness, which constrains companies in their systematic and long-term promotion of human resources development and training. One important restricting factor in the context of society’s support for education and training (as a key pro-growth factor) is the pressure for cuts in public spending. This limitation will no doubt have a negative influence on the implementation of more radical policies aiming at transition to a knowledge-based society.

The slower than required development in the Czech Republic in terms of skills of the population is, on the whole, manifested by a **low proportion of the population and labour force with a high level of educational attainment**. This drawback is industry and region specific and the differences tend to widen over time. While indicators related to upper secondary level of education in the CR are quite favourable in international comparison, the low supply of a labour force with higher levels of education and skills constitutes a limiting factor, particularly as regards the development of skill intensive activities in industry and services. This is illustrated by a **slower growth of skill intensity in production and exports compared to the growth of technology intensity**, since technologies may largely be taken over from developed countries, while the availability of a skilled labour force depends on domestic sources. In terms of employment, the mismatch between demand for and supply of low and high-skilled labour force is broadening, which has inauspicious effects on the labour market (also in inter-regional terms).

There is still a limited capacity on the part of the Czech corporate sector and public policy-makers

to reflect on and respond to the insufficient skill levels. It must be said, however, that there are large differences between companies in their awareness of the problem and ways of addressing it. The situation is better in foreign companies and, generally, companies with growing productivity, exports performance and companies involved in

research and development. The less efficient Czech companies are increasingly falling behind in this respect. Consequently, there is a trend towards duality in the economic structure not only in terms of production performance and competitiveness, but also in terms of opportunities for education and training within lifelong learning.



1.2 THE INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGIES ON TRAINING AND EMPLOYMENT

The influence of information and communication technologies (ICT) on economic growth and social changes in society has increased in recent years. The wealth of a global information society lies not only in the efficient implementation of ICT in all its constituent parts, but also, and most importantly, in human capital. Competitiveness in the global market is therefore conditional upon the development of digital literacy, which is becoming an equally important component of the general concept of literacy and numeracy¹.

A prerequisite for the development of an information society – although not its objective – is a general availability of ICT facilities and non-discriminatory access to them for all citizens. In the preparatory stage leading to an information society the principle of equal opportunities must be stressed, so that the specific needs of various groups differentiated according to age, gender, social position, geographic location or physical and mental condition are satisfied. EU member countries and many others are adjusting their education systems to the needs and challenges of an information society, and investing heavily in the integration of ICT into education.

Although ICT is considered to be an important source of economic, social and cultural development, a statistical coverage of these trends is still under development. However, in recent years solid foundations for a coherent and systematic monitoring of trends have been laid, which will facilitate a more comprehensive and consistent analysis of the current and forecast development of ICT². Nevertheless, the availability of statistical data is not such as to make possible a comprehensive approach to this subject.

1.2.1 National and EU policies concerned with the use of ICT in education and training

The Czech Republic has adopted a number of strategic documents which form ICT policy in education and pursue the transformation of the country into an information society. In 1999 the government of the CR³ adopted **State Information**

Policy – Towards an Information Society (SIP), and in the following year an Outline of state information policy in education (SIPE)⁴ was passed. Its aims are reflected, *inter alia*, in the SIP Action Plan⁵. The responsibility for the

implementation of state information policy in education lies with the MEYS and other ministries are expected to co-operate. A special role in this process has been taken on by the newly established Ministry of Informatics of the CR.

The implementation of SIPE consists of two inter-related stages. The first stage is focused on the development of digital literacy in schools, the second stage aims to improve the information literacy of the general public. Stage 1 has been further divided into three programmes: Digital literacy, Education software and Information sources, and Infrastructure. The principal objective of Stage 1 of SIPE implementation is to:

- Establish conditions facilitating an efficient and effective incorporation of ICT into teaching at schools and, consequently, achieve digital literacy of leavers from these schools by the end of 2005;
- To ensure that 75% of teachers use ICT as a common tool of work by the end of 2005;
- To create conditions for an effective involvement of schools in life-long learning of the population in the area of ICT by the end of 2005.

Stage 2 of SIPE implementation⁶ aims to:

- Establish conditions for enhancing digital literacy of the population;
- Establish conditions for enhancing digital literacy of civil servants and librarians;

¹ An Outline of State Information Policy in Education. MEYS. 31.3. 2000. 74 pp.

² The OECD and Eurostat monitor the development of an information society, the necessary knowledge and skills, the digital divide and other aspects. Systems for long-term monitoring in the CR are also being set up. For example, the CSO carries out statistical surveys concerning the use of ICT and e-business (ICT – 5-01), which are fully compatible, in terms of methodology and content, with similar surveys in EU member states (Community Enterprise Survey on ICT Usage 2002).

³ Resolution of the government of the CR no 525 of 31 May 1999 on the Proposal for State Information Policy.

⁴ Resolution of the government of the CR no 351 of 10 April 2000 on the Outline of State Information Policy in Education

⁵ Action Plan for SIP Implementation was approved by the government on 31 May 2000 by Resolution no. 527 on the Action Plan for the Implementation of State Information Policy until 2002.

⁶ Resolution of the government of the CR no 904 of 12 September 2001 on the Plan for Stage 2 of Implementation of State Information Policy in Education.

- Co-ordinate activities of ministries to ensure as efficient a process of improving digital literacy as possible;
- Provide infrastructure for life-long learning;
- Develop a framework facilitating integration of ICT into the system of life-long learning.

In addition to the policies mentioned above, which are concerned primarily with ICT, this issue is also addressed in other strategic documents focused on human resources development. One example is the **National Programme for the Development of Education in the Czech Republic**, the so-called White Paper⁷ and the Strategy for Human Resources Development in the CR⁸. The White Paper describes one of the six strategic areas proposed as follows: Achieving a higher quality and effectiveness of education by means of developing new training and study programmes which will meet the needs of an information and knowledge society, sustainable development, employment and active participation in the life of a democratic society integrated in Europe, and also respect individual differences and living conditions of participants in education.”⁹ The relevant specific measure includes support for digital literacy of pupils, students and teachers and modernisation of methods and forms of teaching¹⁰. **The Strategy for Human Resources Development in the CR** stresses development towards an information society as the most important of all global and national challenges based on which the Strategy was developed. It is stated in the introduction that: “By means of information and communication technologies permeating all strata of society a global information society is being formed, the wealth of which lies in human capital”¹¹. Understandably, support for digital literacy across society is one of the key components of the Strategy.

The formulation of policies concerned with ICT is also affected by major EU documents in this area. The **eEurope Initiative** officially adopted at the EU summit in Lisbon in 2000 is of key importance in this respect. In June of 2000 implementation of the **eEurope Action Plan** was launched in Feira, Portugal.

At the European Ministerial Conference held in Warsaw in May 2000 Central and Eastern European countries decided to join this initiative by means of an **eEurope+ Action Plan**. In April 2001 the Czech government made a decision on joining this action plan¹² and in June 2001 acknowledged the **National eEurope+ Action Plan** and agreed that, based on this plan and the conclusions of the EU summit in Gothenburg¹³ the Action Plan for the implementation of state information policy will be updated by the end of September 2001. During the EU summit in Gothenburg, Sweden, in June 2001 the eEurope Action Plan 2003¹⁴ was adopted by heads of governments of EU candidate countries.

The eEurope+ Action Plan contains three major objectives identical with those of eEurope. In view of the different conditions in the candidate countries the eEurope+ objectives were expanded to include a so-called “zero” objective of making up for the deficit in the principal conditions for the development of an information society in the candidate countries. Moreover, eEurope+ also has an additional area included within the third objective – “On-line Environment”¹⁵.

The objectives of the eEurope+ Action Plan 2003:

0. Accelerate the putting in place of the basic building blocks for the information society
 - Accelerate the provision of affordable communication services for all
 - Transpose and implement the *acquis* relevant to the information society
1. A cheaper, faster, secure Internet
 - Cheaper and faster Internet access
 - Faster Internet for researchers and students
 - Secure networks and smart cards
2. Investing in people and skills
 - European youth into the digital age
 - Working in the knowledge-based economy
 - Participation for all in the knowledge-based economy

⁷ National Programme for the Development of Education in the Czech Republic. White Paper. MEYS, IIE: Praha, 2001. ISBN 80-211-0372-8. 98 s.)

⁸ Strategy for HRD in CR. Government Office, MLSA, Praha, 2003. ISBN 80-86734-02-1. 64 + 72p. This document was approved by the government in its resolution 210 of 3 March 2003 on the Strategy for Human Resources Development in the Czech Republic.

⁹ National Programme for the Development of Education in the Czech Republic, p 90.

¹⁰ National Programme for the Development of Education in the Czech Republic, p 91.

¹¹ Strategy for Human Resources Development in the CR, p 12.

¹² Resolution of the government of the CR no. 405 of 25 April 2001 on the proposal for the CR' joining the eEurope+ Action Plan of Central and Eastern European countries.

¹³ Resolution of the government of the CR no. 594 of 13 June 2001 on the National eEurope+ Action Plan (Czech Republic).

¹⁴ Action Plan eEurope+ 2003. The Ministry of Informatics of the CR. Available at <http://www.micr.cz/?idm=14&lng=cz&idoc=32>

¹⁵ eEurope+ 2003: A common programme for implementation of an information society in Europe. The plan was prepared by candidate countries with a contribution from the European Commission. June 2001, pp 3-6

3. Stimulate the use of the Internet

- Accelerating e-commerce
- Government on-line: electronic access to public services
- Health on-line
- European digital content for global networks
- Intelligent transport systems
- Environment on-line

The year 2003 is of key importance for the Action Plan, as in this year its impact is evaluated and new recommendations and measures are proposed based on the outcomes. In order to facilitate comparison between eEurope in EU states and eEurope+ in the candidate countries, the same indicators are used (Statistical Annex, table C.1). The first Progress Report was submitted in June 2002, and an interim report at the end of 2002 and a Final Progress Report should be presented at the end of 2003.

As a follow-up to eEurope the European Commission adopted in May 2000 the **eLearning Initiative** which set forth four priority areas:

- deployment of a high-quality infrastructure (to equip all classrooms with a fast Internet connection, to achieve a ratio of 5-15 pupils per multimedia computer);
- training at all levels (to ensure digital literacy of all school leavers, to encourage teachers to make real use of digital technology in their lessons, to offer every worker the opportunity to become digitally literate);
- development of content, services and learning environments;
- strengthen cooperation and dialogue between all the players in the field.

European Commission has already prepared the proposal for eLearning Programme for a period 2004-2006¹⁶. This programme aims to address each of the following areas:

- Fighting the digital divide¹⁷: action will address the contribution of ICT for learning, in particular for those who -due to their geographical location, social situation or special needs- are not able to benefit from traditional educational and training provisions
- European virtual campuses: action will address a better integration of the virtual dimension in Higher Education (virtual campuses, virtual mobility)

- e-twinning European schools: action will strengthen and develop schools networking, which should make possible to build pedagogical partnership, fostering language learning and intercultural dialogue
- Transversal actions: the objectives are the dissemination, promotion and take-up of good practice and products

In the frame of these action lines it will be possible to ask for funds. In order to achieve its objectives, the programme disposes the total amount of 36 MEUR for the whole period.

1.2.2 Accessibility and use of information and communication technologies (ICT)

The availability of ICT facilities in schools, households and companies is a prerequisite for the development of digital literacy and other skills and knowledge necessary for finding appropriate employment and fostering competitiveness. This is an important pre-condition, not a solution to the problem of unequal access to ICT or a low level of digital literacy.

The telecommunications infrastructure and access to it

In the past the density of telephone lines was a reliable indicator of the level of access to telecommunication services. It was generally assumed that a telephone line is a pre-condition for Internet connection. A comparison between candidate countries within eEurope+ Action Plan has shown that there is no correlation between households with a fixed telephone line and Internet connection and, moreover, neither is the number of regular Internet users directly proportionate to the density of connected households. This may be explained by the fact that a fixed line in a household does not mean an opportunity for Internet connection, since the quality of the line, its price and availability of the Internet service providers which may not be very good in smaller localities are factors that also have to be taken into account. On the other hand, Internet users may take advantage not only of alternative connection methods (i.e. not only fixed lines), but also connection points other than households.

The telecommunications sector in Central Europe is undergoing a **transition from a monopoly-**

¹⁶ Proposal for a Decision of the European Parliament and of the Council adopting a multi-annual programme (2004-2006) for the effective integration of ICT in education and training systems in Europe (eLearning Programme), com (2002) 751 final, 2002/0303 (COD)

¹⁷ digital divide – the gap between those who have access to information and communication technologies and can use them effectively and those who cannot.

dominated to competitive environment and, in line with global trends, a shift from **voice to data services and from fixed to mobile connections**. The density of fixed telephone lines may therefore distort the overall measurement of one of the necessary conditions for the development of an information society. For example, in OECD countries¹⁸ the number of fixed lines has decreased in recent years along with a corresponding increase in the use of ISDN services and mobile telephony¹⁹. A similar trend has been occurring in the CR. It may be illustrated from the revenues of Český Telecom: in nine months of 2002 revenues from call charges dropped to one third of their previous levels, but overall profits only fell by one percent to 3.92 billion CZK. This was caused, besides other factors, by increased revenues from data services and decreased costs²⁰. The CR is copying global trends in the development of telecommunications infrastructure. In terms of comparison with other candidate countries it is slightly below the average as regards the number of fixed lines, and far above the average as regards the number of mobile phones per 100 inhabitants. When compared to the EU member states, the CR hovers at the average in terms of the number of fixed telephone lines and mobile telephones per 100 inhabitants.

Access to information and communication technologies

The density of host **computers connected to the Internet** is a good indicator of the development of the Internet infrastructure in the countries compared. In June 2001 there were on average 101 computers per 1000 inhabitants in the OECD countries. The EU average was 53 computers per 1000 inhabitants. The Czech Republic with approximately 22 computers connected to the Internet per 1000 inhabitants²¹ lags far behind both the EU (approx. twice as low) and particularly the OECD (less than 22%). The most developed OECD member country is the United States where there are 272 host computers per 1000 inhabitants.

While the number of host computers per 1000 inhabitants provides a rough picture of the size and development of the Internet network, its content and

to some extent also the effectiveness of its use is indicated by the **density of websites**. In 2000 there were on average 17.5 websites per 1000 inhabitants in the OECD countries, the EU average was 12.7 websites per 1000 inhabitants. This year the Czech Republic had approximately 7 websites per 1000 people²², i.e. 55% of the EU average and 40% of the OECD average. Again, the USA scored the highest – 46.5 www sites per 1000 inhabitants.

Other indicators of the development of the Internet and, most importantly, access to it and its use by residents in a particular region include the number of Internet users and figures indicating access of companies, households and individuals to the Internet. While for North American users the primary Internet access point is their **home**, approximately three quarters of Internet users in the CR access it from their **workplace**. Home ranks second – approximately two thirds of users (however, this item showed the highest increase in 2000 compared to 1999 – by 20% - and points to a positive development). Nearly one quarter of Internet users access it from **school**. School is the most important access point for those who attend school, for other individuals it is work or household. A large portion of Internet users **combine several access points** – apart from those mentioned above they use Internet cafes (18%) or access by means of a mobile phone (10.5%)²³.

Internet access and use by businesses

In OECD countries the number of companies with over 10 employees connected to the Internet has been rising rapidly (in 2001 it was on average 80% of companies – Scandinavian countries showing the highest percentage, e.g. Denmark – 93%). The Czech Republic did very well in comparison with the most developed European countries: in 2001 86% of companies with over 10 employees were connected to the Internet, with the highest increase occurring in 2000-2001 in the category of small enterprises (by 14 pp). This means that the CR is keeping pace with the developed countries in this respect. (Statistical Annex, table C.2)

¹⁸ OECD – the Organization for Economic Cooperation and Development. Originally, twenty countries signed a Convention on the OECD on 14 December 1960. At present the OECD has 30 member countries and closely co-operates with 70 others. The OECD member states include: Australia, Belgium, the Czech Republic, Denmark, Finland, France, Iceland, Ireland, Italy, Japan, Canada, Korea, Luxembourg, Hungary, Mexico, Germany, the Netherlands, Norway, New Zealand, Poland, Portugal, Austria, Greece, Slovakia, Spain, Sweden, Switzerland, Turkey, the USA and Great Britain.

¹⁹ Measuring the information economy 2002, p. 38.

²⁰ The HN yearbook 2003, p. 231.

²¹ Measuring the information economy 2002, p. 40-41.

²² Measuring the information economy 2002, p. 40-41.

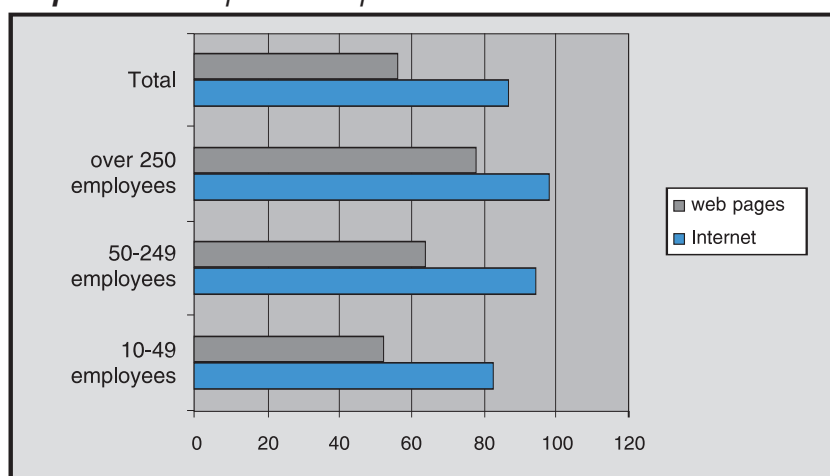
²³ VESELÝ, Vlastimil. 5th round of the Internet users survey in the CR (June – July 2000). Available at: http://www.park.cz/vypis.asp?kod_cl=12

The capacity of companies to use ICT in a sophisticated manner is measured by the number of companies operating their own websites. Traditionally, Scandinavian countries are at the top of the list with 65-80%²⁴ of such companies with over 10 employees. This proportion is rising steeply in the CR – an increase by 17 p.p. in 2000-2001. The largest increase occurred, again, in the category of small enterprises – although the growth was considerable in other categories as well. As the graph below shows, at the end of 2001 57% of companies with over 10 employees in the CR had their own websites. With

increasing company size, the proportion of companies connected to the Internet with their own websites increases too. (Statistical Annex, table C.3) It is evident that larger companies have a higher capacity to bear the costs related to these activities and that such costs are more than covered by the benefits. It may be assumed that, in future, the use of the Internet will become a prerequisite for sustained competitiveness for small enterprises as well.

The quality of ICT facilities in enterprises differs (see below), and the existence of websites does not

Graph 1.2-1 *The Proportion of companies with access to the Internet and own websites in the CR in 2001 by size (in %)*



Source: CSO

Note: The following NACE categories are included: manufacturing, trade, hotels and restaurants, transport and communications, business services.

automatically mean that the company makes full use of the opportunities offered by the Internet environment. In small companies, in particular, www sites often serve as a “leaflet” displayed only to provide contact details. In larger and large companies they are far more often used to communicate with customers, to perform trading, promotional and other functions (the quality of www sites and the size of a company is probably not directly proportionate, the quality depends both on resources available, which affect primarily the quality of ICT facilities as such, and on the type of company, its area of business and management priorities).

Large companies have **faster and better access to the Internet**, whereas the quality of the connection of smaller companies is not so high. In Italy, for example, 60% of large companies used broadband connection in 2001, but only 30% of medium-sized

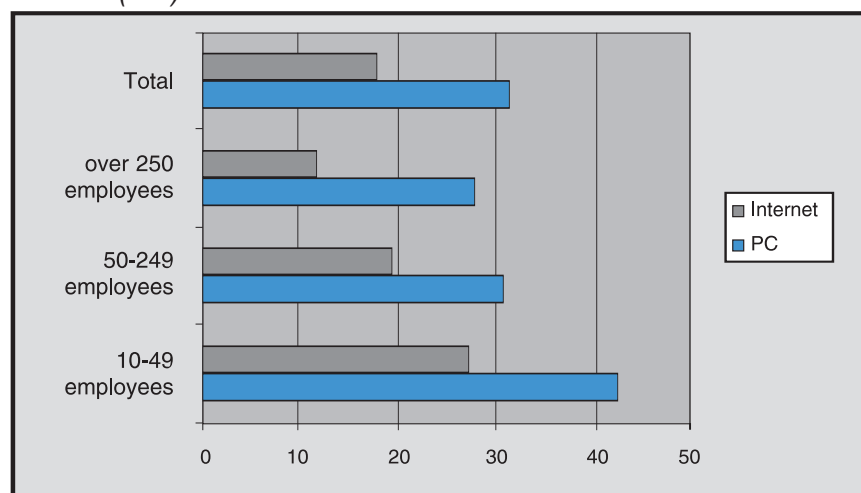
and 10% of small companies had this connection. Dial-up connection still dominates in the CR – in 2001 this applied to over 90% of all business connections. However, this figure is decreasing in favour of broadband connection in relation to the expansion of these services. It is estimated that up to one quarter of all business connections may be broadband by 2005²⁵.

The proportion of employment in companies with access to the Internet cannot be mistaken for the proportion of employees who have access to and use the Internet. **The access of each employee to the Internet** depends not only on the company’s business field, but also on his/her position in the company. In Denmark and Finland, for example, in 2001 80% and 84% of companies, respectively, with over 5 employees had access to the Internet, but only an average of 40% (44%) of their employees used a PC and the Internet. In the Czech

²⁴ Measuring the information economy 2002, p. 49-51.

²⁵ The HN Yearbook 2002, p. 34.

Graph I.2-2 *The proportion of employment in companies using PCs and Internet in total employment by company size in the CR in 2001 (in %)*



Source: CSO

Note: The following NACE categories are included: manufacturing, trade, hotels and restaurants, transport and communications, business services

Republic in 2001 86% of companies with over 10 employees had access to the Internet, but only about one third of employees of all companies with over 10 employees used a PC and only 17% of employees of these companies had access to the Internet. In this respect the best results are shown by companies in business services (50% and 37% respectively) and, within this sector, companies concerned with data processing and related activities (88% and 76% respectively). (Statistical Annex, table C.4, C.5) Apart from access to ICT the training of employees in this area is also important (an analysis – see below).

It appears that the CR is capable of achieving a level of ICT facilities in companies which is above the average of developed countries, whereas it still lags behind in terms of their effective use. However, the pace at which the number of websites increases points to similar trends as those in developed countries.

Access to the Internet from households

In general, households in North America and North Europe have the best access to the Internet (Denmark, the USA, Canada, Sweden, the Netherlands, Great Britain, Finland) – 40-60% of households were connected to the Internet in 2001. The countries of Continental and Southern Europe

scored below 30% in this period. In the CR the proportion of households with an Internet connection lags behind even these less developed European countries. Out of 4,156,200 households only 681,900 are connected to the Internet (only 16.4%)²⁶. However, the situation is improving quite rapidly, although unevenly in terms of regions. One of the decisive factors affecting the number of households with an Internet connection and its quality is household income in relation to the cost of connection and Internet operation (see The Internet Access Tariffs).

The situation in this area may also be illustrated from data concerning the facilities in households with 15-year-old students. In the CR in 2000 56% of 15-year-old students had access to a PC at home (73% in the OECD), 15% of them had access to the Internet from home (45% in the OECD). A growing proportion of educational software testifies to a certain departure of households from purchasing PCs for entertainment. In the CR 44% of students aged 15 had access to educational software at home (56% in the OECD). (Statistical Annex, table C.6)

Availability and the use of ICT in basic education

School may help alleviate background-related disparities in the access of students to PCs. In the CR in 2000 45% of students aged 15 did not have

²⁶ A pilot survey of a sample of 848 households carried out by the CSO in 2002.

access to a PC at home, while at school it was only 21%. The role of school in bridging the gap between the digital poor and the digital rich is growing, particularly in countries with a lower proportion of households equipped with a PC. In these countries students make better use of opportunities offered by school, although no country can boast a full use of this opportunity.

In the CR in 2000 26% of 15-year-old students never used a computer at school, although only 21% of the students did not have the opportunity. However, in terms of international comparison the CR is not doing badly. The largest divide between opportunity and actual use of computers occurs in Ireland, Canada, New Zealand and Mexico (10-13 percentage points). Conversely, the lowest gap (1-3 pp) was scored by the Russian Federation, Denmark, Hungary and Lithuania. (Statistical Annex, table C.7) It is evident that there is no straightforward link between the proportion of households with PCs and the extent to which the opportunities provided by school are made use of. The influence of this factor is affected by the attitude of students to computers, the use of computers in teaching, homework, etc. This aspect will be analysed later on.

An average 15-year-old student in the OECD countries attends a school where there is one PC per 13 students. In the CR the ratio is 1:15²⁷. The availability of ICT in schools differs depending on the school owner (there are more students per one computer in public schools than in private ones) and on the school location (students in urban areas have better access to ICT than students in rural areas). (Statistical Annex, table C.8)

The availability of computers in schools does not provide much information as to the use of ICT for the purpose of enhancing the quality of teaching and learning. It is important to know what activities students perform using computers, how effectively ICT is used in schools and how ICT is incorporated into teaching. As regards the use of ICT infrastructure in schools the Czech Republic is close to the average shown by the countries under review²⁸ in terms of the proportion of computers at schools connected to local area networks (LAN) – in both cases it is 46%. Approximately one half of computers in schools in the countries under review is connected to the

Internet and the WWW, while in the CR it is only 40%. In Luxembourg, Finland, Iceland, Canada and Australia the percentage of computers connected to the Internet reaches or even exceeds 80%. (Statistical Annex, table C.9)

As regards the activities students perform using computers, the PISA study carried out by the OECD examined how often 15-year-old students use computers in preparing for school. The Czech Republic scored very badly in terms of comparison, since in the countries under review an average of 35% students used a computer almost every day or at least several times a week for learning, while in the CR it was only 20%. As regards the number of students who do not use a computer at all for school preparation or learning, the CR scored even worse: it rated the lowest of all countries with 37% (the average was 19%). (Statistical Annex, table C.10)

The number of computers at schools and the standard of their ICT facilities including the connection to local and Internet networks serve as a measure of the success of local policies concerned with ICT training rather than as a guarantee of good and effective use of these resources in teaching. One of the ways of establishing whether schools realize the ICT opportunities in teaching is described in a survey undertaken by the OECD. In this survey school directors were asked about the extent to which a lack of computers and multimedia teaching aids is perceived as an obstacle to the education of 15-year-olds in their schools. Unfortunately, the results achieved by the Czech Republic have confirmed that Czech schools are not very aware of the capacity of ICT in terms of improving the quality of teaching. The perception of the lack of computers and multimedia aids in the CR was similar to other countries under review – however, the standard of ICT facilities in the CR is below those countries' average. (Statistical Annex, table C.11) This outcome could also be interpreted so that there is a dominating need for addressing the hardware infrastructure at Czech schools, and that the issue of the effectiveness of the use of ICT in teaching has, so far, been of subsidiary concern.

²⁷ Education at a Glance, p. 297.

²⁸ Countries outside the OECD were also included in the comparison. The list is in the table.

1.2.3 Socio-economic aspects of the use and development of ICT

Barriers in access to ICT

The information society development policy must be based on the identification of barriers to access and development of the use of the Internet in the business environment. The biggest obstacle for European companies is security, which is followed by the low quality of data connections and, thirdly, insufficient training and skills of employees. The costs related to the acquisition of the relevant facilities and telecom charges for their operation²⁹ are viewed as the least of their concerns by developed countries.

As distinct from this, the price for a fixed line connection (2 megabits) is very unfavourable. In 2002 this price in purchasing power parity was almost three times higher compared to the OECD average. The CR ranked the highest after Korea and Slovakia³⁰. A positive signal in this respect is the gradual liberalisation of the telecommunications market, the development of alternative and new services and, most importantly, the fact that, as in other countries, the major volume of investment in the CR is beginning to flow into services (37%) and software (18.1%), as opposed to the investment in hardware in earlier periods (43.9%)³¹.

It is generally assumed that there is a direct link between the access tariff, the frequency of Internet use and the number of users. The countries with lower access tariffs also show a higher frequency of Internet use and more Internet users.

The digital divide

The accessibility of ICT as a primary condition for the development of the relevant knowledge and skills necessary for the information society is not only hindered by the price. There are a number of apparent as well as unapparent inequalities in the education and employment processes, the implications of which tend to be denoted as the digital divide – in other words the opening gap between the digital poor and the digital rich.

The aim of overcoming the digital divide in EU countries

„As the knowledge-based economy advances, the exclusion from ICT becomes more and more a barrier to economic, employment and social opportunities and to using public services. Disadvantaged areas and groups are at higher risk of lagging behind for various reasons including low income and poverty, lack of ICT infrastructures, awareness and training opportunities, or difficulties of access because of disabilities. On the other hand, ICT can overcome barriers of distance, distribute more equally knowledge resources and generate new services for citizens with special needs, in a more targeted, flexible, and pro-actively enabling way than is possible by traditional forms of assistance. Thus, the risks of the digital divide need to be transformed to digital opportunities by actions focussed at disadvantaged groups and areas.“

Source: eEurope+ 2003: A common programme for the implementation of the information society in Europe. An Action Plan prepared by candidate countries with the assistance of the European Commission. June 2001, 22.

Tab.1.2-1 Global Internet population

	Population (in mil)		Proportion of population on-line (in %)	
	Total	On-line	In total population	In total population on-line
Total	6 071,9	605,6	10,0	100
Africa	807,4	6,3	0,8	1,0
Asia/Pacific/Middle East	3 702,1	187,2	5,1	30,9
Europe	731,7	190,9	26,1	31,5
Canada & USA	379,3	182,7	48,2	30,1
Latin America	451,4	33,4	7,4	5,5

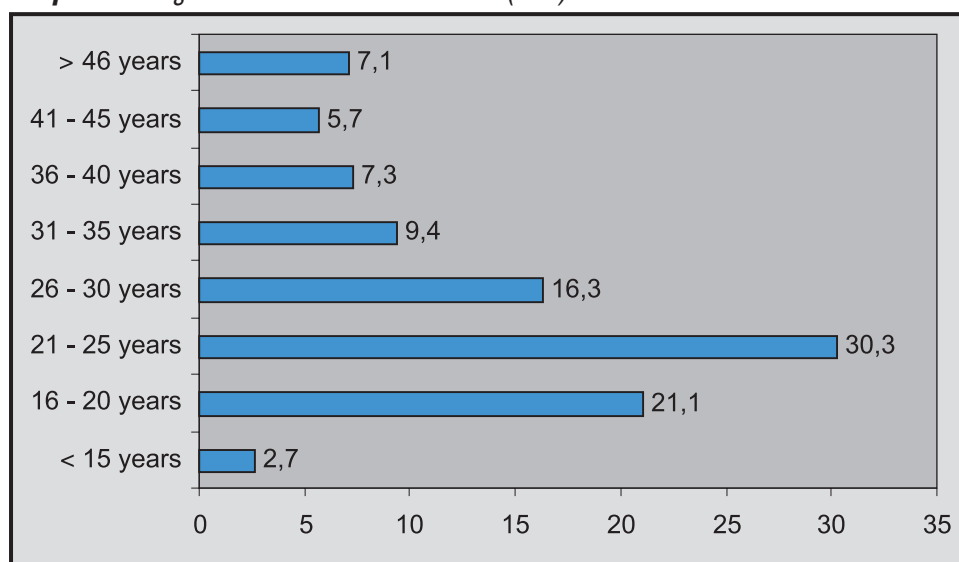
Source: Own calculations based Encyclopaedia Britannica (population) and the nua.com server (the data on the population on-line – September 2002)

²⁹ Measuring the information economy 2002, p. 52-55. Data for 2000 and 2001.

³⁰ Measuring the information economy 2002, p. 57.

³¹ The HN yearbook 2003, p. 235. Data for 2001, the trend continued in 2002.

Graph I.2-3 Age structure of Czech Internet users (in %)



Source: <http://www.vyzkuminternetu.cz>

This phenomenon is the subject of various detailed studies and regular monitoring exercises³². Overall, however, at present the information society appears to be an issue only for more educated and better off individuals. As the table illustrates, only one in ten inhabitants of the Earth is on-line, while there are considerable differences between continents.

The general trends in the differences in access to ICT are apparent in the CR as well. Thus the Internet is far more often used by men in the CR (78% of all users in 2000), young people (54% of the users were aged up to 25), people in economically stronger regions (one third of the users lived in Prague) and people in larger cities (56% of all users were from cities with over 100 thousand inhabitants, including Prague)³³.

Who is the typical Internet user in the CR?

„The typical Internet user can be described [...] as a man with a strongly rightist political orientation, who is just about to complete, or has just completed, a university degree and works mostly in larger cities in companies focussed on services relate to data processing. He uses the Internet both at work and at home, one or two hours a day – particularly www and e-mail. His main motivation is to search for information for his personal needs, work-related info

and to meet his communication needs. On the www he is interested in culture, entertainment, sports, news and specialist information about products. About one half of Internet users have experience with on-line shopping, others are determined to make use of this service or at least try it out. Respondents say that the main obstacle to Internet shopping is the possible abuse of information. On-line shopping is attractive mainly as regards the purchase of books and bookings of various tickets.”

(Source: http://www.park.cz/vypis.asp?kod_cl=12)

The gender gap in access to the Internet in the CR has been narrowing in line with global trends. Accessibility of ICT in schools may help overcome inequalities in access to ICT in households. The question remains, however, whether this will overcome, or, conversely, reinforce gender inequalities. The difference in ICT access by men and women may be affected by several factors. Primarily it is the traditional perception of ICT as a “technical” and therefore “male” concern. Other factors include various other gender stereotypes, general ways of socialisation of boys and girls and attitudes and preferences of parents and teachers.

The OECD surveys have shown, for example, that 15-year-old boys use computers far more often than girls (the standard deviation in the CR was 64:50

³² See, for example, selected OECD and Eurostat publications and surveys and a number of national and international policies.

³³ Source: <http://www.vyzkuminternetu.cz/vysledky.html>

for the use of computers at home, there was no standard deviation for the use of computers at school)³⁴. On average, 15-year-old boys showed more satisfaction and higher capabilities working with computers compared to girls of the same age. There was a standard deviation also in the Czech Republic, which ranked in the worst third of the countries under review as regards the difference between boys and girls (0.6 index points). (Statistical Annex, table C.12, C.13, C.14)

The principle of ICT accessibility in EU documents

Accessibility is a horizontal principle permeating all EU activities focused on the development of the information society. "Accessibility is about the integration of all users into the information society, i.e. older people, people with disabilities and also people placed in impairing environments. This will only come about as a result of designing products and services to be accessible by as broad a range of users as possible."³⁵ Improved ICT accessibility is the subject of an initiative entitled Design for All which pursues the development of products which may be used easily and without complex modifications by the relevant group of users, using standard and easily applicable interfaces etc. The eEurope+ 2003 Action Plan stipulates that the candidate countries must, by 2002, ensure the establishment and networking of national centres of excellence in Design-for-all.³⁶

Investment of enterprises in ICT

A more detailed analysis of investment of companies in ICT reveals their capacity to adapt to the needs of an information society and pursue human resources development. Overall, the investment has been increasing on a global scale. While in the early 1980s investment in ICT accounted for nearly 15% of total investment in the commercial sector in the OECD countries, in 2001 it was between 15 and 30%. The investment growth dynamics differs in various OECD countries – the largest increase occurs in the USA, Great Britain, Sweden, the Netherlands, Canada and Australia. Most European countries showed an increase substantially lower than the United

States³⁷. The investment structure is also changing: investment in **software** is increasing – at least in some countries such as the USA, Australia or Denmark – faster than investment in IT and communication equipment. Investment in ICT also accelerated thanks to a rapid fall in prices, particularly of hardware³⁸.

Investment in ICT goes hand in hand with **investment in training** of the relevant employees. Although in the CR the proportion of ICT training costs in total training costs is not very large it is clear that the costs are increasing – both in terms of this proportion and the total amount. 2001 saw a year-on-year increase in the costs of this type of training in companies with over 10 employees of more than one quarter. The figures differed depending on industry and company size. The largest proportion of ICT training costs was shown by companies in "business services". However, the company size is not directly proportionate to the proportion of ICT training costs. (Statistical Annex, table C.15). The percentage of employees who have undergone training is relatively low – approx. 11% of employees working with a PC. (Statistical Annex, table C.16) The results of the CVTS 2 survey among companies have revealed that ICT training courses rank third among the most frequently organised training courses for employees after languages courses and courses in technical fields and manufacturing. (for more details see Chapter II.3 and Statistical Annex, table E. 11)

The proportion of the ICT sector in the national economy

Although in the OECD countries the ICT sector has been growing rapidly over the last 10 years, it still accounts for a small proportion of the CR's economy. In 2000 the proportion of the ICT sector in value added in the OECD countries ranged between 4% and 17%³⁹ and the average of 25 OECD countries in this year was 9.7 %. For the sake of comparison, in the same year the average of the EU member countries was 8.5%. However, despite its small proportion the ICT sector has the potential to make an important contribution to economic growth and employment in particular. A dynamic development in this sector

³⁴ Education at a Glance, p. 307.

³⁵ http://europa.eu.int/information_society/topics/citizens/accessibility/dfa/index_en.htm

³⁶ eEurope+ 2003: A Common Programme for Implementation of an Information Society in Europe. The plan was prepared by candidate countries with a contribution from the European Commission. June 2001. p. 23.

³⁷ ICT and economic growth – evidence from OECD countries, industries and firms, p. 10.

³⁸ Measuring the information economy 2002, p. 10-11.

³⁹ ICT and economic growth – evidence from OECD countries, industries and firms, p. 11.

in the CR occurred in the mid-1990s – the difference between 1995 and 2000 was approximately five percentage points. In 2000 the size of the ICT sector in the CR was close to the EU average ⁴⁰.

The monitoring of this development is relatively recent – only in 1998 did the OECD member countries agree on a common definition of the ICT sector. Since the 1970s there has been discussion on this issue. The core of this debate was whether the existing sectors were considered to be ICT sectors as a whole or whether the ICT label was attributed only to occupations directly dealing with ICT. The OECD defines the ICT sector as a “combination of manufacturing and services industries that capture, transmit and display data and information electronically”⁴¹. The OECD definition classifies as part of the ICT sector only those sectors which primarily deal with the production and distribution of ICT products – the ISIC classification of activities is used. EUROSTAT uses the NACE classification rev. 1 in order to map and compare the situation in the EU countries. There are certain differences between these classifications, but they are negligible. (Statistical Annex, table C.17)

The proportion of ICT occupations in total employment

In 2000 the ICT sector accounted for 6-7% of total employment in the commercial sector in 20 OECD countries for which data are available. This figure is not very high, but the ICT sector was the most

important source of increase in employment in the OECD countries between 1995 and 2000. Employment in this sector rose by 3 million people, which is, on average, a 4% increase year-on-year – i.e. almost three times higher an increase compared to the commercial sector as a whole. Employment in the commercial sector showed an average year-on-year increase of 1.4%.

According to EUROSTAT a total of 4.5 million people worked in the ICT sector in the EU in 1999, of which two thirds worked in services. The ICT sector accounted for 2.8% of the EU’s total employment.⁴² In 2001 the ICT workers already made up 3.2% of the total employment in the EU⁴³.

According to the data of the 2002 Labour Force Survey in the CR the proportion of people working in the ICT sector in total employment was around 4%⁴⁴. Of the total number of people working with ICT 52.1% are highly skilled ICT specialists (63% in the EU in 2001 and as much as 80% in the USA)⁴⁵. The gender gap is considerable in the CR. Of total employment in the ICT sector women only account for 17%, while men account for 83%. The difference is smaller in workers with high skills (23% and 77%) compared to lower-skilled workers (11% and 89%). (Statistical Annex, table C.18)

Additional data on average income complement the picture of employment in the ICT sector. For example, the income of IT specialists in the USA increased on average by 6% in 2002, while the national income level only rose by 4%. It may be assumed that a similar trend occurs in the EU and

Table I.2- 2 *The proportion of ICT jobs in total employment in the CR in 2002*

Job	KZAM ISCO-88	Employment in the CR					
		Total		Men		Women	
		as %	In thousand	as %	In thousand	as %	In thousand
Total employment in the CR	0-9	100	4 796,0	100	2719,5	100	2076,4
Of which:							
Employment ICT occupations	213+312+313+724	4.0	194,0	5,9	160,5	1,6	33,5
Highly-skilled ICT specialists	213+312+313	2.1	101,0	2,9	78,0	1,1	23,0
Of which: computer specialists	213+312	1.9	92,0	2,6	71,8	1,0	20,2
ICT workers with low skills	724	1.9	93,0	3,0	82,5	0,5	10,5

Source: CSO, Labour Force Survey, average for 2002

Note: 213-Computing professionals; 312-Computer associate professionals; 313-Optical and electronic equipment operators; 724 Electrical and electronic equipment mechanics and fitters

⁴⁰ Measuring the information economy 2002, p.23

⁴¹ Measuring the information economy 2002, p. 19.

⁴² Statistics in Focus, p.1

⁴³ OECD Science, Technology and Industry Scoreboard, p.76

⁴⁴ The OECD and CSO data differ: the OECD states approx. 4.5% for 2000, the CSO states 4% for 2002, whilst the OECD data for 1995-2000 show that employment in the ICT sector grew faster in the CR compared to most OECD countries (by 7.3% compared to the OECD average of 6.3%)

also in the CR. Business World magazine has presented a comparison where income rose in most IT occupations over the last year⁴⁶. At the same time it must be noted that, along with ICT implementation, there is an on-going restructuring of companies which is often accompanied by redundancies. The ICT sector is specific in that companies prefer recruitment for specific projects rather than permanent employment contracts⁴⁷. This trend may, in certain cases, be accompanied by lowering the costs of ICT training of employees.

The shortage of skilled ICT Staff

Regular surveys in OECD countries reveal that one of the obstacles hindering the development of information and communication technologies in the business sector is the shortage of skilled and experienced staff⁴⁸. For example, the IDC study of 2002 shows that, although the economic growth in Western Europe slowed down in 2001 and lay-offs occurred in some ICT industries, the labour market was still short of 1.1 million skilled ICT workers. According to the IDC estimates this shortage is expected to increase to almost 1.7 million by 2005, which accounts for a 12% discrepancy between supply and demand in the labour market.⁴⁹ The information economy will be increasingly dependent on the quality of education and the capacity of schools to train the future labour force in ICT skills.

1.2.4 Opportunities for further development

Appropriately targeted national policies and their effective implementation have a positive impact on the development of ICT. The most positive developments in the CR include the gradual

liberalisation of the telecommunications market, the development of alternative operators and services, and the implementation of projects related to State Information Policy. It will therefore be appropriate to continue in the promotion of the development and improvement of accessibility of telecommunications services for households, companies and schools. Generally, in the countries where Internet tariffs are not measured in terms of the amount of data transmitted or time of connection, the users tend to spend more time on the web compared to countries where the charges depend on the length of connection or the amount of data transmitted.

Basic ICT facilities do not pose a problem for advanced countries, and attention is paid more to the ways in which ICT is incorporated into business operations, improvement of efficiency, human resources development and investment in services. Czech companies, schools and households still lag behind the most developed countries in terms of ICT facilities. In spite of this it is important to focus primarily on the area of education and training and its capacity to use ICT effectively to support and improve the quality of teaching and learning.

The availability of reliable data related to this rapidly developing sector and their comparison with the situation in developed countries is an important condition for a proper targeting of national ICT policies. Due to the lack of other sources the data collected often originate from one-off surveys or partial studies. On the basis of such data it is very difficult to identify trends and draw clear conclusions. It is therefore important to establish systematic and long-term monitoring using methods compatible with those employed in other countries.

⁴⁵ OECD Science, Technology and Industry Scoreboard, p.76

⁴⁶ JEDLIČKA, p. 8.

⁴⁷ MELYUKOVÁ, JEDLIČKA, p. 11.

⁴⁸ Measuring the information economy 2002, pp. 52-54.

⁴⁹ Despite weak economy, skilled ICT staff still needed in Europe. An IDC White Paper. IDC, 2002. p. 1

1.3 PREPAREDNESS OF YOUNG PEOPLE, SCHOOL-LEAVERS AND GRADUATES TO ENTER THE WORLD OF WORK

The issue of school-leavers seeking employment on the Czech labour market is becoming increasingly important in view of the accession of the Czech Republic to the European Union. The interconnection between the Czech labour market and the European one will bring about a considerable change in the environment in which school-leavers, graduates and young people in general will seek employment on the labour market. Obviously, such a change entails both a lot of opportunities and certain risks for young people. A comparison between the situation of young people seeking employment on the Czech labour market and the situation of their peers in the European Union can give a more specific idea about the context in which young people from the Czech republic will seek employment on the common European labour market and also what the future development could possibly look like.

This chapter focuses on a description of the process school-leavers have to go through when entering the labour market, on aspects of quality and quantity of this process and its distinctive features; it also deals with the context, in which this process takes place as well as the rate of success in finding employment on the labour market. The following features are described here: the structure of school-leavers and graduates entering the labour market, the level of skills and competences they have at their disposal, the situation on the labour market and the ability of the institutions present on this market to provide effective support and assistance to school-leavers and graduates seeking employment. Results of the transition of school-leavers and graduates to the labour market are subject to an analysis of their success and failure rate.

Even though it is rather difficult to anticipate the future development on the Czech labour market and the success that young Czechs will achieve on the European labour market, there are aspects that we already can describe as key ones for the success of Czech school-leavers on the domestic and European labour market. It is primarily the capacity of the education system to provide school-leavers with both professional and general competences and knowledge that in turn will guarantee them a long-term employability. This comprises training in foreign languages, building key competences, understanding issues of the labour market and finding one's individual position. Such aspects and features are also covered in the present chapter.

1.3.1 Distinctive features of school-leavers and graduates

Description of the population of school-leavers and graduates

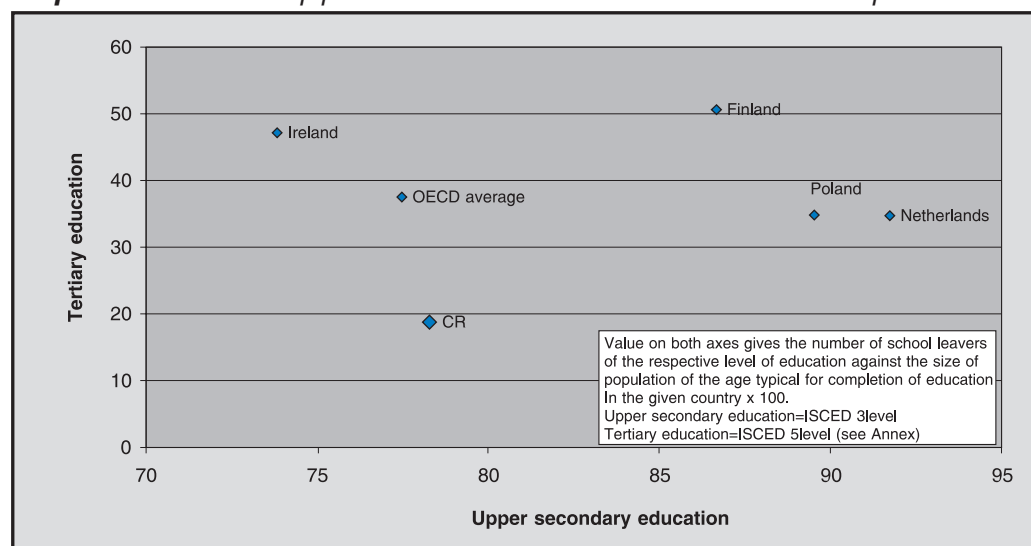
The population of school-leavers coming to the labour market has a specific status and rather distinctive features given the context of the labour market. When seeking employment, these people can rarely prove that they have had work experience (and if so, only to a limited extent). Their understanding of the labour market and its aspects is insufficient, too. This is the reason for a general perception of the group of school-leavers as one of those presenting a risk on the labour market. On the other hand, this is a very flexible part of the population. It is a group of people, who are now at the very beginning of their professional career. Being successful or not at this stage may have both positive and negative effect on their career.

The **education structure** is probably the most relevant distinctive feature of the population of school-leavers. (Statistical Annex, table D.1-D.10) Since primary education is provided basically to the entire population in developed countries and secondary education is provided to most of the population in these countries, interest and focus shift towards the tertiary level of education. Not only is this development relevant for employers' needs; it is increasingly important in the context of interconnecting the Czech labour market with the labour market in the EU. Once such an interconnection has been established, it may bring about stronger competition on the Czech labour market on the one hand and offer new employment opportunities for Czech labour on the

other hand. The pressure of possibly increased competition will vary by profession. Other factors will play a role, too, such as the language barrier for foreign labour entering the Czech labour market. In order to compete successfully on this altered and expanded labour market, it is necessary for school-leavers and graduates that their qualities match the new environment and its demands.

Traditionally, the Czech Republic has shown very good results in comparison with other countries as far as the share of young generation in the **system of upper secondary education** is concerned. Consequently the share of individuals with a completed upper secondary education in the economically active population is also favourable. In the case of upper secondary education, the structure of school-leavers can be considered adequate as far as the demands of the labour market and the challenges of future development are concerned. However, this mere

Graph I.3-I Relative size of population of school-leavers with various level of education - comparison of various countries



Source: OECD (2002a)

fact does not say anything about the preparedness of school-leavers and graduates to find adequate employment. This topic is covered in the following chapter.

Another relevant feature – the share of school-leavers leaving institutions **of tertiary education** – is less favourable. Such a comparison is partially influenced by the fact that a considerable increase in education opportunities on the tertiary level in the Czech Republic, which we have witnessed since the early 90's of the last century and which is still there, has nearly come to an end in countries that are subject to our comparison. As better opportunities of entering the tertiary education bring clear results as much as five or more years later, the data available do not exactly match the future development.

Despite a considerable increase in education opportunities on the tertiary level, it goes without saying that the range and scope of these opportunities still do not match the conditions in most countries that will be subject to comparison with the Czech Republic in the context of the accession to the European Union. If we express the relative size of the population entering tertiary education in 1995 as 100, then the value of this indicator increased by one half to 150 in 2000. Demographic development played just a marginal role in this increase (OECD, 2002). This conclusion is only relatively positive when we take into account an even greater increase in other countries of Central Europe that are also preparing for their entry into the EU, and the fact that many other developed countries have gone

through a similar development. Therefore the room for further expansion of tertiary education is considerably smaller in these countries.

The structure of fields of study and subjects, which school-leavers and graduates have studied, is another very important feature. The structure of fields of study in the case of graduates in tertiary education fully matches the situation in other developed countries with all the variability across these countries taken into account (OECD, 2002a).

Social science, economy and law are the frequented fields of study completed by graduates in the Czech Republic and they are also the most frequented ones as far as the average in OECD countries is concerned (a third of graduates in the Czech Republic and in OECD countries complete their study in these fields). They are followed by health care and social work (ca 20% of graduates in the Czech Republic and ca 15% on average in OECD countries) and engineering (13 % share in the Czech Republic and OECD). The share of graduates who have completed studies in health care and social work, teacher training, humanities and art is lower in comparison with the OECD average. On the other hand, the share of school-leavers and graduates who have completed courses in ICT is a little bit higher.

Greater differences in the structure of fields of study can be found when we take into consideration the level of tertiary education i.e. if we differentiate between ISCED programmes 5A level and 5B level¹. In the Czech Republic, the first

¹ Classification of education level – See Methodological Annex, table 3

category is represented e.g. by master programmes and bachelor programmes followed by master programmes. Bachelor programmes conceived as independent ones and programmes offered by higher professional schools represent the second category. In the Czech Republic, we find no graduates who completed short courses in teacher training, while there is an average of more than 10 % of graduates in OECD countries who completed a course in this field on the ISCED 5B level. Similarly, there is a considerably lower share of graduates who completed courses in engineering and economy on this level. On the other hand, the share of graduates who completed courses in health care, social care and social science, economy and law on this level, is well above the average. As far as longer programmes (ISCED 5 A) are concerned, the number of graduates, who completed programmes of this category in engineering, business and ICT, is higher than average; the number of graduates, who have completed courses in humanities and the arts is considerably lower.

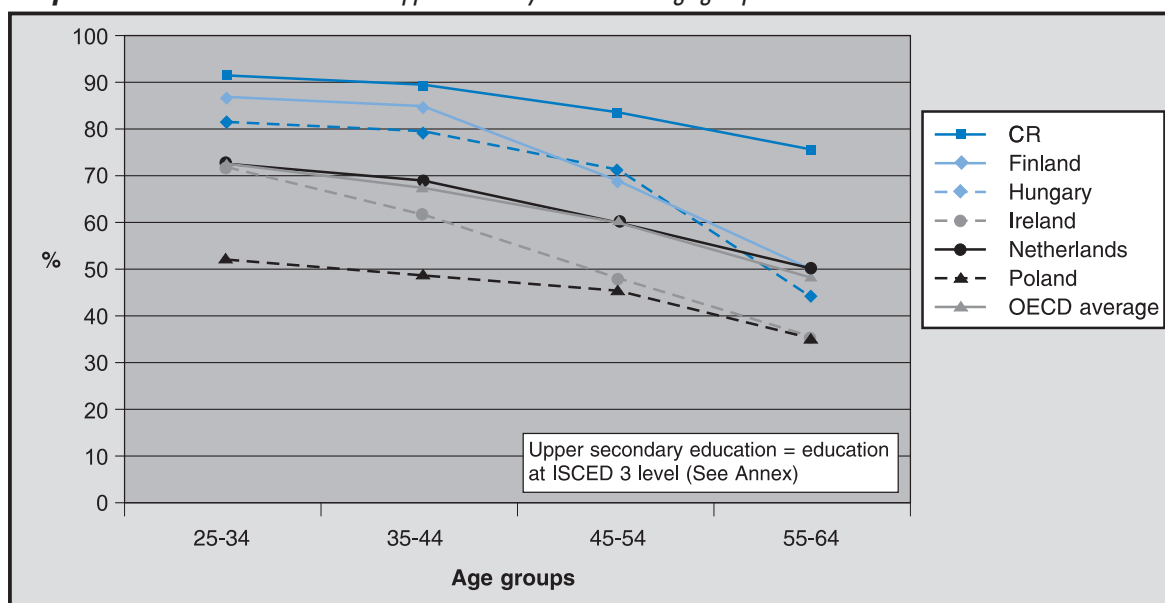
It is difficult to compare the structure of fields of study with the needs of the labour market and economic development. Apart from this structure we have to take into account a generally lower share of graduates from tertiary education in the entire population. We also have to bear in mind that in some cases there can be a lack of graduates available on the labour market in certain fields (engineering, teaching) despite their high share in the total number of graduates. This is

because these graduates prefer employment in other fields for financial or other reasons. Only the higher share of graduates who have completed studies in ICT programmes can clearly be regarded as a positive outcome, since this area together with some others offers good prospects worldwide.

One can expect that these structures will change in the Czech Republic due to administrative measures in the relatively near future. Education programmes providing qualification for employment in the health care system (such as programmes for nurses) are envisaged as being transferred from the secondary education level (ISCED 3A) to the tertiary education level (ISCED 5B). Similarly, changes in teacher training programmes may change as well. At present kindergarten teachers acquire their skills at secondary schools.

The position of the young population (and consequently of school-leavers and graduates as well) on the labour market is based on the context, in which these people seek employment. In fact, they compete with other groups from the economically active population. We must look at the education structure of young people in the context of the education structure of the entire population and its components present on the labour market. Such a view also makes it possible to follow how the numbers of school-leavers and their structure develop in time, as well as what long-term trends in this are like.

Graph I.3-2 *Share of individuals with upper secondary education in age groups*



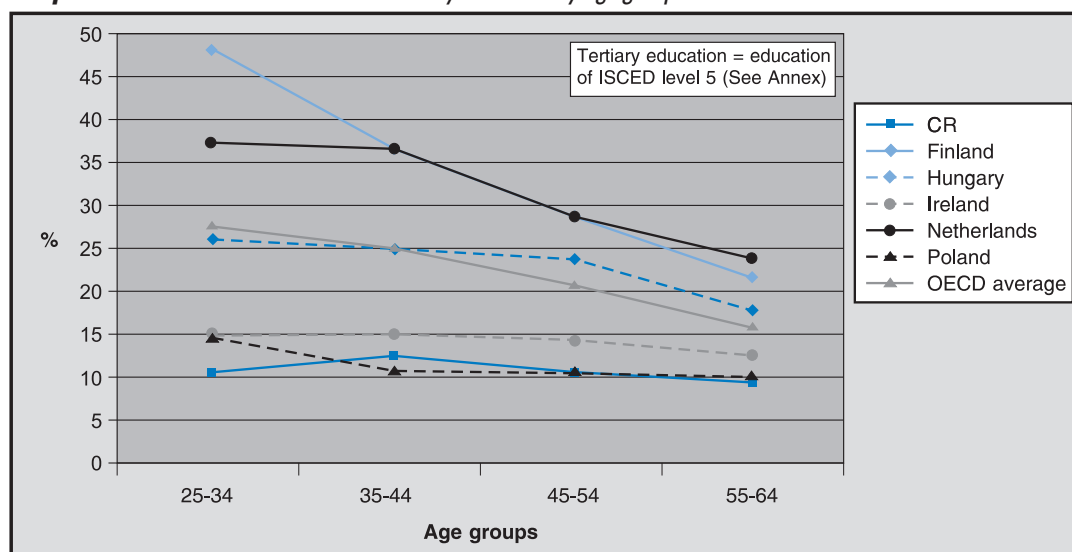
Source: OECD (2002a)

As the comparison between the education structure of school-leavers in the Czech Republic and other European countries has suggested, the situation in the Czech Republic is rather contradictory and will become difficult due to future development. The high proportion of individuals who have completed upper secondary education (i.e. ISCED 3 level with the exception of short courses of 3C level), something that at present is a favourable factor, will increasingly cease to be so due to development in other European countries. The Czech Republic and its labour force will inevitably lose their favourable position in this respect.

This fact becomes obvious when we look at the goal the EU has set itself (see the Lisbon summit). One of the goals is that 85% of 22-year-olds living in the EU in

2010 should have completed upper secondary education. The current situation in the Czech Republic is in compliance with this goal. However, other EU countries, where this share is much lower at present, will also reach this level at least. The above-mentioned facts suggest that the position of young Czechs is not favourable as far as the tertiary education is concerned. The Czech Republic ranks among the countries with the lowest share of individuals of all age groups with tertiary education completed. There is a very slow development in the educational attainment of two consecutive generations in the Czech Republic and this development is in a sharp contrast especially with the clear and distinctive development that we witness in some dynamic countries in Europe, such as Ireland.

Graph I.3-3 Share of individuals with tertiary education by age groups



Source: OECD (2002a)

Note: Lower share of individuals with tertiary education in the Czech Republic in the age group of 25-34 years compared with the age group of 35-44 years is i.a. caused by the postponement of the typical age of completion of the tertiary education.

The comparison with EU countries reveals a very poor position of the Czech Republic. This is combined with the development that does not reflect the present position of the Czech Republic as such among European countries, neither is it in compliance with the challenges and prospects of future development in the EU. Despite the fact that the indicators mentioned above could not show in their full scope the consequences of the ongoing development of education opportunities in tertiary education in the Czech Republic, this development will not even be sufficient to change the unfavourable situation. There is one circumstance that to a certain degree can temporarily improve this unfavourable situation, namely a relatively high variability in the development in individual European countries (there is a different dynamics of the development towards higher

education achievements of the population in individual European countries) plus a generally weaker position of the region that the Czech Republic is part of. The situation and development in Austria, Hungary, Poland and Slovakia is – as far as the share of population with a completed tertiary education is concerned – very similar. In addition to that, Germany, despite a higher proportion of the population with a completed tertiary education, is experiencing a development similar to that in other countries of the region. However, it is obvious that these circumstances can just mitigate the unfavourable situation of the Czech population and they do not improve the prospects of development in the Czech Republic. Neither can these circumstances serve as the stepping-stone for any long-term strategies that would prove successful.

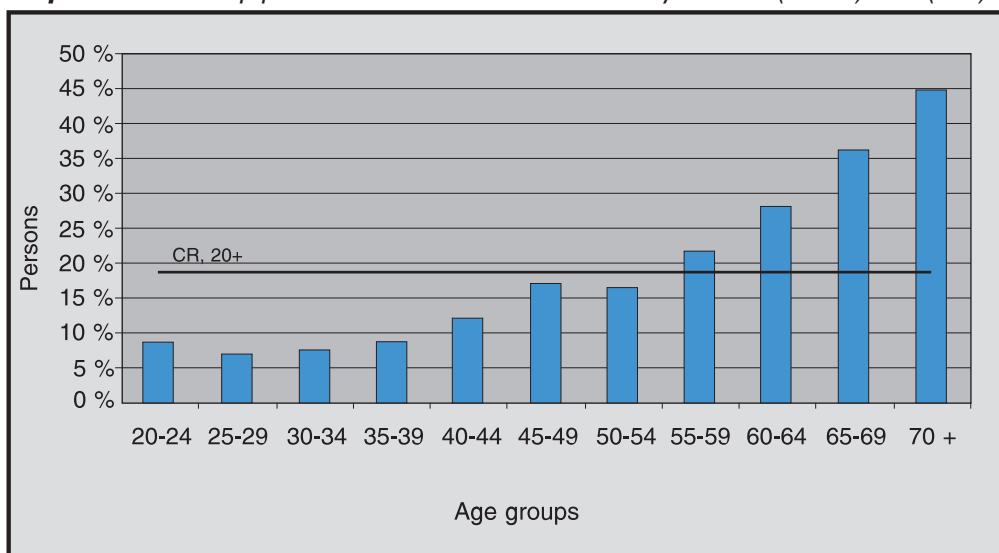
The combination of both negative factors mentioned above will definitely be detrimental to the position of young Czechs on the European labour market.

Early school leaving

The term early school leaving defines the situation when a young individual leaves his or her initial education and enters the world of labour without a professional qualification gained during their education that would help them find and maintain their position on the labour market. In the Czech environment, this is typically the case with an individual who enters the labour market after completing basic education (ISCED 1,2) the primary school or after dropping out from a upper secondary school (usually a secondary vocational school).

The issue of the early school leaving is becoming increasingly important in the Czech Republic too. The consequences of the early school leaving for an individual and his/her future career are the primary reason why it is necessary to pay a great attention to this phenomenon, as these consequences are of a fundamental and negative nature. Furthermore, no one can expect the situation of such an individual affected by these consequences to fundamentally change on its own or through the activity of an individual – there is a permanent risk factor involved, and an individual will always encounter with consequences related to this factor, unless outside intervention takes place. The tendency of this phenomenon to become even more abundant in the Czech Republic is another reason for paying attention to it.

Graph I.3-4 Share of population with not more than lower secondary education (ISCED 2) in CR (2001)



Source: CSO (2001)

The second factor mentioned above is an especially harmful and risky one. It is obvious that the development in the Czech Republic has taken a different course in comparison with trends in other countries, where clear support for these trends is a part of the education policy. The amendment to the Act on Schools from 1990 that reduced the length of compulsory education from 10 to 9 years turned out to be an unwanted trigger. Given the length of basic education (8 years) and the length of compulsory education stipulated by law (10 years) before it was changed by the above amendment, even young people, who normally would not continue their educational path, were basically forced to start at least a two-year course at a upper secondary level. Once at school, they could become further motivated to acquire professional skills at a certain level, which they did acquire if they showed some effort.

The fact that these people did not drop out from the education system was a key element of their development. Generally, it is easier to keep young people with poor motivation at school and „make“ them acquire some skills at least, rather than letting them drop out from the system and try to motivate them to return to school later. The amendment to the act made this „critical“ dropout from the system far easier and more natural, which apparently laid the foundation for this very negative trend. At the same time, we can find inspiration here for remedial action, such as a renewed extension of the period of compulsory education, which will not make it easy for young people with poor motivation to leave school prematurely. On the contrary, such an action would pave the way for acquiring certain

skills, which would lay the basis for seeking adequate employment on the labour market.

Competences of school-leavers and graduates

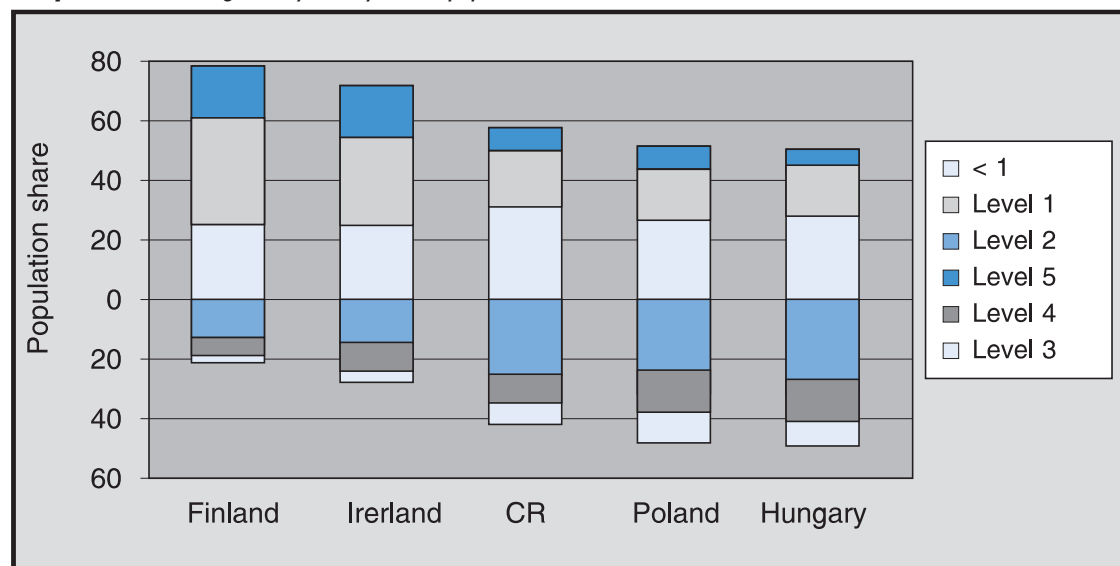
Skills and competences, apart from the education level and field of study, play a key role in finding employment on the labour market. Already in the past we saw a tendency towards the increasing importance of „more general“ competences (transferable, key competences, soft skills) at the cost of competences and knowledge closely linked to the content of the job performed. This tendency is still present and finds is reflected in changes in the content of education and the education system. There is evidence for the assumption that a higher level of literacy of an individual shows itself in a lower risk of unemployment as such and long-term unemployment as well, in a better chance of getting a job in a position requiring a high qualification, and in a higher income (OECD and Statistics Canada, 2000). These conclusions show that it is necessary to include into the set of qualities showing the preparedness of school-leavers to enter the labour market not only specific skills and competences more or less linked to the profession in question, but also competences of a very general nature.

PISA (*Programme for International Student Assessment*) is an extensive international project that focuses on the monitoring of this profile of young people. The Czech Republic is a participant in this programme². Researchers focus on 15-year-old pupils, i.e. that part of the population the majority of which will spend a few more years at school before entering the labour market. Results do not give a direct account of school-leavers or graduates, though. However, conclusions one can draw from these results will very much resemble conclusions one could arrive at when studying competences of school-leavers. Three dimensions of the functional literacy of pupils were looked at in this research – reading, mathematical and scientific literacy. (Definition of literacy see box in the Chapter I.1.3)

Results achieved by pupils at Czech schools are mediocre rather than brilliant. The success rate achieved by Czech pupils in mathematical literacy is not different from the average achieved in OECD countries. As far as scientific literacy is concerned, Czech pupils have achieved results that are higher than the average. This is the only one of the literacy dimensions measured, where the situation in the Czech Republic is better than the average in OECD countries.

As far as **reading literacy** - the most scrutinized one in this research cycle - is concerned, results reveal that pupils in the Czech Republic manage

Graph I.3-5 Reading literacy of 15-year-old pupils



Source: Straková et al. (2002)

Note: The scores of pupils ascertained in the literacy test were classified into levels 1-5. Level 1 includes pupils who are capable of handling the simplest assignments only; level 5 represents pupils who are capable of dealing even with the most difficult assignments. Individual column segments display the population share of pupils on individual levels starting with the lowest level. In addition to that, the category of pupils who had not even reached level 1 (the lowest column segment) is also included.

² From here onwards we refer to the report by Straková et al. (2002).

Table I.3-1 Literacy assessment by PISA – results

Reading literacy		Mathematical literacy		Scientific literacy	
FIN	546	FIN	536	FIN	538
IRL	527	B	520	IRL	513
B	507	IRL	503	CZ	511
OECD	500	OECD	500	OECD	500
CZ	492	CZ	498	B	496
HU	480	HU	488	HU	496
PL	479	PL	470	PL	483

Source: Knowledge and Skills for Life. First results from PISA 2000. Paris, OECD, 2001.

poorer achievements than the average in OECD countries is. In comparison with other countries, the differences between the best pupils and underachievers in the Czech Republic are smaller. One of the relevant conclusions of the study is that...“the worst situation has been established in the area of gaining information [from a text], where 9% of Czech 15-year-old pupils did not show the most fundamental competences ascertained in the PISA research and 14% of pupils were able to show just the simplest competences...” As the quoted report says, it is an essential competence that every adult individual must master. It is obvious that the level of these competences in pupils is totally insufficient, not only with respect to his/her chance of finding employment on the labour market.

The statement of rather poor results achieved by Czech pupils in literacy tests is not the last negative aspect of the Czech education system. There is another serious problem for the Czech Republic - namely the fact that there are rather big differences between results achieved by pupils at different schools (table I.3-2), which e.g. in reading literacy correspond with two levels of competence. These differences grow moderately in the course of study. Their scope comes to the fore especially in comparison with a much poorer improvement in results of students at upper secondary schools during their study. This means in practical terms that students of vocational schools, especially those studying courses without “maturita”, leave school and possess competences of low level only, which

Table I.3-2 PISA research - results of literacy assessment by various types of school, Czech Republic

	Pupils born in 1984			Students of 1 st and 3 rd academic year, sec. school					
	Reading literacy	Mathem. literacy	Scientific literacy	Reading literacy		Mathem. literacy		Scientific literacy	
				1. ac. year	3. ac. year	1. ac. year	3. ac. year	1. ac. year	3. ac. year
Basic school	473,8	481,2	496,1	-	-	-	-	-	-
Multi-year „gymnázium“	592,4	596,5	609,2	605,5	627,2	606,2	639,1	623,2	639,1
Four-year „gymnázium“	582,2	579,7	591,0	582,2	611,7	579,7	612,5	591,0	631,2
Vocational programmes with „maturita“	525,2	523,5	536,8	525,2	557,0	523,5	552,3	536,8	561,2
Vocational programmes without „maturita“	435,6	435,9	453,3	435,6	463,2	435,9	466,0	453,3	474,7
Total	491,8	497,8	511,7	513,2	540,7	512,0	540,4	526,8	549,5

Source: Straková, J. et al., Knowledge and competences for life. Reading, mathematical and scientific literacy of 15-year-old pupils in OECD countries. Prague, IIE 2002, pgs. 41, 44.

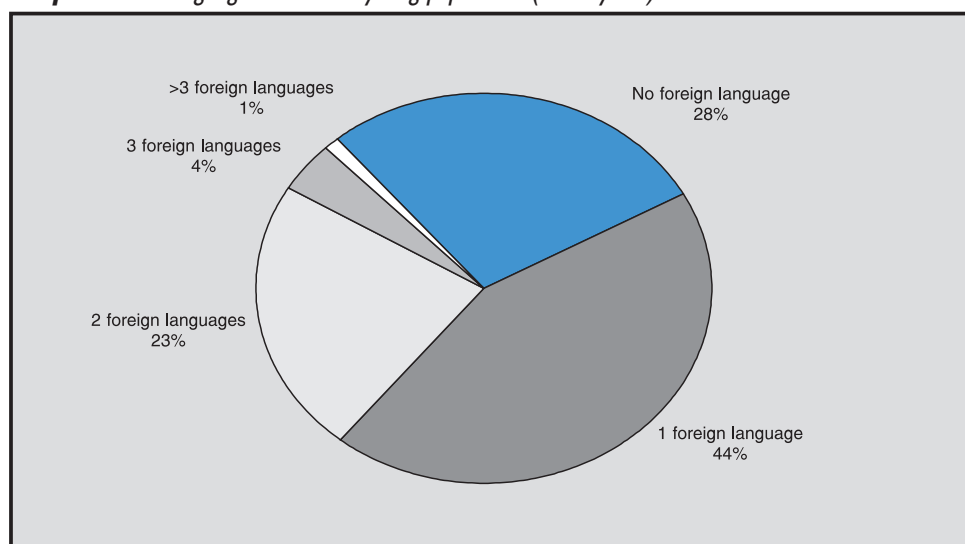
do not allow them to deal effectively with many tasks they normally come across in their lives.

Language skills are very important for an individual who wants to be successful in finding employment on the labour market in the EU. This certainly applies to school-leavers, too. Language skills are one of the fundamental preconditions of success of an individual seeking employment on the labour market in a country where a language

other than the mother tongue is spoken. Regardless of this fact the knowledge of at least one foreign language becomes a very frequent precondition for obtaining employment in many companies present in the Czech Republic. Employers usually require the applicant to master English or German.

The basic strategic documents making up the further development of the education system (MEYS, 2001, MEYS, 2002) aim at promoting

Graph I.3-6 Language skills in the young population (20-29 years)



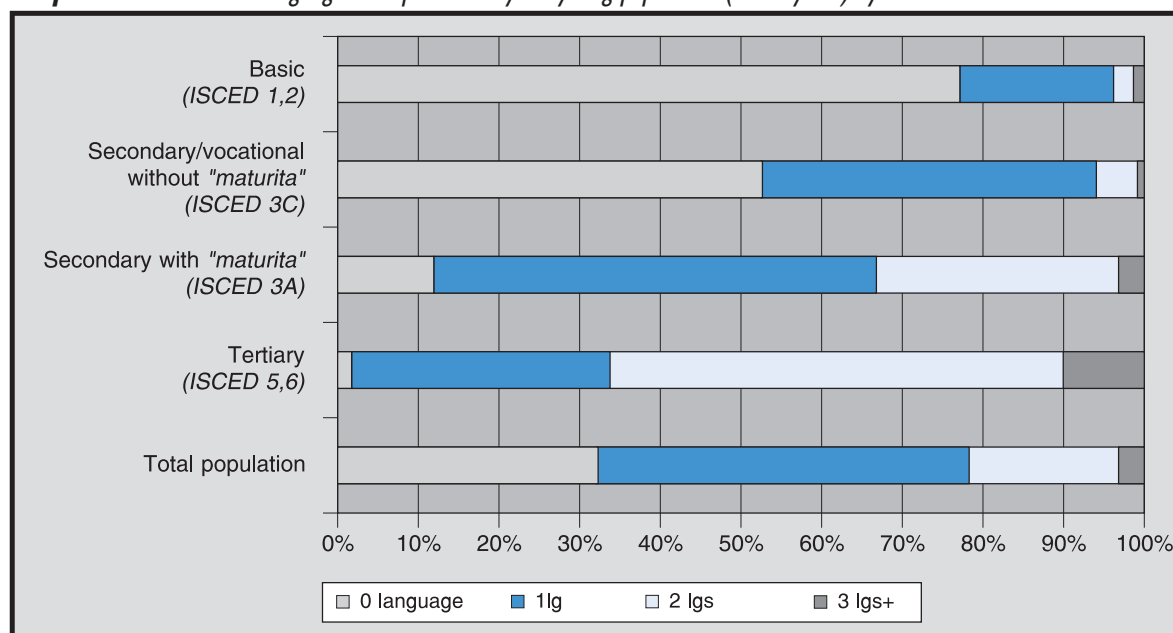
Source: MEYS, NITVE (2003)

language teaching at Czech schools. The goal is that students leaving secondary programmes with “maturita” (ISCED 3A) master at least two foreign languages or one foreign language in the case of students leaving secondary programs without “maturita” (ISCED 3C). The language instruction itself should start earlier (from the third year at primary school). However, the area of language instruction will probably remain a difficult one in the Czech education system over a certain period of time, irrespective of the plans outlined above. The

reason is that the system lacks a sufficient number of qualified teachers. Teaching non-dominant EU languages (i.e. languages other than English, French and German) can be yet another problem, which will have to be dealt with. Both these factors will reduce the competitiveness and employability of Czech school-leavers on the labour market in the EU over a certain period of time.

The current situation of young people does not match at all the situation envisaged by the above-mentioned strategic documents. Nearly a third of

Graph I.3-7 Current EU language skills possessed by the young population (20-29 years) by the education level



Source: MEYS, NITVE (2003)

the young population does not master even one foreign language and more than two fifths of the population master just one foreign language. It is German that more than a half of young people mastering a foreign language can speak, it is English that a third masters and it is Russian that less a tenth of the population with foreign language skills can speak; other languages, including French, are mastered to a negligible degree. The prominent share of German can be traced to its abundance among students of vocational schools.

As one could expect, poorer language skills go hand in hand with the poorer level of education of school-leavers. The fact that as much as a half of young people leaving vocational schools master no foreign language spoken in current member states of the EU suggests the scope of the problem represented by the insufficient level of language instruction in place. The fact that ten percent of young people who have completed a upper secondary education with "maturita" do not master even one language spoken in the EU is another disturbing problem, though of a lesser importance.

The deficiency of language skills concerns more than two thirds of the young population in the Czech Republic. It is obvious that these people stand a considerably lower chance of finding and maintaining employment on the European labour market due to the language barrier. Another problem is that the most frequented EU languages (yet not even all of them) dominate the structure of languages spoken by young Czechs. In addition to that, only a very small proportion of young Czechs masters less commonly spoken European languages.

Aspects of the current system of education, like the international nature of the education, the possibility of studying abroad (for students and teachers as well) have a very positive effect on the level of language instruction. The mobility projects, as a part of the Leonardo da Vinci Programme, which offered more than 4.5 thousand young people from the Czech Republic a study stay abroad, can be given as an example of an effective programme.

Despite positive effects that this element brings to the Czech education system, it is obvious that such possibilities and activities are of a limited benefit only (possibly with the exception of language teachers). The reason for that is that there is a limited size of these programmes, as well as the fact that probably only students with good results stand a chance of participating in these programmes.

Preparedness of school-leavers and graduates to enter the labour market

School-leavers nowadays have to have at their disposal - apart from professional skills - a number of general skills and competences. These will not only provide for a higher flexibility in their specific employment and on the labour market in general, but will also help them find employment and maintain it in the long term. It is also necessary for school-leavers and graduates that they have a number of other qualities, not necessarily related to the actual job. School-leavers and graduates have to be able to find their feet on the labour market and choose the right and active approach when seeking employment. They have to be able to present themselves to their potential employers, to set themselves realistic goals related to their employment; they have to become familiar with the requirements of their employers in order to be realistic about the employment as such (and for example their possible income as well). Last but not least, they have to know about all the tools and institutions that can help them solve difficult situations they will come across when entering the world of labour and establishing a stable position in the new environment.

The competences mentioned at the end of the previous paragraph - i.e. competences related to **orientation on the labour market** - may prove especially difficult in connection with the accession of the Czech Republic to the EU. This issue has been neglected in the Czech education system. A methodology has been elaborated of teaching the subject "*career choice*" and the area of the world of labour as such at lower and upper secondary education. However, it is not a compulsory subject and the decision whether to make it a part of the curriculum fully rests with individual headmasters. (See also Chapter 1.3.5 on counselling)

Practical training are another source of information about the world of labour for students. Students of secondary vocational schools and secondary technical schools can gain practical experience with the real working environment through this practical training. *Gymnázium* students cannot gain such experience at the present time. Schools are obliged to secure practical training for students, but the reality is often very different.

As concerns secondary vocational schools, „65% of students never enter the real working environment. Paradoxically enough, these students who are supposed to get employment in a company on completion of their course, have never seen the

company's operations and typically have no idea, 'what it looks like over there', what the environment and facilities are like, what sort of people work there, what their behaviour is like, what their mutual relations are like etc." (Kofroňová, Vojtěch, 2000).

We can identify several reasons why there is such a high proportion of students of secondary vocational schools who never experience a placement during their study. In the case of some schools there may be a lack of motivation on the part of the headmaster to arrange practical training with employers in the given region. Similarly, employers show little willingness to cooperate with schools. The concept of vocational training in the Czech Republic definitely plays a role here as well – training in practical activities very often takes place using facilities and establishments that are a part of the given school. Inevitably, this leads to a trend where the training on site, i.e. at school, is preferred to the training in a real environment. As a consequence of this, some school-leavers are not prepared for the real working environment and the training in some fields is very costly. In some cases, the school management tries to equip their school with the best possible facilities and technology at the cost of the actual education process.

The situation of secondary technical schools is not better. 92% students experience a practical training, although a short one; 29 % students go for a practical training that lasts no longer than 3 weeks, which is insufficient. Also the attitude of schools towards these activities is not always positive. (Kofroňová, Vojtěch, 2001)

The question is to what extent school-leavers are trained in skills they can use even if on the Czech labour market. One could hardly expect current Czech students to be getting sufficient information in the course of their studies that would help them find employment on the European labour market with diverse conditions and customs.

Available sources of information do not allow a sufficient and comprehensive assessment of the preparedness of school-leavers for the entering the labour market. They can give an overview of the basic characteristics at least, though. Views of both parties – employers and school-leavers (or employees for that matter) must be taken into account in the assessment of the preparedness of school-leavers. One also has to look for a balance between these two views, since the goals and interests of both parties may differ.

... assessment from employers' point of view³

Employers are aware of both the merits and faults of school-leavers. However, employers' assessments of individual characteristics are equivocal and sometimes contradictory. A very limited work experience can be perceived negatively (school-leavers need a longer time for acclimatising), or positively (school-leaver has not developed negative working habits yet and will accommodate more easily). Employers typically see experience with ICT, language skills and an innovative approach as an advantage for school-leavers.

Similarly, employers do not share the same view as concerns preferences given to specialized skills and a broader professional profile of school-leavers. Industrial enterprises seem to prefer a specialization. On the other hand, many employers appreciate a broader (therefore a more flexible) professional profile of school-leavers. If we look at this in detail, we shall see that employers appreciate the ability to bear responsibility, the willingness to learn, the ability to work with written documents (operation instructions), team work, adaptability and flexibility. Generally, there are lower standards imposed on school-leavers of a lower education level and there are higher demands made on school-leavers of the tertiary level of education. A different perception of school-leavers from various levels of education on the part of employers is obvious in other areas as well.

An emphasis is put on competences connected with the respective type of labour in case of school-leavers who have completed **vocational course without "maturita" (ISCED 3C)**. Employers see it as absolutely necessary that school-leavers at this education level are able to understand written documents, bear responsibility, work in teams and are willing to learn. Adaptability and flexibility also count. On the other hand, language skills, organizational and leadership skills are considered less important. The importance of language skills will play a varying role depending on the line of business the employer in question is in. Tourist companies, for example, will emphasize this skill as the key one. Demands made on school-leavers vary with the size of the company. Small-size employers make higher demands and they also want to see other competences (e.g. ability of oral and written expression). This is connected with the need for higher

³ If not stated otherwise, this part of the text refers to Šťastná (2002).

flexibility in small-size enterprises. On the other hand, large employers will appreciate it if a new employee is able to understand the above mentioned operation instructions.

Employers make higher demands on those who have completed a course with “**maturita**” (ISCED 3A). These demands concern other competences, which are not required from school-leavers who completed a course without “**maturita**”. The ability to understand operation instructions, the willingness to bear responsibility, team working and willingness to learn are of fundamental importance. Apart from that, employers also require from these school-leavers that they can handle ICT, work with information and have a good level of oral and written expression. This is another piece of evidence that employees are expected to be able to work more independently. However, not even in the case of this education level do employers put the emphasis on language, organizational and leadership skills. Not that these competences are regarded as unimportant. A certain level of these competences is always expected, sometimes even seen as essential. Medium-size employers (in comparison with small-size and large ones) emphasize the need of having skills related to positions in which an employee acts more independently, bears higher responsibility and must have a higher qualification. It is mainly the willingness to learn, to work efficiently with information, to handle work with ICT, the willingness to bear responsibility, as well as organizational skills and leadership that matter.

Demands made on school-leavers who completed a course without “**maturita**” differ from demands made on those who completed a course with “**maturita**” as far as technical skills and competences are concerned. This difference reflects both the nature of the two levels of education and the approach of employers to these two types of school-leavers. What is important to realize is that „courses at secondary technical schools offer a wide range of technical subjects and school-leavers can therefore find employment that is not so closely linked to one subject taught in the course or another (employers look for „mechanical engineers“, „electrical engineers“, „construction engineers“ without any specialization). On the other hand, courses at secondary vocational schools provide education and training for one specific profession (or more). Employers very

often require a qualification more specific than the course definition (they seek a turner, auto electrician, silk-screen printer, while the courses offered a wider range of skills – toolmaker, printing machine operator etc)”⁴

In the case of **higher education graduates** employers expect and require (unlike in the case of school-leavers of lower education level) that they possess a wide range of competences on a high level. Language and ICT skills, ability to make decisions and handle problems, ability to work with information and bear responsibility, ability to work in a team and to learn is essential for graduates. As concerns this group, employers do not emphasize the need for leadership skills (these are required mainly by medium-size companies) or even the adaptability and flexibility (these are required by large companies). Small-size enterprises generally make the lowest demands on graduates.

The group of school-leavers from **higher professional schools** is relatively new on the labour market. Employers had to „grow accustomed“ to them over the last few years and make themselves familiar with the level of their competences and knowledge. As concerns the types of competences that employers require from these school-leavers, we can say that their structure includes competences demanded from school-leavers who completed a course with “**maturita**” at secondary school as well as competences demanded from higher education graduates. The same applies to the level of these particular competences required by employers.

The assessment made by labour offices⁵ is also very indicative despite the fact that these authorities deal with just a certain proportion of school-leavers and job opportunities. An active attitude towards seeking employment is considered one of the most important elements of success in establishing one’s position on the labour market. The ability of self-presentation is also essential. Insufficient self-presentation, poor communication skills and mismatch of ambitions of an individual and his/her competences and skills lead to failure. These qualities have nothing to do with an individual’s set of technical competences and professional profile.

We may conclude that school-leavers at the present time, as viewed by employers, lack competences of a more general character rather than specific

⁴ Vojtěch, Festová, 2002

⁵ Kadlec et al., 2000

competences and knowledge closely related to a profession. However, this does not mean that such competences and knowledge are not necessary and that employers do not require that school-leavers have them. There is rather an urge to broaden the profile of school-leavers. The present development of the education system in the Czech Republic is conducive to this trend.

... assessment from employees' point of view⁶

Despite the fact that only 10-25% of young people are fully satisfied with the quality of education at schools we may say that initial education and essential competences acquired during this education are assessed as positive. However, this assessment also reveals that there is a tendency in the Czech education system to put stronger emphasis on general and theoretical knowledge at the cost of practical skills. This is no reason to regard the assessment as fundamentally negative, though.

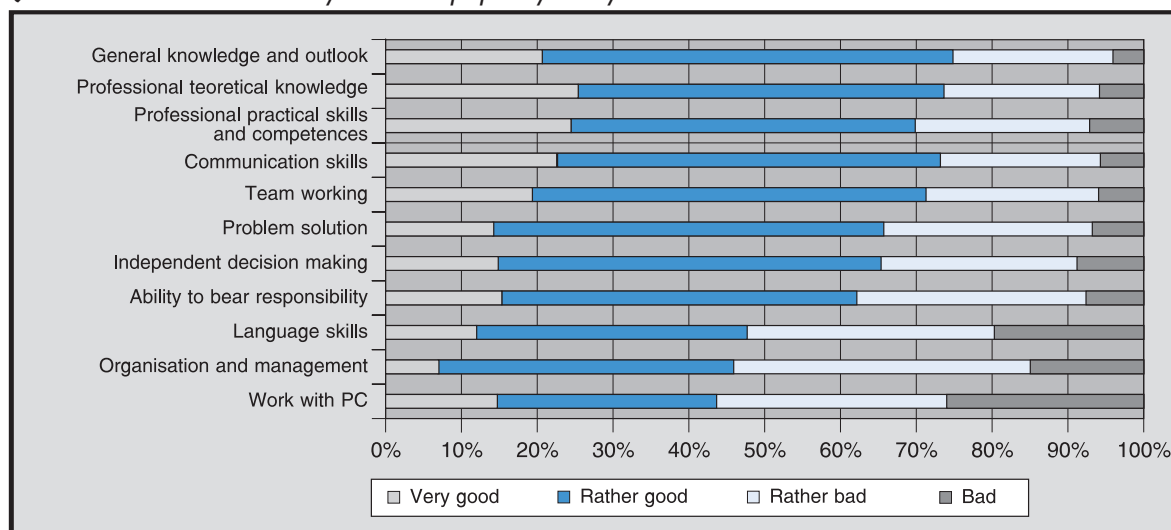
On the other hand, such areas as language instruction, promotion of organizational and leadership skills and work with ICT are considered very insufficient. As far as language instruction is concerned, the range of languages that young people master and the quality of language teaching is inadequate. It is apparently one of the critical areas of preparedness of school-leavers, graduates and young people in general in

terms of finding employment on the common labour market in Europe. The preparedness of young people to bear responsibility as a necessary part of their employment is assessed as relatively poor, too. Since it is the employees themselves who make this assessment (not employers who could have a more critical opinion in this respect), we must regard it as very important.

Young people with various level of completed education also assess the quality of the varying level of preparation acquired during their education differently. The overall assessment of the quality of education is increasingly positive. We find the smallest differences in the assessment of professional practical competences and knowledge. On the other hand, young people with various levels of completed education assess education providing general knowledge and outlook very differently. Education providing language skills, ICT skills, organizational and leadership skills, i.e. skills the development of which is insufficient in initial education, is also assessed in many different ways.

People who have completed just basic education see their initial education as most insufficient. They are people who have terminated their initial education after primary school as well as those who have finished their secondary education prematurely and have not acquired any level of professional skills. Most young people who have left initial education

Graph I.3-8 *The assessment of initial education quality from the point of view of current work (young people 20 – 29 years)*
Question: *How did the last school you attended prepared you for your current work?*

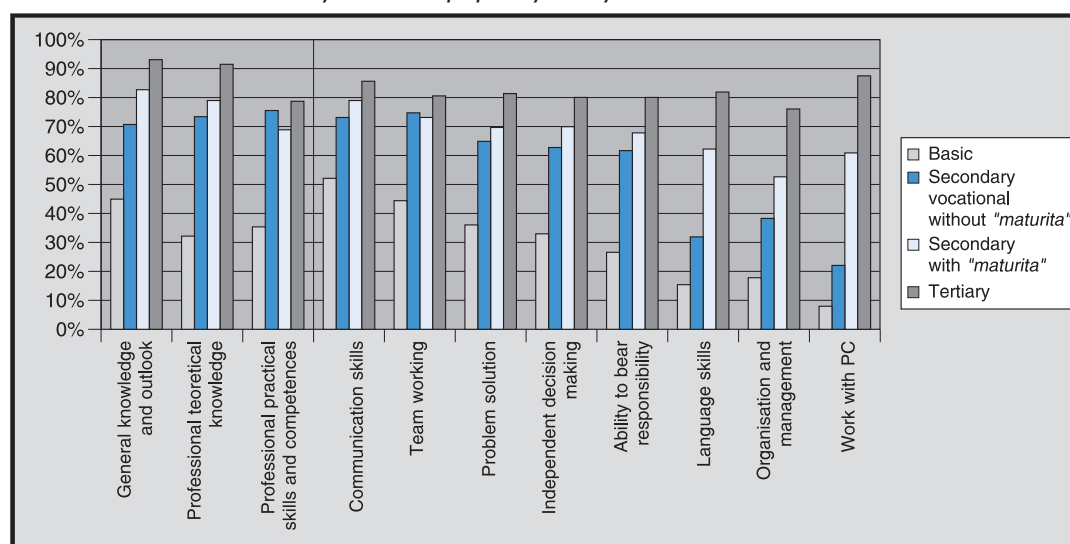


Source: MEYS, NITVE (2003)

⁶ If not stated otherwise, this part of the text refers to MEYS, NITVE (2003).

Graph I.3-9 Positive assesment of quality of initial education (young people 20-29 years by level of education)

Question: How did the last school you attended prepared you for your current work?



Source: MEYS, NITVE

prematurely are very critical about their preparedness for employment. This conclusion is certainly not surprising. It is yet another serious argument for the promotion of measures that aim to reduce the rate of early school leavers.

Preparedness assessment given by young people who have completed upper secondary programmes completed with "maturita" or without "maturita" is mostly positive. There are no big differences in individual assessments either, even though school-leavers who have completed a course with "maturita" are more positive in their assessment. Assessments of fundamental components of education mirror different goals of education provided these two types of programmes. School-leavers from vocational programmes without "maturita" refer to the poorer quality of education providing general knowledge and understanding on the one hand, and a better quality of professional practical skills and competences on the other hand. Both categories of young people differ considerably in their assessment of problematic areas mentioned above, i.e. work with ICT, organizational and leadership skills and language skills. Assessments of these areas of education given by school-leavers from vocational programmes without "maturita" are rather critical. However, it has to be noted that assessments made by school-leavers from programmes completed with "maturita" are not very positive either.

Assessments given by tertiary education graduates are very positive. 80% of these young people

regard their education as good for their current employment.

1.3.2 The context of transition from education to the world of work

There are many factors behind the process of transition of school-leavers and graduates from education to the world of work. Extensive research made by OECD (2000) has revealed the following crucial factors:

- a sound economy (OECD describes this factor as potentially the most important);
- well organized links interconnecting initial education with work and continuous education;
- good opportunities for combining work experience with education;
- social network able to screen out individuals subject to danger;
- high quality of information and guidance services;
- effective functioning of institutions.

The nature of the education system, situation on the labour market and its established practices as well as the functions of institutions responsible for the implementation of education policy of the government are the most distinctive components of the context in which the transition of school-leavers and graduates to the labour market takes place. It is obvious that this context is very specific in every individual country. In turn, school-leavers and graduates achieve different results in the same

context. Similarly, measures taken in order to provide support to these people can bring different results. The influence and importance of distinctive features of every individual context can also come to the fore in the case when national labour markets are interconnected and a free movement of the labour force is made possible.

Diversity of traditions in education systems is seen as a kind of cultural wealth, there are therefore no plans for the introduction of a common system of education in the EU. On the other hand, the EU sets priorities in education and makes certain requirements for education and training of professionals for so called regulated employment, where possible differences in the level of knowledge and competences could have serious consequences.

It is obvious that there must be a certain common thread at the European level that will interconnect individual national strategies in an appropriate manner, even though the EU does not directly interfere with education systems of member states.

Fundamental EU documents on promotion of employment of school-leavers and graduates on the labour market

In 1993 the White Paper on Growth, Competitiveness and Employment in the EU was an official acknowledgment of unemployment as a common issue. Control of unemployment has been a focal point of interest of EU member states. A number of White Papers and Green Papers has followed that have shaped and specified the European employment strategy. There was for example the Green Paper (1993) and the White Paper (1994) on European Social Policy or the White Paper on General and Professional Education (1995).

The Council of Europe agreed at its Luxembourg Summit in 1997 that **Directives on Employment Policy** (hereinafter referred to as Directives only) should serve as a fundamental instrument for coordination of national employment policies. The Directives were adopted for the first time in 1998. As in the case of all subsequent Directives they included an important provision relating to the transition of school-leavers and graduates to the world of work. This provision stated that „every unemployed young person must be offered a training, retraining, placement or another employment opportunity within six months of the unemployment“. The Directives also demanded that all governments reduce the number early school leavers. Governments were also required to give young people better opportunities for adaptation to new

changes in technology and the economy. In 2003, the draft Directive sets out that „member states will make sure that by the year 2005 all unemployed people are offered a new opportunity in the form of a placement or training (possibly combined with continuous assistance in seeking employment) before the length of unemployment reaches 6 months in the case of young people who are most exposed to the risk of long-term unemployment, and 12 months in all other cases“. An emphasis is laid on prevention and individual approach, work mobility and modern technologies.

The EU Structural Funds, especially the European Social Fund, provide a support for the attainment of the goals of the employment policy.

Objective 3 of Structural Funds: to support the adaptation and modernisation of education, training and employment policies:

„Unemployed people need training or other active measures to be carried out before their unemployment becomes a long-term one. Promotion of employability of young people is a key element of prevention and control of unemployment of young people: young people have therefore to increase their ability to adapt themselves to technological and economic changes and to develop their skills they could apply on a real labour market.“

(European Commission 2000: 14)

As much as 9% of resources from EU Structural Funds is earmarked for **Community initiatives** every year. The Community initiative focused on integration of disadvantaged groups into the labour market is scheduled for the period 2000 – 2006 under the name EQUAL. The aim of this initiative is to promote innovative methods for solutions in current problematic areas related to discrimination and inequalities of the labour market. Young people, especially those without sufficient skills, as well as school-leavers and graduates as two disadvantaged groups are also included in this programme.

In addition to Structural Funds and Community initiatives, **Community programmes** are of great importance. They were conceived with the special aim of providing support to young people and their education. They started in the 80's in connection with the completion of the common internal market. Their aim was to draw attention to the importance of education for the common market and the mobility of young people in Europe. These programmes were increasing in number. That was the reason why 3 comprehensive programmes were

set up with the aim of providing an umbrella for individual areas in the mid-90's:

- LEONARDO focuses on vocational education;
- SOCRATES focuses on European cooperation in the area of general education;
- YOUTH for EUROPE promotes exchange programmes and international cooperation among young people in Europe. Programmes are not designed just for member countries anymore. Also EEA countries and associated countries including the Czech Republic are now involved.

Current trends in policies and programmes for promotion of transition from education to employment in EU countries

Assistance to unemployed young people (up to 25 years of age) should be provided above all in a timely manner. Most countries propose a combined policy consisting of preventive and curative measures. An „individual action plan“ drawn up at labour offices serves as a basis for prevention. A good analysis of an individual's capacities and guidance services play an important role. Offers for training or even jobs are provided according to individual plans. Refusal of such an offer is sanctioned, which is an important element. Sanctions take the form of withdrawal of unemployment benefit or other benefits.

Local solutions of employment policy are preferred in an effort to remedy the unfavourable situation of young people on the labour market. Emphasis is laid on an active involvement of employers, professional associations and social partners in drawing up curricula. Professionals from the workplace should also be involved in actual education.

Germany - „Jugendwerkgarantiewet – JWG“

Regulation on guarantee of work for young people (Jugendwerkgarantiewet - JWG) applies to registered unemployed people under 21, and to unemployed people under 23 who have been expelled from school. After six months of receiving unemployment benefit these people are obliged to take part in the programme. They are given a guarantee of work instead of financial support. If the person in question refuses employment offered to him/her, the social welfare office has the right to freeze the payment of social benefit for up to three months.

Employment obtained within the JWG-programme lasts for half a year and can be extended by an additional six months. If regular employment cannot

be found, young people may stay in this programme until 27 years of age. Jobs within the programme (JWG category) are created mainly in the public, education or service sector. The number of hours done per week ranges from 19 to 23. „Remuneration for work“ is lower than the minimum wage and the government covers all costs.

Great Britain - „New Deal“

This set of programmes was officially launched in 1998 and it focuses on unemployed people 18-24 years old. Those who have been unemployed for more than 6 months have four options to choose from when joining the programme (it is the so-called Gateway Programme): (i) six months of subsidised work (60 GBP per week); (ii) six months of voluntary work in public sector; (iii) training in basic skills; (iv) work for environmental organizations.

The goal is to provide young people an experience and keep them at work. A personal approach is the basis of this effort; it has a form of consultations, discussions, personal assistance and subsequent placements in programmes, identified as the most appropriate ones for individual cases.

Incentives for employers who could offer training are an important tool. Employers who offer a job receive compensation for insufficient qualification of the new employee; the compensation is an advanced payment covering training costs. Every employer may apply for a subsidy provided he/she is able to offer the applicant an employment for one year or more including 15 days of training within the first 8 weeks and 26 days of training during the following six-month period.

Approach applied in the Czech Republic

„Professional training of school-leavers and graduates and acquisition of skills of young people“ is a programme that focuses on providing assistance to unemployed young people. It was launched as a part of an active employment policy. Employers receive subsidies for new jobs they have created. In addition to that, consultation programmes, incentive courses and various types of retraining are offered to unemployed young people. Approximately 40% - 50% of registered unemployed school-leavers and graduates participated in various employment promotion programmes.

In future, assistance should be provided to all young people before the period of their unemployment reaches six months, as specified in the European Employment Strategy. In 2003, ten selected labour offices are launching a pilot version of „The First

Opportunity“ programme. Unemployed young people participating in this programme will be offered an individual action plan that will include specific measures to be taken with the aim of finding employment for the person in question. Once the pilot stage has been evaluated, this programme should be extended to all labour offices in the Czech Republic. Even though it will be possible to draw resources for these programmes from the European Social Fund as of 2004, it will be very difficult to offer a possibility of participation to all unemployed young people. The number of participants would be very high and the scope of the programme would present a big challenge to labour offices and the professional competences of their staff.

1.3.3 Process and results of the transition of school-leavers and graduates to the world of work⁷

How employment matches and mismatches the education achieved⁸

Even in the Czech Republic it is a common case that a school-leaver or a graduate, once he/she has entered the labour market, does not try to find employment in the field of their initial education or even rejects offers of such employment. There may be many reasons for that. About a half of those young people (20-29 years old) who do not work in the field that they have studied claim to have no chance of finding employment in that field (MEYS, NITVE, 2003). However, it is the low salary that plays a role for 20% of young people; too a long distance between home and the workplace is the reason to refuse employment for more than 10% of these people. Another 10% lost their interest in their field of education during their studies. The level of completed education plays no or just a very marginal role in this respect. Low pay and a long distance between home and the place of employment are also the most frequent reasons for a rejection of an offer for work even when these young people are unemployed.

These facts lead to a conclusion that the mismatch between the technical component of initial education and the work performed is one of the most distinctive factors in finding employment in the case of young people. This mismatch reduces the effectiveness of resources spent on vocational education and training in those fields where this education and training is not made use of by school-leavers and graduates in practice. The issue of opportunities for education and the

structure of these opportunities as well as the functioning of the system of guidance services and its quality come to the fore (see Chapter I.3.5).

At present not more than 40% of young people 20-29 years old living in the Czech Republic do a profession for which they have been educated or trained. On the other hand, nearly 40% of young school-leavers from secondary schools work in professions that are in direct contradiction with their initial education or training. We have witnessed a decrease in the number of young people in the first group and an increase in number of people in the second group since 1996. The degree of mismatch between acquired qualification and actual employment varies; it depends on the level of completed education and the field of studies or the type of courses at vocational schools.

Nearly a half of those who have completed **secondary vocational school** work in a profession that they have been trained for. However, this figure is rather overestimated due to the data which have been used. At the same time, nearly two fifths of these school-leavers work in a profession that is absolutely different from the line of training they have been provided. School-leavers from secondary vocational schools are adaptable and flexible on the labour market. However, it is also an evidence of devaluation of the very costly training provided to a high number of students in relatively very specialized fields“ (Vojtěch, Festová, 2002).

This means that there is a need to improve the general and vocational component of training at secondary vocational schools in order to facilitate the transition of school-leavers to the labour market. The problem is that employers require from school-leavers from secondary vocational schools that they have skills more specific than the field of their training allowed for. The way of achieving a better employability of school-leavers from secondary vocational schools through a promotion of general and professional components of training has its limitations. Promotion of education opportunities at a higher level of secondary education, i. e. a broader range of courses completed with “maturita” could possibly be the right approach.

The situation is most favourable in various machinery branches (there are two reasons for this: the first one is that the profession of car mechanic belongs to this field of training; the second one is the nature of foreign investment). The situation is very good in the case of

⁷ See Statistical Annex, table D.12 – D.18

⁸ If not stated otherwise, this part of the text refers to Vojtěch, Festová (2002)

school-leavers who completed a secondary vocational school and specialize in wood processing, gastronomy, hotel management, tourist services and personal services. The situation of those who studied food processing is also relatively good. The situation of school-leavers with education in chemical branches, glass production, plastic materials processing and the economy is very bad. There is a mismatch of acquired qualification and actual employment in the case of people educated in branches like mining, iron and steel industry, textile and leather industry due to changes in the structure of the Czech economy.

As far as young people who studied at **secondary technical schools** are concerned, a lower proportion of them is represented in both scrutinized groups mentioned above. The situation in the field of nursing is undoubtedly the most favourable one. This is caused by an insufficient range of courses in this field of study. The number of offers is limited through various administrative measures. As a consequence there is a low unemployment rate in school-leavers educated and trained in this field on the one hand, and an unused potential for employment of young people (demand from employers is not met). The situation is very good in the case of school-leavers who have completed a course in economy, gastronomy, hotel management and tourist services. The situation of school-leavers who have completed a course in food processing is relatively good. The situation of school-leavers who have completed a course in mechanical engineering (they are the second largest group of school-leavers from secondary technical schools) is very unfavourable, which is in a sharp contrast with the situation of school-leavers from secondary vocational schools. As in the case of school-leavers from secondary vocational schools, the situation of school-leavers from secondary technical schools, who completed a course in textile production, garment production, leather processing and shoe making is also rather difficult. School-leavers who studied construction engineering can hardly find employment in their profession. As far as the most important fields of study are concerned, the situation has considerably deteriorated since 1996, with the exception of courses in nursing.

This shows that there are a sufficient number of opportunities for employment of school-leavers from secondary technical schools. There is therefore no reason to put administrative limitations on the opportunities arising from education completed with "maturita". It seems better for the future development of economy and for school-leavers themselves „to offer a higher level of education to students rather than impose administrative limitations on a higher level of education in certain fields of study“ (Vojtěch, Festová, 2002). This

conclusion is in line with the degree of interest in education on the part of students and their parents as well as with trends in developed countries.

We can see in connection with these findings that the claims of some employers saying that there is a lack of school-leavers from some fields of study, especially technical ones, are questionable. The high rate of unemployment in school-leavers together with a high proportion of these school-leavers working in a profession other than the one that they have studied show that lack of employees is a consequence of the lack of interest to accept employment that is in line with an acquired qualification. This means that there is a problem of employers, the attractiveness offered jobs and the features of the social welfare system in the Czech Republic. Development in courses of mechanical engineering at secondary vocational schools may be given as a positive example. The proportion of school-leavers who have completed a course in mechanical engineering at secondary vocational schools and work in positions that are in line with their education and training has increased considerably due to foreign investment and a sufficient number of favourable job offers.

Approach of employers towards school-leavers and graduates

Creation of an effective environment that would ensure a successful and smooth transition of school-leavers and graduates from education to the world of work is an issue that a wide range of partners has to deal with. They are institutions of the education system (schools, counselling services), institutions responsible for implementation of education policy and, last but not least, employers. Should one of these partners play just a passive role or even no role at all in the creation of such an environment, goals that have been set can be attained only partially and available tools and resources cannot be used effectively. The attitude of employers and their willingness to employ school-leavers and graduates is the key factor for a successful transition from education to the world of work.

There is no fundamental reason why employers do not employ recent school-leavers and graduates. Legislation was one of the main causes of the disadvantaged position of school-leavers and graduates on the labour market in the past (Šťastnová, 2000). The Labour Code included a provision stipulating that no employer is allowed to employ school-leavers or graduates for a definite period of time. At present this provision is much

more moderate.⁹ Possible lack of professional competencies, insufficient practice and habits (attitude, motivation) on the part of school-leavers and graduates do not represent the main reason for denying employment for more than a half of employers. The question is therefore what is the main factor that makes school-leavers and graduates disadvantaged in the view of employers. We may assume that it might be a sufficient number of experienced potential employees on the labour market. These potential employees present for employers a relatively more secure „investment“ and fewer difficulties with acclimatisation.

This finding is a little bit contradictory with the mostly positive experience that employers have with school-leavers and graduates. Eighty per cent of employers are satisfied with skills of school-leavers and graduates with the exception of school-leavers from basic schools and grammar schools („gymnasiums“). As much as 90% of employers are satisfied with the attitude towards work. However, this applies to school-leavers from secondary schools that have completed a course with „maturita“ or to higher education graduates only. Only 75% of employers have a positive experience with school-leavers from secondary vocational schools that completed a course without „maturita“. Less than two thirds of employers are satisfied with school-leavers from primary schools. Employers are very positive in their assessment of school-leavers as far as their willingness to learn is concerned. Also in this case we can see a difference in the assessment of school-leavers who have completed a course with „maturita“ and those who did a vocational course without this examination. More than 80% of employers are satisfied with school-leavers with the exception of school-leavers from basic schools. Practical competences are assessed as the weakest ones in general. 50% - 75% of employers are positive in their general assessment of school-leavers or graduates depending on the level of completed education.

Two thirds of companies do not cooperate with schools or colleges/universities. This fact is evidence of a relatively passive approach of employers to school-leavers or graduates. Only 20% of companies offer placements for students at secondary schools. About 15 % of companies offer educational stays for college/university students. Ten per cent of

companies provide nothing more than information on job offers for school-leavers or graduates. Other forms of cooperation including participation of company employees in the process of education, training or participation in the preparation of the content of education are very rare. These findings document very clearly a lack of cooperation between employers and educational establishments. This applies especially to Czech enterprises; companies with foreign capital participation are more favourably inclined towards all basic forms of cooperation with schools and universities.

Continuing education and training courses are one of the simplest instruments that employers can use in order to ensure the possibly smoothest and fastest introduction of school-leavers and graduates to work. These courses enable young people to acquire the knowledge and competences they need. However, employers do not use this tool extensively at present. A survey among school-leavers and graduates has revealed that only slightly more than 15% of economically active young people (20 to 29 years old) work in an environment where the employer promotes the further education of employees and more than two thirds of these young people work in an environment where the employer's attitude towards further education is passive. (MEYS, NITVE, 2003)

Smaller enterprises use this opportunity of providing support to school-leavers and graduates to a smaller extent; more than two thirds of companies employing 250 staff or less and about two fifths of enterprises employing more than 250 staff do not organize such courses. The bigger the size of an enterprise, the higher is the number of those that provide support to graduates and school-leavers who have completed a course with „maturita“. Enterprises of all sizes show a passive approach to school-leavers who have completed a secondary vocational school without „maturita“.

Companies with foreign capital participation are considered as supporters of modern approaches. Companies with foreign capital participation do organize a higher number of special courses for recent school-leavers and tertiary education graduates. About a half of these companies do so as opposed to one third of Czech companies. The approach of these two types of companies is

⁹ Since 1. 1. 2001 Labour Code has made it possible for employers to include a three month probation period into permanent contracts concluded with school leavers.

fundamentally different only in the case of graduates. There is hardly any difference in approach in the case of school-leavers from lower levels of education. (NTF, 2003)

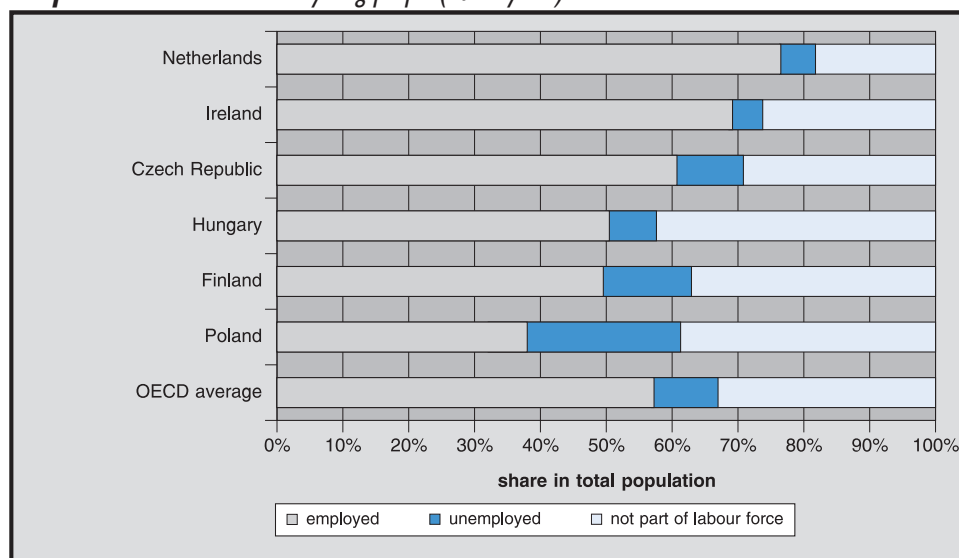
Lack of motivation tools provided by the government in order to promote courses of continuing education is partially a cause of this unfavourable situation. Such activities could present a very powerful tool that could help

provide competences and knowledge, which school-leavers or graduates need for their specific work.

Employment status of young people

Results of the transition from education to the world of work may fundamentally vary from one individual to another. Young people are either successful in finding stable employment offering good prospects or they fail in their efforts, struggle

Graph I.3-10 *Work status of young people (20-24 years)*



Source: OECD (2002b)

with a long-term unemployment and depend on social welfare provided by the government. Not only in the Czech Republic is the number of school-leavers and graduates who have found employment on the labour market higher than the number of those who have failed. The success rate on the Czech labour market can be described as a medium one in comparison with results achieved in this respect in foreign countries.

Successful school-leavers and graduates

When assessing the general success rate of school-leavers and graduates in finding employment on the labour market we focus primarily on their positions and earnings.

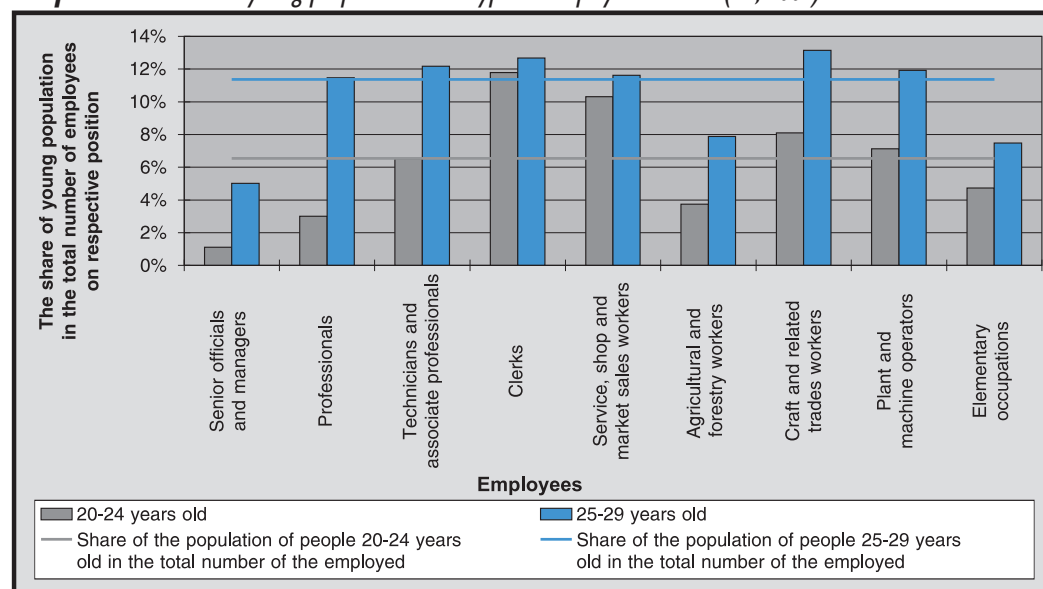
Young people find employment in various positions. The proportion in individual **types of employment** also varies. A small proportion of young people, especially school-leavers from secondary schools (20-24 years old), find employment in the lowest and highest positions. This situation is evidence of insufficient skills and experience required for the

most difficult jobs (in managerial positions or highly technical ones) as well as of unwillingness to work in positions requiring the lowest level of skills where earnings are consequently at the lowest level, too. The low proportion of young people working in the agricultural sector is probably caused by a rather low interest in working in this sector among young people.

The proportion of young people of this age group working in junior positions in administration is very high. This proportion is lower in the case of the service and business sector. This is in accordance with their skills acquired at secondary school. There is no reason therefore to assume that young people are forced to accept employment that requires skills at a lower level than they acquired during education.

The situation is very similar in the case of the group of young people that also includes tertiary education graduates (25 - 29 years old). However, there are some differences here caused by the fact that the group of young people with the highest level of education has been included in this age group. The difference becomes most obvious when

Graph I.3-II Share of young people in various types of employment KZAM (CR, 2001)



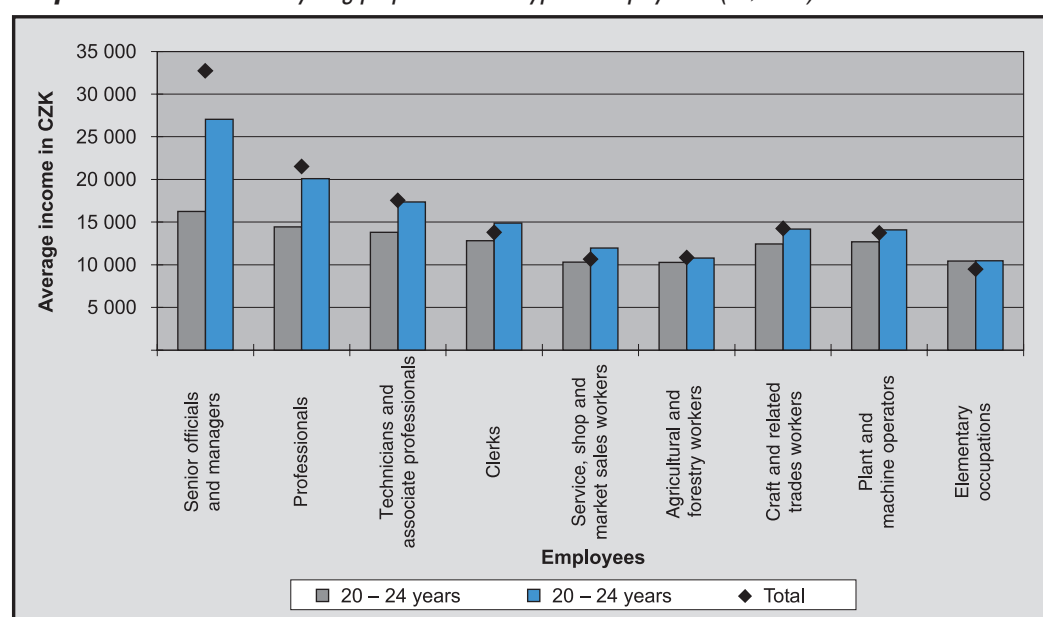
Source: CSO (2003)

we look at the higher proportion of young people working in the highest positions; the proportion of these young people working as scientists and technical assistants matches the proportion of young people in the total number of employed people. Even in this age group the proportion of young people working in the highest positions, i. e. as managers is considerably lower than the proportion of young people in the total number of employed people. This is - as in the case of the previous age group - caused by insufficient

experience of these young people, even though they should possess skills necessary for their respective positions.

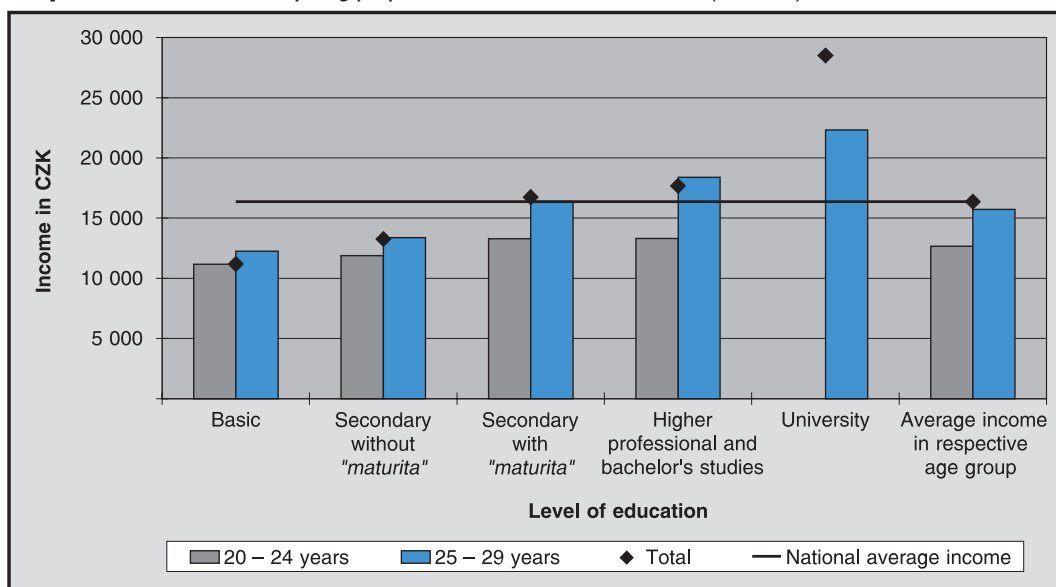
Other conclusions relating to employment requiring just the lowest level of skills remain valid for this age group too. The situation is similar as far as earnings are concerned. Earnings of young people 20-24 years old in nearly all categories of employment are lower than average earnings of regular employees in respective categories of employment. This is caused by lower work

Graph I.3-I2 The income of young people in various types of employment (CR, 2001)



Source: CSO (2003)

Graph I.3-13 The income of young people with various level of education (CR, 2001)



Source: CSO (2003)

experience of newcomers. This unadvantage is eliminated in the next age group; average income of young employees (except for graduates) reaches the average income in respective categories of employment; it is even a bit higher in some cases.

There is an obvious trend as far as young people entering new employment are concerned: the higher the category of employment, the higher is the difference between the income of young people and the average income in the given category. This is apparently caused by insufficient skills of school-leavers from upper secondary education (who represent the highest proportion of employed people of this particular age group); we speak here of skills required for employment where the highest demands are made. This trend is much less obvious in the next age group; it is still apparent in the two highest categories of employment. However, one must expect that it will be young people with tertiary education entering the labour market who will find employment in the two highest categories of employment and whose insufficient work experience will be the cause of the differences mentioned above.

The relation between the **level of income** and the level of education follows common trends. A relatively very low income (in comparison with average income in general) of the first category of young people (20-24 years old) shows their unfavourable position on the labour market. Low income, especially in the case of people with the lowest level of education in this age group, in combination with the social welfare system as it is

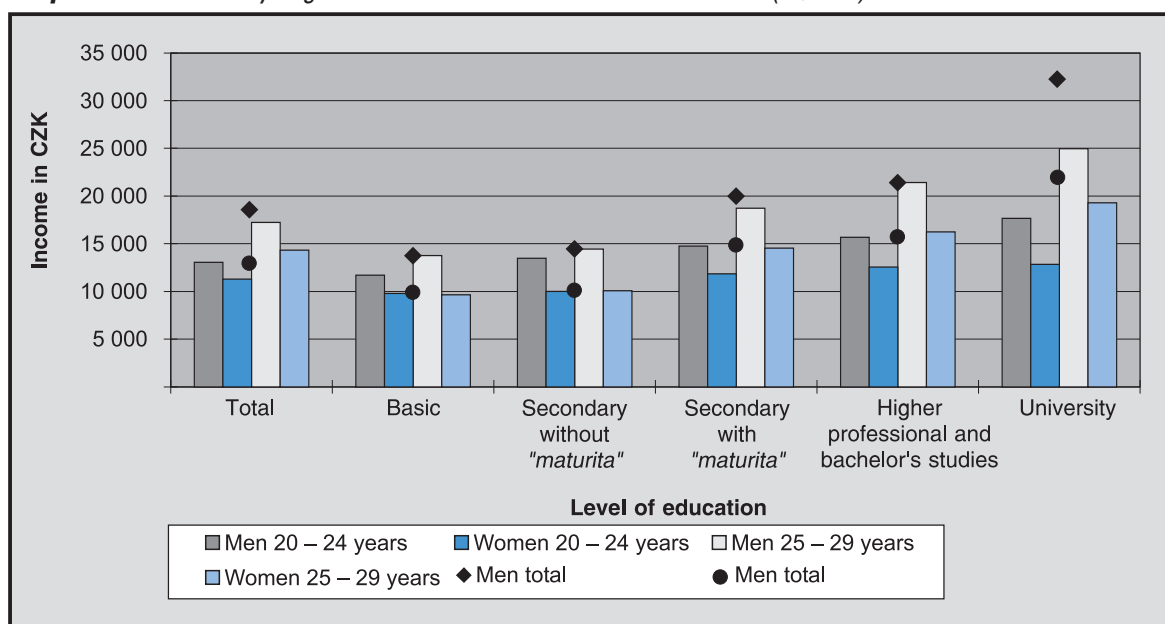
now, makes them inclined to accept the status of unemployed people. The situation of young people 20-24 years old is also variable – the lower the level of education, the smaller is the difference between the income of young people and the average income of employees who have acquired the same level of education.

As far as young people belonging to the next age group (25 - 29 years) are concerned, their income corresponds with the average income. This applies to all levels of education except for the highest one. The striking difference between the income of young people and the average income of employees with tertiary education is apparently caused by their lower work experience, as is the case with the previous age group.

Guarantee of equal conditions for men and women is going to become a hot topic in connection with the accession of the Czech Republic to the EU. The low income of young women in the age group of 20-29 years is caused by objective conditions. A large proportion of these young women spends part of their time with their children. Their work experience is therefore lower than the average work experience men have. This could be a reason why employers value their work less. On the other hand this is not a predominant reason for the differences between the income of men and the income of women in the Czech Republic.

It is obvious from the above-mentioned facts that differences between men and women as regards their income are too big. This difference becomes

Graph I.3-14 Income of young men and women with various level of education (CR, 2001)



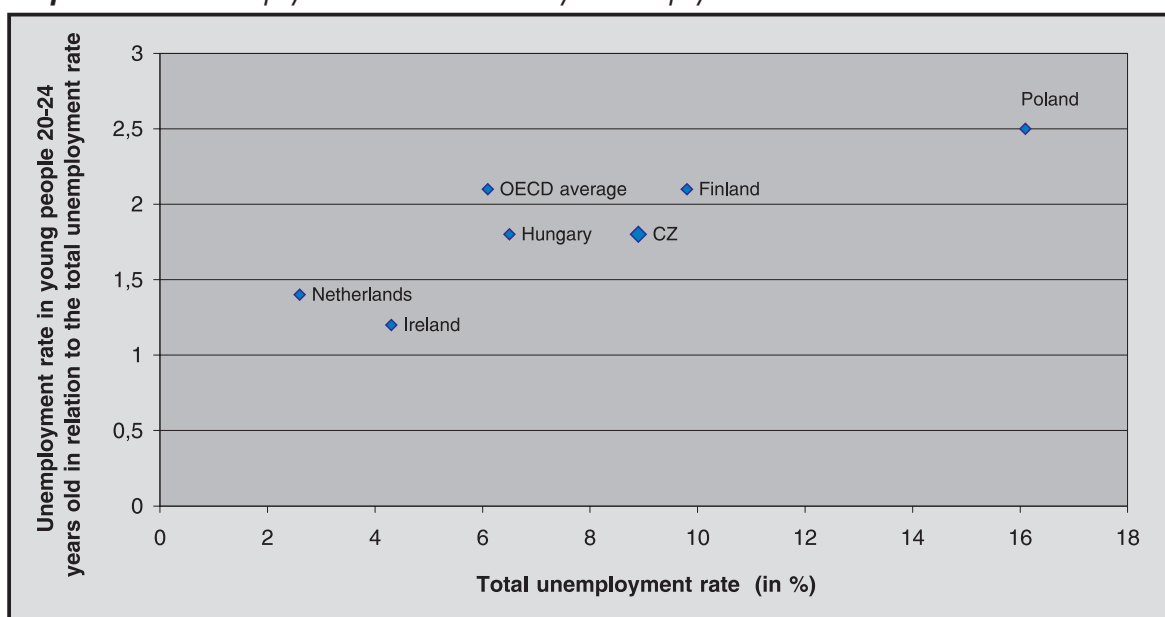
Source: CSO (2003)

even more striking if we look at the average income of all men and women with a job; factors that were mentioned above as a reason for differences in the income of men and women should play no role anymore (or just a marginal one). Men and women do not have equal conditions when entering the Czech labour market. Their respective income is also different despite an equal level of skills.

Failed school-leavers and graduates

Lack of success of school-leavers and graduates and young people in general on the Czech labour market expressed in terms of the unemployment rate of these people can be assessed as an average one if we compare it with foreign countries. Some countries have been successful in creating

Graph I.3-15 Total unemployment rate in relation to the youth unemployment rate



Source: CSO (2002b)

conditions for a smooth transition of school-leavers and graduates to the labour market; on the other hand, there are countries where this transition is even more difficult than it is in the Czech Republic. However, it has to be mentioned that there are different systems of education in different countries. The context of transition of school-leavers and graduates to the labour market and conditions of this transition are therefore also different; consequently, the success of transition also varies.

Since school-leavers and graduates are generally considered as a risk group, their success or failure in finding employment will depend on the general unemployment rate. We can say that the unemployment rate in young people in most countries is twice as high as the total unemployment rate. At the same time, the unemployment rate in young people is increasing slightly more than the total unemployment rate.

The situation of young people in the Czech Republic as far as the average unemployment rate is concerned is more favourable in comparison with the average unemployment rate in OECD countries; yet there are countries in Europe in which the issue of unemployment of young people is tackled more effectively in the context of the labour market.

1.3.4 Important factors in the transition of school-leavers and graduates to the labour market and opportunities for further development

As we mentioned in the beginning of this chapter, there are many well-known risks and opportunities to be explored in relation to the position of school-leavers and graduates on the labour market. The environment in which school-leavers and graduates (and young people in general) will seek employment will definitely change in connection with the entry of the Czech Republic to the EU. Many facts ascertained in various surveys will become even more important and new issues will appear.

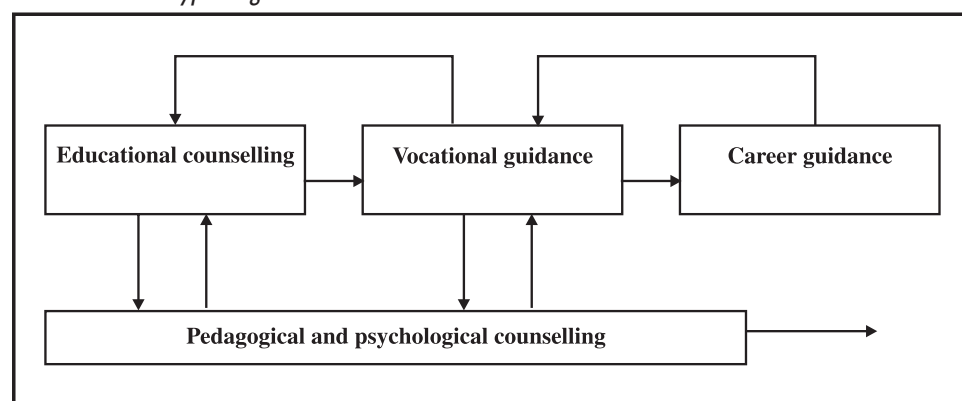
Part of the risks that we can identify is related to the system of education. It is above all the relatively **small proportion of young people with tertiary education**; the development in the Czech Republic in this respect is not in line with trends in the EU. The increasing proportion of young people who have completed only primary education, i.e. an increasing number of early school leavers is also in contradiction with modern trends in education.

The second set of risks concerns the content of education and achievements of students. The **literacy level** of Czech students is relatively **low** in comparison with other developed countries. **Insufficient level of language instruction** is another problem of Czech students. A high proportion of Czechs masters no language; the average number of languages that Czechs master is low; the range of languages is very limited and the number of people mastering languages that are less commonly spoken in the EU is negligible. This problem is most striking in the case of school-leavers from secondary vocational schools. Students are insufficiently educated and trained in some important competences that could enhance their employability, for example **organizational and management skills and work with ICT**.

1.3.5 Guidance in education and employment

In the current world of changing labour markets and a growing range of programmes and forms of education and training on offer, timely and quality guidance is a prerequisite for young people to assert themselves. The European educational policy clearly declares that guidance as a service is accessible to anyone, and that it combines various services and thus reduces traditional differences between vocational, educational, training, and career guidance.

In the Czech Republic guidance services are provided mainly in two parallel systems. (A summary overview of institutions in the guidance system is included in Methodological Annex, table 2) The first system is a part of the education sector and focuses especially on the development of pedagogical and psychological guidance in particular, with emphasis, in addition to study and educational problems, on disadvantaged students and the prevention of social pathological phenomena. Moreover, it includes vocational guidance. The second system is a part of the labour market institutions and includes also vocational guidance, however it focuses predominantly on career guidance. Both systems have one thing in common: they help to find an optimum solution for self-assertion, i.e. in the process of deciding on the selection of the best educational and carrier path and related specific situations in one's personal and working life. The degree to which both systems are interlinked varies depending on regional conditions for their functioning. The quality of provided services also varies.



Counselling and guidance in the system of educational facilities

The counselling and guidance system under the Ministry of Education, Youth and Sports (MEYS) is orientated towards problem solving by children and youth during their studies, or in changing/ selecting their studies (educational pathway).

The Institute of Pedagogical and Psychological Counselling drafts and issues guidelines on the provision and the co-ordination of guidance services delivered at schools by educational counsellors and the services of Pedagogical and psychological counselling centres. Methodological support in the area of career guidance represents only a marginal part of the activities of the Institute.

The National Institute of Technical and Vocational Education includes a department of career counselling for methodological support of a secondary school subject "Introduction to the World of Labour". The department includes also a **Career Guidance Centre** that maps out the study programmes offered by secondary schools and higher vocational schools, and provides information to educational counsellors at schools and to students interested in further education.

The Institute for Information on Education also contributes to guidance by means of some of its information and publication activities. The Institute administers a Register of Schools and Educational Facilities, issues a publication "Selecting a Secondary School" and runs a school browser on the Internet.

In addition to its other activities, the Centre for Study of Higher Education is an umbrella organisation for guidance in higher education facilities and provides

information on the recognition of university diplomas across Europe. Currently there are 48 **Counselling Centres at universities** that operate relatively independently in individual higher education facilities. They are not organised in a guidance network in its own right. The range of services provided by individual centres varies. Only 15 of them declare that they provide a full range of higher education guidance services, i.e. vocational, psychological, educational, as well as career guidance.¹⁰

Pedagogical and Psychological Counselling Centres and **Special Education Centres** play a major role in the area of guidance services run by the MEYS. Of the 101 former Centres 96 are government run, 4 are non-governmental, and 1 is run by the church. The latter 35 employ mainly psychologists and special education teachers. The main purpose of guidance centres is to help to address basic problems in various phases of development of children's life that relate to education and training, as well as to help to solve disturbances in mental development of children in pre-school facilities and pupils in basic, upper secondary and special schools. In career guidance, which is perceived as a rather secondary activity they, like school psychologists, test children's predispositions for further education and career orientation and recommend an educational path.

Educational counsellors work in basic and secondary schools, as well as – to a lesser degree – school psychologists, special school-age teachers, school prevention methodologists, school guardians and assistants. **Educational counsellors** are teachers (employees of the school) whose working time is reduced by 1 to 3 hrs a week that they devote to guidance activities.

¹⁰ Freibergová et al.: Counselling at the Universities, National Training Fund, National Resource Centre for Vocational Guidance, Prague, 2002.

Currently there are as many as approximately 2000 educational counsellors who focus especially on pupils'/students' problems in behaviour and education. In the framework of career guidance the educational counsellors establish contacts between their clients and the IGC of Labour Offices, provide orientation in the study programmes offered in subsequent levels of education, and process paper work in connection with application procedures for further study.

Psychologists are external workers and in majority of schools they usually work as part-timers. The concept of school psychologists is a relatively new one, and for mainly financial reasons they work in only approximately 100 basic and upper secondary schools. The psychologists are mostly helping to solve complex problems in pupils' behaviour and studies. Career guidance is only a marginal affair for them. They however test the pupils for their predispositions for study and make recommendations for their educational path.

Information Centres for Youth provide information especially in the area of education, work, leisure, travel, Czech youth and youth in the EU. The Centres are not spread evenly across the Czech Republic. The Information Centre for Children and Youth at the MEYS makes available directories of schools ranging from day centres to universities. It also provides information about "post-maturita" evening courses and combined studies, as well as distance learning, language courses in the CR and abroad, re-training and other training courses. It also offers information about secondary and tertiary studies abroad.

Another institution that provides information about study abroad, possibilities of scholarship and conditions of competitions, is the Academic Information Agency, financed by the MEYS.

In addition to guidance services such subjects are introduced in schools as help the students get prepared for the selection of their profession and obtain skills necessary to orientate themselves in the labour market. In basic schools the subject **Career Choice** is being introduced. Depending on the school, the Career Choice could be either part of the compulsory curriculum or part of non-compulsory education. The subject "**Introduction to the World of Labour**" has been incorporated into curricula of secondary and higher professional schools. The schools should co-operate with Labour Offices in this field. Both subjects should be introduced at Pedagogical Faculties so that students (future teachers) can get qualification in them.

Vocational and career guidance in the framework of the Ministry of Labour and Social Affairs

The Guidance system within the framework of the Ministry of Labour and Social Affairs (MLSA) concentrates above all at solving problems in the transition from school to work and in finding/ changing a job. The system is co-ordinated by the Employment Service of the MLSA, namely its Department of Guidance and Job Service.

Guidance services provided in the frame of labour market policy are above all focusing on job seekers (jobless people who pro-actively search for job opportunities) and other people looking for a job (people with a job who either want to change it or face a threat of becoming jobless). School leavers (students who successfully graduated from any type of school two years ago and less) are also of high importance, as well as groups of people disadvantaged in the labour market.

In general, guidance activities can be divided into:

- **Primary** – of cross-sectional nature in the Labour Office. During primary activities clients meet with Labour Office personnel.
- **Professional** – take place predominantly in the Information and Guidance Centres (IGS) where vocational/career guidance is provided in relation to job selection/change for minors, school leavers and other specific groups of citizens.
- **Specialist** – assess how well a particular career matches the skills, needs, objectives and overall orientation of a person, including his/her family and health.

These guidance services are provided by Labour Offices, Information and Guidance Centres and Centres of Competence Diagnostics.

Labour Offices offer to job-seekers services, carrier guidance and provide information about re-training opportunities. They use a countrywide electronic information network "OK Práce". Some of its modules such as Vacancies, and Re-training are used in guidance. The "**Career Choice**" module is a countrywide database of secondary schools and subjects taught at those schools. The database is administered and updated by Labour Office IGC staff and its hard copy is a part of, inter alia, **The Directory of Educational Facilities** that Labour Offices across the Czech Republic distribute in their service area to basic schools every autumn. The database is used to (i) search for schools and fields of study by conditions set during a counselling interview with the client, (ii) print out information materials and brochures

Career Choice Module

The Selecting a Job module database includes:

- Data of the school as an institution (kind and type of school, its founding body, address, contact person, contact address, services provided, comments with additional information);
- Information about branches of study to be opened, overview of languages;
- Detailed information about individual branches of study (type, format, length of study, method of completing the study, tuition, grades required for admission, opportunities for people with disabilities, deadlines for lodging applications, etc.).

Schools/branches in the database can be looked up according to a client's wishes. For this purpose two forms Selecting a School and Selecting a Branch are available. Any data included in the database can be used as a selection criterion. Selection criteria from both forms can be arbitrarily combined and user-defined reports can be printed out. The nation-wide network is connected to a central server, therefore if need be the school database can be modified/updated throughout the year. Any changes will be usually visualised shown to other users within a week, typically though within 2 days.

for pupils in the last year of compulsory schooling, (iii) match completed school and branch with job seekers. This can be done because of the interconnection of the "Career Choice" module with other modules of "OK Práce" system.

Job service staff and counsellors in Labour Offices use also COMDI – B programme that tests job seeker's personality and interests. The results are then matched with jobs and training courses on offer. This programme is an effective tool that supports improvements in the work of individual vocational guidance counsellors – non-psychologists.

COMDI Occupational Diagnostics

This is a professional tool for the assessment of a client's interest in a profession and the fields of labour activities, it analyses his/her personality and suggests a potential career. With this basic assessment and the following one-on-one interviews the Labour Office counsellor can provide effective help to the client. The COMDI programme was written based on the PHARE-Palmif project in 2000-2002. The project was implemented in close co-operation with selected Labour Offices. Currently it is in the second round of its assessment for specific groups of clients and the acquisition of results of tested persons in order to achieve its high quality standardization.

Information and Guidance Centres (IGC) are independent workplaces reporting to Labour Offices. The Centres provide information about study programmes offered by any type of school including universities abroad, about individual occupations and professions, as well as about the labour market. They provide job counselling for the selection of jobs at secondary and university level. Furthermore they can refer people for tests of their interests. They also run Job Clubs for the long-

term unemployed. The nation-wide network includes 125 Centres.

In addition to one-on-one and group counselling, clients receive information, i.e. brief and detailed structured narrative description of individual jobs, in pamphlets, brochures and video recordings (videotapes about jobs). PC programmes are also widely used, such as Student and AISOP programmes that include data on study programmes offered by secondary schools and higher vocational schools. The BKOV programme offers data about study programmes of higher educational facilities, including the ones in Germany and France. The Guide to the World of Occupations offers a description of individual jobs, photographs of work activities, testing of interests, and M-Service programme). Any information can be subject to consultation with an IGC person.

A very effective tool used by IGC counsellors is an Integrated system of typical positions (ISTP). This is an on-line system that facilitates the search for job positions based on the interest, personality and qualifications profile of the job seeker in question. Its starting points are the databases of profiles of typical positions that are part of the Catalogue of Typical Positions and the profile of person obtained in the Analysis of the Individual's Potential. The software compares the data and searches for the best possible match in key qualifications, personality and health factors. The main output is a recommended job from the list of specific or general jobs and/or identified suitable job seekers for employers with vacancies. The identified gap between requirements and qualifications leads to recommendations for further career and personal development.

Centres of Competence Diagnostics perform various other activities that follow up on counselling provided by Labour Offices. The Centres provide personalised services to their clients. Special counsellors/psychologists help the clients to assess their abilities and consider their possibilities of asserting themselves what about the placement in the labour market. They do not assess how a particular client fits a particular profession, but how his/her situation should be addressed, and suggest alternative steps that the client should make in order to get back to work. After completing the diagnostics process it is desirable to maintain the client's activity and commitment by such follow-up counselling programmes as Job Clubs, re-training courses, intensive personalised counselling, etc.). Currently the countrywide network includes 23 Centres.

DAT CZ Programme

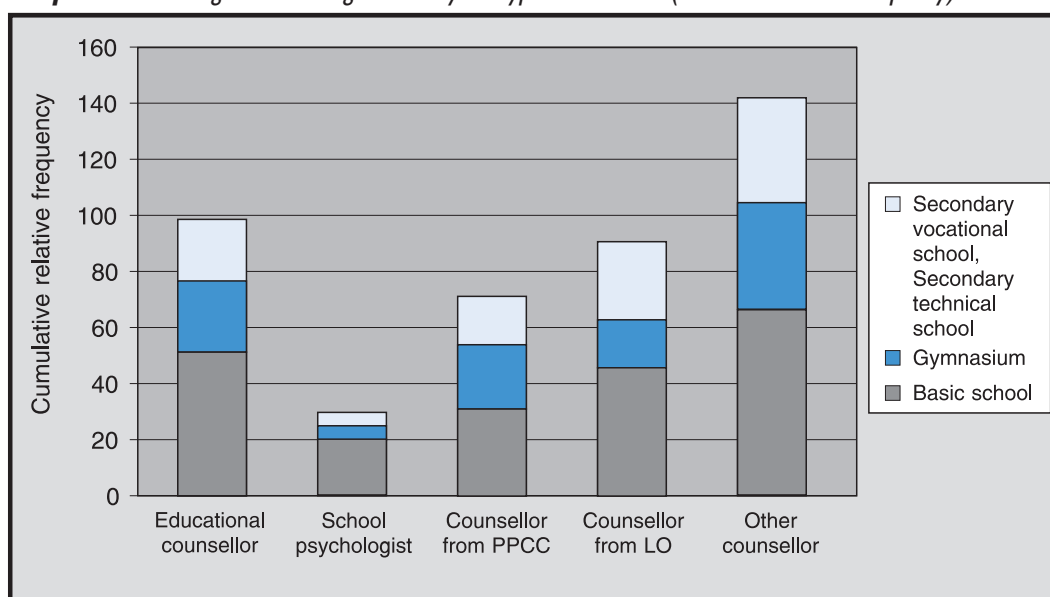
This includes a wide range of further education courses. This Internet database was developed under the auspices of the MLSA, was put in operation in July 2002 and is administered by Trexima Zlín. The database helps users who wish to extend their qualifications, to find a suitable training course or seminar. It offers to educational institutions a possibility of free-of-charge promotion on the Internet of themselves and of the study programmes they offer.

National Resource Centre for Vocational Guidance at the National Training Fund plays a role of a co-ordinator in the widening of interdepartmental co-operation and in linking both guidance systems more closely. It also creates room for mutual co-operation, and supports co-ordinating trends in key institutions responsible for guidance in relevant sectors. The Centre is a member of the European network Euroguidance that functions within the framework of the European programme Leonardo da Vinci. The network's objective is especially the widening of European co-operation among national guidance systems and provision of information about educational and guidance systems. The Euroguidance network started as an initiative of the European Commission and was present at the birth of the European portal of educational opportunities Ploteus (www.ploteus.net).

Scope and quality of vocational guidance

Because of the importance of deciding on one's study and career for young people it is important to perform an ongoing assessment of the functionality of guidance services in the light of client needs, ways in which services are used by them, and identify barriers in their development. In 2002 research¹¹ was carried out the beneficiaries and the providers of guidance services.

Graph I.3-16 *Using of counselling services by the type of counsellor (cumulative relative frequency)*



¹¹ NITVE - Survey of career guidance services and the needs of their clients in primary and secondary schools in the CR – Report (career guidance project in CR), 2003.

Research results show that in basic schools the guidance services are used considerably more frequently than in secondary education. This finding is in line with the fact that it is in basic schools that pupils make their first and quite often also the most important decision about their future career. As a result of such a decision some may start considering a particular job for their future, others may get just a general idea about their future career orientation.

Survey on career guidance services and their client needs in basic and secondary schools

In primary schools 917 respondents, pupils of 8th grade of basic schools, participated in the project. The research took place at the end of the 2001/2002 school year in 7 areas. In gymnasiums, secondary technical schools and secondary vocational schools (in “maturita” and “non-maturita” courses) 256 and 528 respondents respectively, were included in the research. They were students of the last grade. The survey was carried out by the National Institute of Technical and Vocational Education.

The survey proved that one of the decisive factors that get reflected in the pupils’ decisions about their future career is the influence of their family (parents’ recommendations, experience of their siblings, adoption of a career model of their family, etc.). From the viewpoint of decision-making strategies, the following finding is an important fact: in career-related decisions pupils prefer to work independently with sources of information. Therefore the information sources should be comprehensive and available.

The awareness of respondents concerning availability of information about and guidance in selecting a future profession is quite high. What is a problem though, is the issue of the distribution and quality (content, scope and format) of information provided. A considerable problem is also insufficient capacity of surveyed guidance facilities to provide guidance services. Apparently the supply is insufficient to meet the demand.

In this respect the best comprehensive guidance services are provided to basic school pupils who have quite good access to the services of both educational counsellors, Pedagogical and Psychological Counselling Centres, as well as of the Information and Guidance Centres of Labour Offices. The less comprehensive range of services in secondary schools is a problem, especially the

insufficient scope of services provided by Pedagogical and Psychological Counselling Centres. Diagnostic services are not further supported by relevant guidance in the offer of study programmes, conditions for admission to school and occupational opportunities. Therefore it is necessary to add to the diagnostic component an application component that would focus on particular information.

Information and guidance centres of Labour Offices play an indispensable role in the provision of career guidance services, especially in terms of recommending suitable occupation, testing of interests and capabilities, information about the labour market and job opportunities. They are contacted mainly by pupils/students of basic schools and secondary vocational and technical schools.

The results of the research indicate that despite relatively good functioning of the existing system in its fundamental functions, due to the demand for its services and the dynamic developments in the labour market, it cannot be considered as sufficient.

It is obvious that the role and status of an educational counsellor at school need to be transformed. In practice that means especially to address the issue of his/her status in the school hierarchy, and the issue of insufficient time capacity following from the need to combine his/her teaching tasks and the tasks of educational and career guidance.

At the same time, it is necessary to co-ordinate counselling services in schools with education focusing on the support of career decision-making and the orientation in the world of labour (in basic schools the subject Education for Career Choice is taught, in secondary schools Introduction to the World of Labour). In relation to this, attention needs to be paid to the educational, methodological and information support of teachers.

A very important objective is to provide for the better compatibility of both guidance systems functioning in the area of education and of labour. It is necessary to harmonize the activities of schools, Pedagogical and Psychological Counselling Centres, Information and Guidance Centres of Labour Offices and other institutions that provide guidance so as to create a comprehensive, complementary and effective system of career guidance services that would be appealing to each and every individual facing the challenge of selecting their profession and educational path.

CHAPTER II.

PARTICIPATION IN CONTINUING EDUCATION AND TRAINING

II. PARTICIPATION IN CONTINUING EDUCATION AND TRAINING

*In developed countries continuing training, or adult education, is among the sectors experiencing the most dynamic development. This development is linked to the concept of lifelong learning, which is one of the pillars of education policy in the European Union. In major European strategic documents the development of lifelong learning is viewed as one of the most important instruments for achieving the overall political goals of the Union, which include, for example, improved competitiveness and the development of civic society. In order to ensure the proper implementation of lifelong learning in the EU, the European Commission called on member states in 2000 to engage in a broad debate about ways of promoting lifelong learning. It did so by means of a document entitled **Memorandum on Lifelong Learning**. Its core is in six “key messages”, which call, for example, for seeking the most efficient ways of facilitating access to education for all age groups, facilitating various forms of training, increasing spending on education, involving other actors in education besides schools (companies, municipalities, libraries, special interest organisations etc.), recognising alternatives to formal learning etc.*

*There was a year-long debate the results of which were summarised in a document entitled **Making A European Area of Lifelong Learning a Reality**. Its principles were then incorporated into other strategic documents concerning education policy of the European Commission. In February 2001 the Education Council (i.e. ministers of education of EU member states) in Stockholm adopted a “Report on the Future Concrete Objectives of Education and Training Systems”. It set out three strategic goals, one of which (goal no. 2) was to facilitate universal access to lifelong learning. A work programme for attaining these goals, broken down into 13 objectives, was approved by the Education Council in Barcelona in February 2002. There are eight objective groups set up by the European Commission, which consist of experts from EU member as well as candidate countries and assist in the implementation of the work programme. In November 2002 the Council adopted the Copenhagen declaration aiming to improve co-operation in vocational education and training at the European level.*

At the same time strategic documents concerned with continuing training were developed in the Czech Republic. In early 2002 the government endorsed a **National Programme for the Development of Education in the Czech Republic**, also known as the **White Paper**. The core of this medium-term strategy is the development of education within the schools system, and attention is also paid to continuing education. It points to the low level of development of continuing education and training in the CR and recommends that it should be promoted without delay by means of systemic measures, such as specification of the relevant legislation, introduction of financial and non-financial assistance to major stakeholders, and systematic accreditation, certification and quality assurance.

In March 2003 the government adopted the **Strategy for Human Resources Development in the**

Czech Republic, which is focused not only on education in the schools system, but also on the overall development of human resources. It builds on the fact that CET is and will be playing an increasingly important role as a key instrument of employability, flexibility and adaptability of individuals in the labour market. It points to the missing coherent system of in-service training in most sectors, to the fact that the spending of Czech companies and other organisations on vocational training of their employees is not (in the 2nd half of the 1990s) up to half of that in western European countries, and that the participation of job seekers in retraining is very low. For these reasons the authors believe that radical change is necessary. They recommend that responsibilities for various areas of continuing education should be defined more clearly, both by means of improving the legal framework (which would define the responsibilities of

government and non-government bodies and individuals, and lay down clear rules for financing various forms of lifelong learning), and by means of acknowledgment by society that continuing education is a key aspect of the development of the state, region, organisation and individual.

Adult education as part of lifelong learning

An analytical and policy study undertaken in the 2nd half of 2001 by the National Training Fund for the Ministry of Education, Youth and Sports analysed the current situation, compared it with EU countries and proposed a number of measures to improve adult education in the CR. The study concluded that the existing situation in adult education is characterised by lack of co-ordination of its various parts. Therefore a systemic approach to all components of adult

education should be adopted. The system should have at least five major features:

- Closer links between the existing components of adult education and closer links between initial and continuing education and training,
- Stimulation of the development of adult education,
- Better legal framework,
- Easier access to education,
- Higher quality of education.

The study also proposed a number of specific measures designed to improve the infrastructure of adult education, to enhance its financing and quality, and also proposed named institutions which should

initiate and introduce the measures. The proposals have not yet been put into practice.

One of the important pre-conditions for the development and introduction of systemic measures is good knowledge of the existing situation in continuing education and training. Until recently the relevant statistical data and their analyses were in short supply. In recent years a number of studies and surveys have been carried out, focusing on various components of CVT. The following parts of this chapter present the main outcomes of major surveys, which illustrate the current state of affairs in continuing education in the Czech Republic.

II.1 CONTINUING TRAINING OF EMPLOYEES

Employees of various companies constitute the largest group of participants in continuing training. Despite its size and importance for the economy, until recently no coherent data about the continuing vocational training of this group were available. There were only the results of one-off surveys covering, as a rule, small samples of respondents. This not only made proper analyses and international comparison impossible, but, most importantly, it was impossible to propose the relevant measures to improve the situation. A radical improvement occurred after a statistical survey into continuing vocational training of employees was carried out in 2000.

The detailed survey concerning continuing vocational training (CVT) of employees in the CR was part of an extensive international project initiated by the European Union. In 1994 the EU conducted research into continuing vocational training of employees (CVTS – *Continuing Vocational Training Survey*), which involved 11 EU members. It covered the situation in CVT in 1993 in approximately 50 thousand companies. A similar survey was conducted in 2000 (CVTS2). **The survey was undertaken in 25 countries** (15 EU members, Norway and 9 candidate countries). A **uniform methodology** was applied and the entire year 1999 was set as the reference period. The Czech Statistical Office was responsible for the survey in the Czech Republic.

A sample of 7 thousand companies with 10 and more employees was designated for this purpose in the CR. All sectors were involved except for agriculture, forestry, state administration, education, healthcare and non-profit organisations. The structure of the sample followed the structure in industry, the structure in terms of company size measured by the number of employees, and regional structure. A high rate of return was achieved (70% of questionnaires) and the calculated results generally show good quality, where the reliability interval is estimated at around one per cent.

II.1.1 Enterprises providing continuing vocational training to their employees

Out of 31,529 Czech enterprises (with 2,386 thousand employees) **67 % provided continuing vocational training to their employees**, while 33 % did not provide it. Continuing vocational training was understood to mean various forms of training at the workplace and at another place, training courses organised internally or in external organisations, on-the-job training at the workplace, part-time studies, individual self-study, lectures, seminars etc.

The largest proportion of companies organising CVT for their employees was in the generation and distribution of electricity, gas and water (90%), manufacturing transport vehicles (87.9%), finance and insurance (85.6%), posts and telecommunications (81.3%). At the opposite end of the scale was catering and accommodation (45.8%), woodwork, furniture manufacturing and the waste industry (50.9%), retail and consumer goods repairs (57.2%) and textile, the clothing and leather industry (59.4%). These data point to **considerable differences between industries**. They are caused not only by the employers' willingness or unwillingness to provide CVT to their employees, but, above all, by a different intensity of innovation

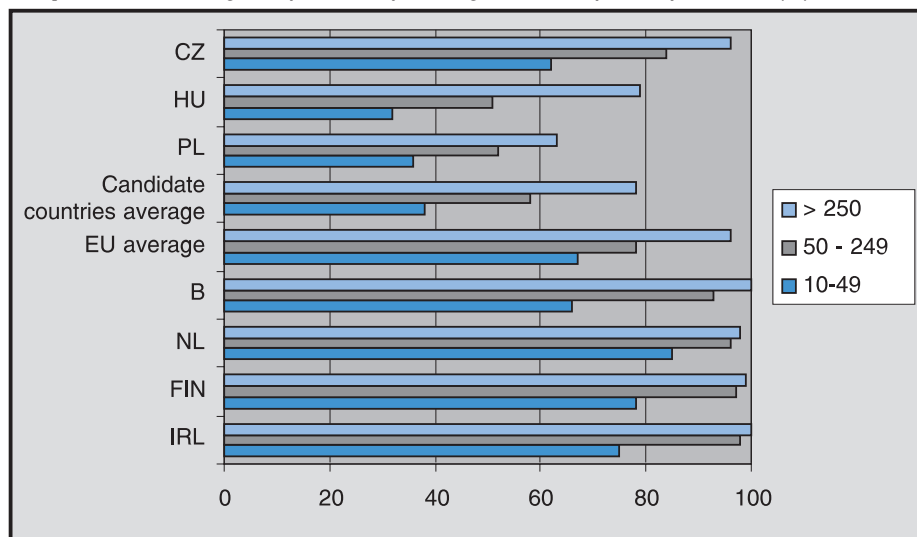
(products and services), varying levels of finance for training and varying proportions of “obligatory” (in compliance with existing regulations) and “non-obligatory” training.

The proportion of companies providing CVT to their employees was **the highest in the Czech Republic compared to all 9 candidate countries** under review. The CR was followed by Estonia (63%), Latvia (53%) and Slovenia (48%). Bulgaria (28%) and Romania (11%) end the scale. Comparison with 11 EU members and Norway is not so flattering. Denmark (96%), Sweden (91%) and the Netherlands (89%) rank the best. The other countries also show higher proportions than the CR, only Spain and Portugal are an exception with 36% and 22% respectively. Since a similar survey was carried out in most EU countries in 1994, it is possible to see the development of this indicator over time. Except in one country (Germany), **the proportions of companies providing CVT to their employees increased in all these countries.** For example, in Belgium it

went up from 46% to 70%, in Spain from 27% to 36%.

The survey confirmed an established truth that **CVT is more intensive in larger companies and vice versa.** In the CR it turned out that approximately 62% of companies with 10-49 employees provided for training, while it was already 84% in the group with 50-249 employees. In the largest group of companies with 250 and more employees the proportion was 96%. This trend applies to all 21 countries for which data were available, with no exception. However, there were differences in the number of percentage points between the largest and the smallest companies. The difference between the smallest and largest companies is 35 p.p. (i.e. the difference between 61% in the smallest companies and 96% in the largest). Compared to candidate countries the CR is among those where the provision of CVT is more balanced in terms of company size, as in most candidate countries the difference was larger. Only Poland (27 p.p.) and Romania (30 p.p.) showed a smaller difference.

Graph II.1-1 Training enterprises as a percentage of all enterprises, by size class (%)



Sources:

K. Nestler, E. Kailis: Continuing vocational training in enterprises in the European Union and Norway, Statistics in focus, Theme 3–3/2002, Eurostat 2002
K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3–2/2002, Eurostat 2002

II.1.2 Forms of continuing training of employees

Enterprises in candidate countries and in EU member states employ various forms of continuing vocational training of their employees. In principle, they may be divided into training courses and other forms of training (e.g. on-the-job training, job rotation, self-learning). The proportions of these two main forms differ country by country. In the

Czech Republic they occur with about the same frequency. 61% of companies providing in-service training to their employees used training courses, 59% other forms.

The Czech Republic is atypical among candidate countries, since they all show a lower proportion of training courses compared to other forms of

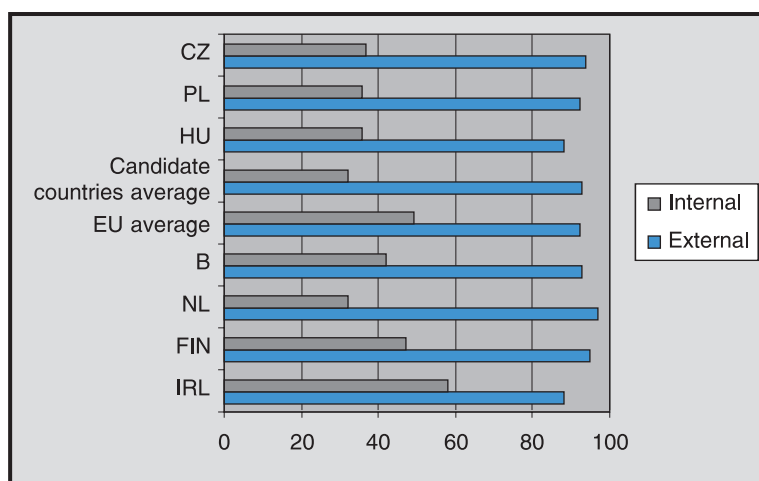
training. In terms of the predominance of training courses over other forms of continuing training the CR is close to EU member countries. In most of EU member states for which the data were available, training courses prevail over other forms of training, although the differences are not very large. Based on data from EU countries it may be concluded that training courses prevail in countries with a more intensive continuing training of employees, whereas other forms of training predominate in countries with a lower intensity of in-service training. (Statistical Annex, table E.3)

When comparing the proportions of companies providing various other forms of continuing training in the CR and in other candidate countries, it may be concluded that seminars and conferences, as well as individual self-study are more common in the CR than in other countries. Conversely, on-the-job training or job rotation are among the less frequent forms of training compared to other candidate countries. Similar conclusions may also be derived from comparison between the CR and EU member countries.

External training courses prevail over internal

Companies may either organise training courses themselves, or purchase them from external providers of vocational training (e.g. vocational schools, training firms etc.). The survey revealed that **Czech companies use training courses provided by external organisations far more often than internal courses**. While external providers were used by 94% of companies, only 37% of companies ran their own courses. Training courses are most frequently ordered from private training organisations (almost one half). The low proportion of courses organised in co-operation with secondary schools (1.4%) and universities (3.7%) is evidence of **low involvement of schools in continuing training**. Companies probably do not find their provision attractive enough, or this provision fails to meet their needs. Preference for external training providers is symptomatic for all candidate countries under review, although there are differences in the frequency of the two types of courses (both larger and smaller). The situation in the CR in this respect is very similar to Poland or Hungary.

Graph II.1-2 Enterprises providing external or internal courses as a percentage of all enterprises providing CVT courses (%) in 1999



Sources:

K. Nestler, E. Kailis: Continuing vocational training in enterprises in the European Union and Norway. Statistics in focus, Theme 3 – 3/2002, Eurostat 2002.

K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3 – 2/2002, Eurostat 2002.

External training courses also predominate in all EU countries. (Statistical Annex, table E.4, E.5) With certain exceptions, over 90% of companies ordered external training courses, while the proportion of companies running internal courses hovered between 32% and 63%.

II.1.3 – The rate of participation of employees in continuing vocational training

The rate of participation in education is one of the most important indicators in education. In Czech companies the rate was 49% in 1999. This may be interpreted so that, in the companies which provide CVT to their employees, **approximately every other employee** took part in it. This is the best result of all 9 candidate countries under review. Slovenia comes second in this respect (46%), while the third country, Poland, only revealed a 33% rate of participation of employees in continuing vocational training. The indicator was lower than 30% in all the remaining candidate countries. (Statistical Annex, table E.6)

The results of a comparison of the rate of participation of employees in CVT between the Czech Republic and EU member countries are not unfavourable for the CR. In the group of 12

countries the CR rates second, i.e. approximately in the middle. In other words, it is **approximately at the average of EU member states**. It may be flattering that Germany and Austria showed a far lower rate of participation of employees in CVT (36% and 35% respectively), and this indicator was also lower in the Netherlands (44%).

The overall rate of participation of employees in continuing vocational training varies depending on company size. (Statistical Annex, table E7, E8) In the CR the three size categories scored 42%, 42% and 53% (from the smallest to the largest size). This confirms the trend that the intensity of continuing training is higher in larger companies than in smaller ones. However, this trend was not apparent in other candidate countries. In all 8 countries under review the rates of participation did not show a growing trend from smaller to larger companies, and the differences were irregular.

In EU countries the rate of participation in training in larger companies is mostly considerably higher than in smaller ones (roughly by 5 – 15 p.p.), which reflects a more systematic approach to training in these companies. There are differences in this indicator in small (up to 49 employees) and medium-sized companies (up to 250 employees) among countries, which is obviously the result of different national policies in the area of SMEs.

Table II.1-I The rate of participation in CVT, by enterprise size (%) in 1999

Size of enterprise (Number of employees)	IRL	FIN	NL	B	EU average	Candidates countries average	HU	PL	CZ
10 – 49	47	53	46	45	46	33	32	31	42
50 – 249	49	45	45	46	44	33	22	28	42
250 and more	59	58	43	60	51	32	26	37	53

Sources:

K. Nestler, E. Kailis: Continuint vocational training in enterprises in the European Union and Norway. Statistics in focus, Theme 3 – 3/2002, Eurostat 2002.

K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3 – 2/2002, Eurostat 2002.

Worth noting is the exceptional position of the Czech Republic in terms of the rate of participation of employees in CVT by gender. The survey revealed that this rate was 53% for men and only 41% for women. In 18 countries out of the 21 covered in the survey the difference between the rate of participation between men and women was only 5 p.p. and less, while in a number of countries the rate of women was higher than that of men. Only three countries

showed a **considerable difference in favour of men: the Czech Republic**, Norway and Bulgaria. However, a more detailed analysis revealed that **Czech women spent on average more hours in training courses than men**. Another extraordinary finding was that companies in the finance sector in the Czech Republic scored the second highest rate of participation of employees in CVT in the whole group of 21 countries under review.

II.1.4 The length and content of continuing vocational training

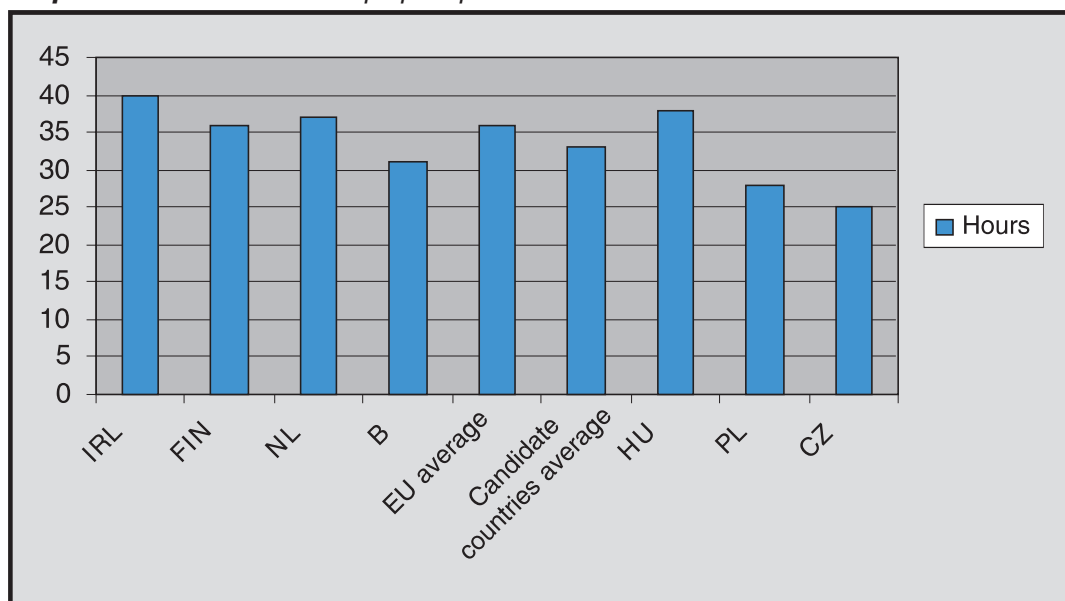
The survey undertaken in EU countries in 1994 revealed an interesting fact: countries with a higher proportion of companies providing CVT to their employees and a high rate of participation in CVT showed, as a rule, a lower average number of hours spent in training. The 2000 survey provided similar results. The highest average number of hours was recorded in Spain (42), while Sweden, which normally tops the scales, scored one of the worst results in this respect.

The average number of hours devoted to training in the Czech Republic was 25. This is similar to Slovenia (24) and below the average of both candidate (33) and EU countries (36). Interestingly, the two countries showed the highest proportion of companies providing CVT and the highest rate of participation. Contrary to this, the average duration of training courses is the longest in countries which scored the lowest in these two indicators. Of candidate countries the highest number of hours was recorded in Romania (42) and Lithuania (41). (Statistical Annex, table E.9, E.10)

Similar irregularities in the length of training courses also occur in the differences between companies in relation to their size. Instead of the expected higher number of training hours in larger companies and a lower number in smaller companies the reverse is true – in almost all candidate countries and most EU member states under review. This contrasts with frequent complaints that employees of SMEs are those who most suffer from lack of time for training.

One important aspect of **training courses** organised by enterprises is their **content**. In the Czech Republic the highest number of hours was devoted to training in foreign languages, second were courses designed to update knowledge in a particular field, and thirdly courses concerned with the use of computer technology. These first three types were followed by courses in personal skills, management and administration, accountancy and finance, courses concerned with environmental protection and work safety, and courses in trade and marketing (Statistical Annex, table E.11)

Graph II.1-3 Hours in CVT courses per participant in 1999



Sources:

K. Nestler, E. Kailis: Continuing vocational training in enterprises in the European Union and Norway. Statistics in focus, Theme 3 – 3/2002, Eurostat 2002.

K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3 – 2/2002, Eurostat 2002.

Continuing Vocational Training in TOSHULIN

TOSHULIN, a. s. is an engineering company in the Zlín region which produces machine tools, mostly for export. It has 400 employees. The company regularly carries out analyses of training needs, on the basis of which training plans and the corresponding budget are developed for the relevant year.

The company co-operates with a number of training providers and compiles a list of proven training agencies. Where more extensive training is concerned, they are invited to assist in developing tailor-made courses. Such extensive training was organised, for example, for supervisors, managers, sales representatives or purchasing staff. Some employees also work as internal trainers.

The most frequent subjects of training include foreign languages, computer technology and engineering (i.e. design). For example, over 30 employees are on an English training course.

The Structure of Training Costs Monitored in the CVTS 2 Survey

For the purposes of the survey several items were included in training costs:

- Payments to external organisations including payments to external trainers in internally run courses;
- Trainees' travelling and subsistence costs of trainees;
- Labour costs of internal trainers fully or partially involved in training of employees;
- Costs of training centres including equipment and material used;
- Contributions of companies to common funds (concerning continuing vocational training of employees).

Payments to external organisations and trainers constituted the largest amount accounting to 59% of total training costs.

II.1.5 Costs of training of employees

The survey established that in the Czech Republic the **costs of training of employees in 1999 amounted to 5.09 billion CZK**. This amount accounted for nearly 6% of total public spending on initial education and training in the given year. Per one trainee it was 5,239 CZK. Since similar data for previous periods are not available, it is impossible to assess the development of these important indicators over time.

The expenditure paid by companies for training courses is normally expressed by a relative indicator, which compares the percentage of training costs compared to total labour costs – i.e. the total gross wages including mandatory health insurance and social security contributions. While previous one-off surveys and estimates established this figure in the 1990s at under 1%, the recent survey established that the **costs of training of employees account for 1.13% of total labour costs**. (Statistical Annex, table E.12)

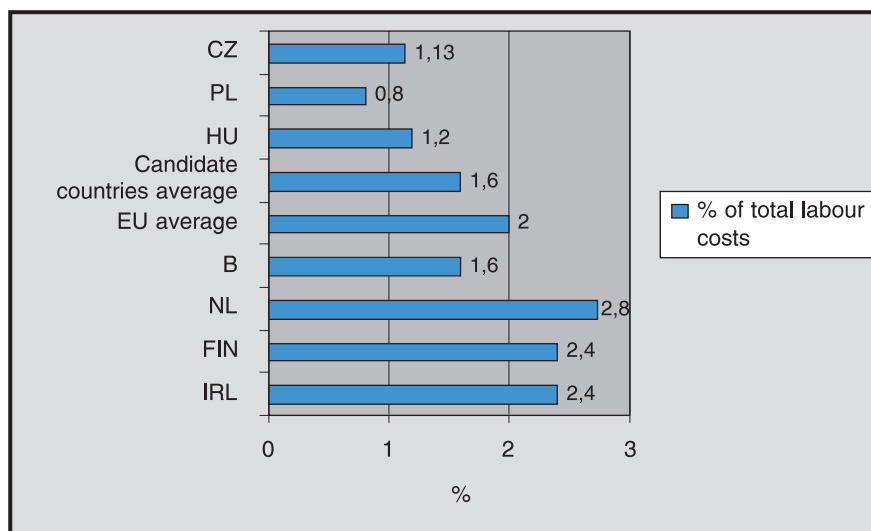
There are **considerable differences** among companies as regards their expenditure on training.

The largest amount paid for training expressed as a proportion of total labour costs was recorded in companies concerned with the generation and distribution of electricity, gas and water (5.8%). This is certainly related to the fact that companies in this sector, unlike others, are expected to organise extensive obligatory vocational training. The absolute level of expenditure on training was also above average in these companies – approximately five times higher than average and amounted to 25,330 CZK per one trainee. Expenditure on training was also far above average in finance and insurance (3.4%). The companies in these sectors apparently “pull up” the average level of training costs to the overall average of 1.13%, since in most sectors the indicator is lower than average. For example, companies concerned with mineral exploitation, woodworking and furniture manufacturing only showed 0.3%, and companies in the textile, clothing and leather manufacturing trades only 0.4%.

In terms of international comparison, the position of the Czech Republic is not favourable. The CR ranks 4th in the group of 9 candidate countries. A higher proportion of training costs is reported by Estonia (1.8%), Slovenia (1.3%) and Hungary (1.2%)¹.

¹ In the study by K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3 - 2/2002, Eurostat 2002 a figure of 1.9% is stated – a considerably different indicator. Based on consultations with the relevant CSO staff it has been established that the correct figure is that calculated by CSO. This is why Table II. 6 shows the CSO figure.

Graph II.1-4 Training costs as a percentage of total labour costs



Sources:

K. Nestler, E. Kailis: Continuing vocational training in enterprises in the European Union. Statistics in focus, Theme 3 – 3/2002, Eurostat 2002.

K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries. Statistics in focus, Theme 3 – 2/2002, Eurostat 2002.

Expenditure on continuing vocational training of employees in EU member states is higher by approximately one fourth than in candidate countries. Denmark tops the scale with 3.0%, second come Sweden and the Netherlands (2.8%) and third Ireland and Finland (2.4%). They are followed by Luxembourg (1.9%), Norway (1.7%), Belgium (1.6%), Germany and Spain (1.5%), and Austria and Portugal end the scale with 1.3%. This means that the average expenditure on training is higher in all EU countries than in the CR.

As similar data were collected in EU member states in 1994, it is possible (at least for some of them) to see their development over time. It is clear that

expenditure on the training of employees in the EU has been **increasing rapidly**. In Denmark it increased in the period of 1994-1999 from 1.8% to 3.0%, in the Netherlands from 1.8% to 2.8%, in Ireland from 1.5% to 2.4% etc. The lowest increase occurred in Germany (from 1.2% to 1.5%).

Training costs per employee may be divided into “direct costs” of training courses, and “labour costs of participants” – i.e. the costs of compensating for time spent in training. Both items are related to purchasing parity standard (PPS). The following table shows selected data for some EU and candidate countries.

Table II.1-2 Training costs structure per employee (PPS)

Country	Total costs	Direct costs	Labour costs of participants	Contributions and transfers to funds (+)	Subsidies (-)
DK	1124	642	481	23	22
S	907	518	415	4	31
B	882	351	498	48	15
IRL	762	468	304	10	20
FIN	758	419	358	10	30
HU	305	126	101	84	6
CZ	293	181	114	0	2
SL	238	144	101	1	8
PL	197	128	70	0	0

Sources: K. Nestler, E. Kailis: Costs and funding of continuing vocational training in enterprises. Statistics in focus, Theme 3 – 8/2002, Eurostat 2002.

From comparison of the costs of training courses per hour it is clear that Scandinavian countries are at the top, candidate countries at the bottom. The Czech Republic ranks 16th of 21 countries.

An analysis of the structure of training costs shows an interesting finding. The overall training costs consisted not only of direct training costs and compensatory wages for participants, but also of the difference (balance) between statutory contributions to common (national, regional, sectoral) funds and resources obtain from these common funds or schemes. It is typical of most candidate countries that these figures are near zero and it of some importance only in Hungary and

Slovenia. The explanation is simple: there are specific schemes of training levies in these two countries, while there are none in the remaining ones. In all EU countries contributions and subsidies obtained from such schemes have a significant effect on training costs incurred by companies. The final balance is in favour of subsidies in most countries – i.e. companies obtain more than they contribute, which stimulates their interest in their staff development.

European countries operate various forms of financial schemes focused on the development of continuing training. Here are some examples:

Denmark	<ul style="list-style-type: none"> • Financing educational institutions based on performance • Public financing of employee training leave • Financing for the unemployed by the Public Employment Service or the municipality
Finland	<ul style="list-style-type: none"> • State subsidy to major providers of additional vocational training • Education and training insurance scheme as financial aid to adults during their studies
Portugal	<ul style="list-style-type: none"> • Obligatory financial contribution by companies for individual educational leave • Indirect tax levy for training • Free provision of training to adults • European Social Fund (important role)
Spain	<ul style="list-style-type: none"> • Subsidies to private training centres • Training financed through training fees paid by businesses and workers • Contributions from the ESF and regional governments
Great Britain	<ul style="list-style-type: none"> • Financial support to students • Individual Learning Accounts • Loans and grants • Tuition-free remission

Source: Beyond Rhetoric: Adult Learning Policies and Practices. OECD, Paris 2003.

II.1.6 Development of training in Czech enterprises

The aforementioned survey also concerns the situation in continuing vocational training in 1999 as compared to previous years and with a view to years to come. The data collected not only confirm the general trend of **continuing training expansion**, but also suggest **acceleration of these developments**. Approximately one fourth of companies which provided training to their

employees in 1999 mentioned that the scope of training activities was higher than in the previous two years. The expansion is larger in larger companies. This would mean that the gap between the rate of participation in training in large companies on the one hand and in SMEs on the other hand will further widen in the upcoming years.

As regards future projections, approximately 60% of companies stated that they would provide training to their employees in the years 2000 and 2001. The differences between companies according to their size category apply here as well.

Why do companies not provide CVT to their employees?

The survey showed that **one third of Czech companies did not provide CVT to their employees in 1999**. There were five principal reasons. The most frequent reason is that the companies believe that the existing knowledge of their employees is sufficient. The second most

frequent reason was that they recruit new people who meet their requirements. The other reasons included excessive costs of training, sufficient initial education which the employees acquired earlier, and the high workload of employees. With some exceptions the reasons follow the same order in all countries under review. Compared to EU member states the cost of training courses in candidate countries, including the CR, is a major factor deterring companies from implementation of CVT in companies. The non-existence of financial incentives in most candidate countries adds further weight to this factor. (Statistical Annex, table E.12, E.13)

Tab. II.1-3 *Non-training enterprises by reason for not providing CVT (%) – candidate countries*

	IRL	FIN	NL	B	EE	HU	SI	PL	CZ
Existing skills of employees correspond to the needs of enterprise	89	71	72	75	69	83	60	82	86
Recruited people with the required skills	77	54	58	42	54	70	59	27	48
CVT costs are too high	0	16	8	12	41	22	22	37	14
Initial training is sufficient	36	22	8	40	30	39	27	36	12
Employee workload	18	27	14	24	17	12	16	14	6
Other reasons	21	20	26	38	5	4	13	2	5

Source: K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries. Statistics in focus, Theme 3 – 2/2002, Eurostat 2002.

In 2002 the National Observatory of Employment and Training (a unit of the National Training Fund) carried out a company survey. Continuing training was also involved. A total of 901 respondents provided their answers – people responsible for training and recruitment in enterprises. The outcomes of the survey complement the results of the aforementioned statistical survey into CVT in companies. For example, they confirmed the proportion of companies providing CVT to their employees, the slight growth in the scope of CVT and only a small increase in expenditure on training. The survey showed that short training courses predominate in the CVET of employees (up to 5 days), and that their share of overall training according to employee categories ranges from 42% to 88%, and that these courses are delivered by external training providers. Moreover, the trainees themselves cover around one tenth of the training costs – this proportion is the highest in the smallest companies. Information about training provision is most frequently obtained from the providers themselves. Questions concerning the future clearly show that

companies would welcome improvement in the funding CVT on the part of the state. This is in line with the existing proposals concerning the introduction of financial incentives for the development of CVT. In view of the CR's accession to the EU Czech companies realize the need for upgrading the skills of their workers, particularly language and IT skills. Approximately 35% of companies stated that they plan to increase expenditure on training after the CR joins the EU.

II.1.7 Opportunities for further development

Continuing training of employees in enterprises and other organisations will remain the most extensive part of continuing education and training as a whole. In view of the development in this area to date, the expected economic development (including globalisation and growing demands for competitiveness), and the impact of education policy on continuing

education at European level, it is possible to expect that the indicators related to CVT of employees will further grow. The question is how dynamic the development will be and to what extent the CR will manage to approximate to the CVT indicators in countries of the European Union.

Development in the future will be a factor affecting the possible introduction by the state of incentives

for the development of continuing training, which are mentioned, for example, in the National Programme for the Development of Education in the Czech Republic (White Paper). Future development will also be influenced by the degree to which the aims set out in the Strategy for Human Resources Development in the Czech Republic will be implemented – both at national and regional levels.

II.2 CONTINUING EDUCATION AND TRAINING OF THE POPULATION OF THE CZECH REPUBLIC

As a result of convergence between regular labour force sample surveys (LFS) of the Czech Statistical Office and the European Union standard a fundamental change occurred in 2002 in relation to the content of the survey. The block of questions about educational attainment was substantially modified, and the set of characteristics concerned with respondents' current educational activities was extended. By means of this information about CVT was obtained which, up to that point, had not been available. In the future it will be possible to compare the data over time and acquire further information about the development of the educational attainment of citizens during their active working life.

II.2.1 How many people participate in education

The survey in selected households was focused on persons at the age of 15 and older and the data about training programmes they have completed or are currently taking, regardless of whether they are related to the respondent's current or future employment. The information acquired contains data about education within the schools system, continuing education in companies, training for a particular job, seminars, distance learning, part-time courses, self-learning etc. Self-learning is only considered if it provides knowledge at the level of a training course. The data concern courses with a general focus, courses in a subject which is of personal interest to the participants, language

courses, courses in driving, data processing, management skills or arts. If the respondent is involved in several courses, the one which is most important for his/her current or future job is considered. The **reference period is always the last four weeks** and all questions are related to courses or programmes completed in full.

A total of 1,122 thousand people aged 15 and older were undergoing some kind of initial or continuing education or training in 2002. A majority of them were pupils and students (782 thousand – i.e. 70% of all people involved in training), then employees including women on maternity leave (295 thousand – i.e. 26%). Other groups – mostly pensioners - accounted for 45 thousand (4%).

Table II.2-1 Number of people in the education process by regular economic categories (annual average 2002, in thousand)

	Total	Pupils and students (ISCED 2-5)	Economically active population	Pensioners	Others
Total	1 122,3	781,7	295,2	29,5	16,0
Men	563,1	394,2	153,6	11,8	3,5
Women	559,2	387,5	141,6	17,7	12,5

Source: CSO- Labour Force Survey

Note.: Persons aged 15 and older are included.

If the tables and the text contain data about the economic position of the respondents, this is understood to mean a regular economic category. These data are related to a longer period of at least three months and facilitate a more accurate breakdown of respondents into main groups by their social status – as distinct from the position in the reference week where any economic activity (without classification) is considered. This approach affects the size of the category of employees which, as opposed to the data related to the reference week, does not include employed pensioners and students, women on maternity leave performing odd jobs etc.

The proportion of the **economically active population** participating in continuing training was 6.4% of all persons with one (main) employment. This suggests that continuing training has a considerable impact on upgrading the skills level of the labour force. Moreover, it must be noted that the questions concerned only training activities during merely the four weeks before the date of the survey. If the reference period was longer, the number of participants in continuing training would increase since numerous short-term courses undertaken longer than a month beforehand would be included in the calculations. This is why the rate of participation in training established by this survey is lower than the rate identified in the survey on the continuing vocational training of employees described in part II.1 of this chapter.

Rates of participation of various groups of the economically active population in continuing training

The intensity of training is most frequently measured as the rate of participation in training by specific groups of the population. **The intensity of continuing training differs slightly** depending on position in employment. Employers are a little more involved in training than employees and self-employed persons. There are **large differences in the intensity of CVT among industries and**

categories of occupations. People working in the primary and secondary sectors show a very low training intensity (1-4% of overall employment in the relevant sector, except generation of electricity, gas and water where the proportion of workers involved in training is above average – 8.6%). Conversely, **high intensity of CVT occurs in most industries of the services sector**, where the limit of 10% of total employment was exceeded in four categories: in public administration, defence and social security (11.8%), real estate, renting, business services, research and development (12.5%), in finance and insurance (15.5%) and education (15.6%). A relatively high rate proportion of workers undertaking training was also identified in healthcare (9.0%). (Statistical Annex, table E.15, E.16)

There are significant differences in the intensity of training between the main categories of occupations, namely those requiring high skills and others including, above all, manual professions, plant and machine operators, service workers and shop and market sales workers, and elementary occupations. Continuing training is common particularly in the 2nd ISCO category – scientists and professionals, where almost one fifth of the people participated in training over the four weeks. In the category of armed forces it was 14.7% of people and 10% in the group of senior officials and managers and in the large group of technicians, healthcare personnel and teachers.

Table II.2-2 *Specific rates of participation in CVT by employment position, industry and occupation category (annual average 2002, in %)*

Employment position, industry, occupation category	Total	Men	Women
Total	6,4	5,9	7,1
Employment position: Entrepreneur with employees	7,3	6,4	10,5
Entrepreneur without employees	6,3	5,4	8,5
Employee	6,4	6,0	7,0
Member of a manufacturing cooperative	1,6	1,7	1,4
Assisting family member	4,9	0,0	5,7

Source: CSO- Labour Force Survey

The outcomes of the survey also show that **the intensity of participation of working women in CVT is higher than that of men.** The proportion of women in CVT exceeded 7% of all working women, while for men it was lower than 6%. Women more often undertake training in all major employment positions (i.e. employees, employers and self-employed people). A higher rate of participation in CVT among women is illustrated by the differences in the specific rates in three occupation

categories, which mostly require a university degree and where CVT was implemented most frequently. The intensity of CVT of women is higher than that of men in the 1st ISCO category (legislators, senior officials and managers), in the 2nd category (scientists and professionals) and in the 3rd category (technicians, healthcare personnel and teachers).

One important factor is the different employment structure of men and women by

industry. A majority of men still work in industry, construction and transport, where, in general, improvement of skills occurs sporadically. Conversely, 70% of women work in services and most industries of the tertiary sector are marked by a high rate of participation in continuing training.

The higher rate of participation of women in CVT is, and this may seem a paradox, not apparent within individual industries and most industries show higher rates of participation for men. The higher relative rate of participation of men in CVT within industries is mainly the result of the fact that men often hold management and expert positions, where continuing training is more frequent than in other jobs within the industry. Women, if they do hold such posts, improve their skills at the same frequency as men or even more often – e.g. in the category of legislators and senior officials, or in the category of managers of small enterprises.

By means of combining the respondents' occupational categories and industries it is possible to identify **groups of occupations with high rates of participation in CVT**. The highest rate of participation in CVT occurs in the 1st ISCO category in finance and insurance, and in healthcare and education. This is followed by the 2nd ISCO category – again in healthcare and education, and also in electricity, gas and water supply. Low intensity of training is apparent in the category of semi- and unskilled workers, skilled agriculture and forestry workers, and in plant and machine operators across all industries (except healthcare, industry, electricity, gas and water supply and in other community and personal service activities).

For certain groups the specific rates are influenced by other factors, such as the fact that the 1st category includes a number of entrepreneurs who, in addition to organisational and management duties, perform in their business the occupation for which they have been trained, and these

Table II.2-3 *Specific rates of participation in CVT by industry (annual average 2002, in %)*

Industry	Total	Men	Women
Agriculture and hunting	1.4	1.3	1.4
Forestry and fishing	3.7	3.9	3.1
Mining and quarrying	2.3	2.7	0.2
Manufacturing	3.6	3.8	3.3
Electricity, gas and water supply	8.6	8.2	9.9
Construction	3.2	2.8	7.5
Wholesale and retail trade, repair of motor vehicles and household goods	5.1	5.4	4.9
Hotels and restaurants	2.8	2.2	3.2
Transport, storage and communications	5.2	5.3	5.1
Financial intermediation	15.5	16.8	14.6
Real estate, renting, services, research and development	12.5	12.4	12.7
Public administration, defence, social security	11.8	11.8	11.8
Education	15.6	19.4	14.5
Health and social work	9.0	14.6	7.6
Other community, social and personal service activities	8.7	9.9	7.5
Total	6.4	5.9	7.1

Source: CSO – Labour Force Survey

individuals do not always have high educational attainment. Similarly, in view of the size of the sample it is impossible to identify intensity of training in some smaller groups with appropriate accuracy. Table E.17 in Statistical Annex therefore presents specific rates of participation in CVT in groups of the labour force according to the main

ISCO categories and NACE categories, where the absolute number of people was at least 2 thousand.

The high rates of participation in CVT in the categories of managers, senior officials and professionals are also seen from **the scale of six groups of occupations** with the highest CVT intensity: specialists in biology and medicine

(27.5% of them participated in training), specialist teachers (21.2%), other teachers (18.0%), other specialists and scientists (15.1%), specialists in physics, architecture and engineering (14.9%) and managers and senior officials in large companies (14.6%). On the other hand, there was very low, almost no participation in CVT in the categories of semi- and unskilled workers, craft and related trades workers, plant and machine operators and shop and market sales workers. (Statistical Annex, table E.18)

11.2.2 Factors affecting the structure of individuals participating in CVT

A close correlation between educational attainment and the rate of participation in CVT is clear from comparison of specific rates of participation in CVT by educational attainment. Only 1% of people who have basic education take part in some form of training over four recent weeks. It is somewhat alarming that only every fiftieth person participated in training in the largest group of people with upper secondary education without “maturita” (ISCED 3C) (43% of all people in the national economy). **The rate of participation in CVT increases along with educational attainment** – 8.1% of individuals with upper secondary education with “maturita” (ISCED 3A), 18.2% of university graduates and over one third of graduates from advanced research qualification programmes – ISCED 6 (34.9%) were involved in CVT.

The differences in employment structure, the share of the tertiary sector in employment and the proportion of the labour force with university and upper secondary (with “maturita”) education are also apparent in terms of **regional differences in participation in CVT**. Compared to most regions (NUTS3) in the CR the intensity of CVT is far higher in Prague, where the occupation and qualification structure of the labour force is different. The rate of participation in CVT in Prague is double the national average (12.3% of Praguers compared to 6.4% of total employment in the country). The intensity of CVT is particularly high in young people in the capital (25.3% in the 15-19 age group, which is almost four times more than the CR average, and in other five-year age groups up to 55 it was over twice as high).

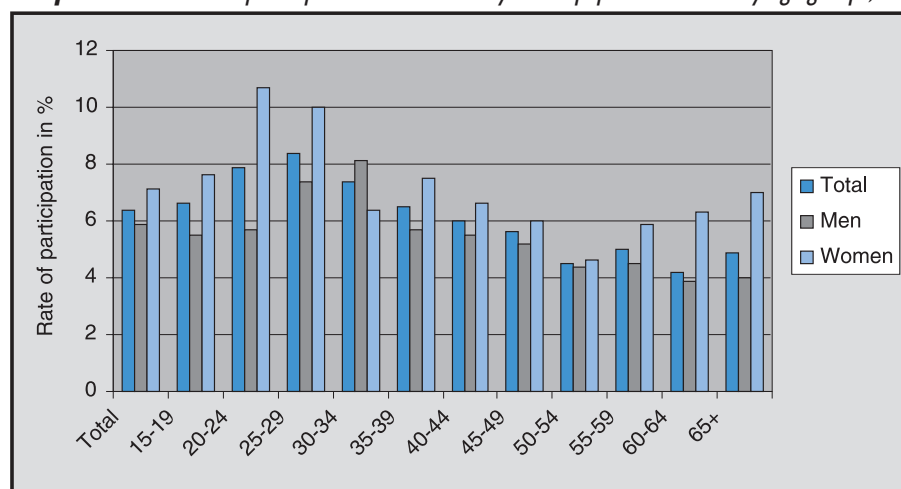
CVT opportunities are pursued particularly by people with a high skills level, while large groups of low-skilled labour force and individuals with

vocational education without “maturita” are not involved in CVT. This further aggravates the considerable differences in terms of employment opportunities for various groups of the population. It is impossible, from the results of the sample survey, to assess the extent to which CVT is influenced by the willingness of the respondents to upgrade their qualification, and to what extent it is pressure on the part of employers who create suitable conditions for the training of their employees or at least accept their interest in further training. The existence of the large group of employees (young and middle-aged) who do not upgrade their qualifications or enlarge professional knowledge suggests that the conditions in the CR are far from stimulating, both in terms of raising interest in CVT and developing the appropriate forms of training provision, which would suit the low-skilled labour force in particular.

The survey has shown that **the intensity of CVT is considerably affected by educational attainment, occupation and type of economic activity.** The age of the respondent is less important. With the exception of the youngest five-year age group of working age and the group aged 60 or more, **the number of the labour force participating in training is, on the whole, evenly distributed across all five-year age groups ranging from 20 to 59.** The proportion of participants in training is the highest in the 25-29 age group, but it only slowly decreases in the older groups to the level of 5% in the 55-59 group. The highest specific rate of participation in CVT for men is in the 30-34 group, for women in the 20-29 group. The generally higher rate of participation of women is also confirmed by the fact that the specific rates for men are higher than for women virtually in all groups at working as well as post-productive age.

As regards the **forms of training**, over 76 thousand CVT participants attended training programmes in schools or in specialised training establishments, where normally a teacher and one or more students are present. Slightly fewer (55 thousand) people trained at their workplace without attending a training facility. Very little use was made of the system of training which combines teaching and practical training (1 thousand). A decisive part (162 thousand) was involved in other types of training – i.e. all forms of self-learning and alternative forms of study, which are equal to regular courses at schools or training facilities (e.g. distance learning, self-study, study using the

Graph II.2-1 Rates of participation of economically active population in CVT by age groups, 2002



Source: CSO - Labour Force Survey

Internet – provided it is recognised as a proper form of study).

The forms of training suggest that **only a small portion of respondents pursuing CVT could, in this way, increase their formal level of education** (less

than 50 thousand). The most frequently pursued training is that leading to secondary vocational qualification (with “maturita”) including follow-up courses (17.5 thousand) and university degrees (18.8%). Part-time Bachelor courses or courses provided by higher professional schools are also in

Table II.2-4 Economically active population in CVT by level and type of training (annual average 2002, in thousand)

Level of training	Of which: proportions (%) by type of training				
	Total	Courses at school specialised training facility	At the work place without attending a training facility	Alternation training	Other type of training (including self-learning)
Total	295.2	25.8	18.8	0.1	54.8
Of which					
Basic school (ISCED 1-2)	-	-	-	-	-
Gymnázia (ISCED 3A)	-	-	-	-	-
Vocational training without “maturita” (part of ISCED 3C)	1.1	27.3	9.1	36.3	27.3
Other secondary, post-secondary and follow-up courses (ISCED 3-4)	17.5	59.4	11.4	1.1	28.0
Bachelor courses, higher professional courses, conservatoires (ISCED 5B)	6.7	89.5	3.0	1.5	6.0
Masters courses at universities (ISCED 5A)	18.8	65.4	4.8	0.0	29.8
Advanced research qualification (ISCED 6)	5.8	52.8	17.2	-	30.0
Other courses (impossible to use ISCED classification)	244.9	18.0	20.9	0.2	60.9

Source: CSO – Labour Force Survey

great demand, and so are advanced research qualification programmes.

The number of men pursuing training whereby they may enhance their formal qualification was almost identical to the number of women. The difference was that working men more often complete university and doctoral courses, while women more frequently take training programmes at secondary vocational level.

11.2.3 The reasons for pursuing CVT and its intensity

A sizeable proportion of the participants in continuing vocational training attend courses

because they are interested in the particular topic. There are also people who completed at least one training programme and, after a certain period, continue in training in order to upgrade their qualifications and knowledge. There were nearly 45 thousand respondents who said they were attending training courses as part of an active employment policy programme. This includes retraining which is partly organised or financed by the relevant labour office. This need not correspond with official data, since the data is subjective and the respondents often do not know which institutions are involved in this type of training. Some 10 thousand respondents said they were employed, but at the same time trained for their future career (mostly young people up to 34).

Tab. 11.2-5 Number of employees participating in CVT according to purpose (annual average 2002, in thousand)

Purpose of training	Total	% of males	% of females
Total	295,2	52,0	48,0
Of which:			
Systematically train for a future career	10,4	53,8	46,2
Undertake CVT	81,3	51,4	48,6
Undertake training as part of active employment policy	44,8	54,9	45,1
Undertake courses out of own interest	158,5	51,5	48,5

Source: CSO – Labour Force Survey

Respondents attending continuing training at the workplace were also asked about the number of hours of training per week (studies at home were not included except in cases of self-learning and distance learning). Over one third of respondents (38.2%) trained for up to 5 hours a week and one fourth (23.7%) from 5 to 10 hours. Quite a large group (10.5%) spent between 15 and 20 hours per a week on training. The proportion of other answers was smaller. Even so, there were cases where the number of hours spent on training approached the number of hours in full-time employment.

The respondents who participate in training either at school or at their workplace were asked about the overall duration of the training, calculating the part already undertaken and the remaining portion. The training programmes concerned are mostly longer (often more than 2 years). Conversely, there is a far smaller number of courses shorter than one week.

In addition to employees participating in training, it is necessary to mention a relatively large group

of pensioners (almost 30 thousand), who receive various forms of old-age, invalidity and partial invalidity pensions. Most of them attend training courses which do not lead to a higher qualification, but improve and expand their knowledge in a given field.

11.2.4 Retraining

Continuing training of job seekers and persons at risk of job loss, which is denoted as retraining, is one of the forms of lifelong learning and, also, part of an active employment policy. Through retraining the existing qualification of an individual is changed by means of either theoretical or practical training, resulting in the acquisition of the new knowledge and skills necessary for employment. Retraining is organised (and the relevant training costs covered) by labour offices in co-operation with training providers in the particular region. The providers include public or private vocational schools or training firms which meet specific requirements (e.g. they must be authorised to issue national certificates

documenting the qualification achieved). Retraining takes various forms depending on its objective:

- Specific (targeted) – based on specific labour market demand, possibly a job promise,
- Non-specific – based on anticipated labour market demand,
- Pre-retraining – provides knowledge and skills necessary for meeting qualification requirements in order to start the relevant retraining,
- Motivational – facilitates professional orientation with subsequent retraining for a specific job,
- Restoring – restores knowledge and skills in the field in which the individual has not worked for a long time,
- Expanding – expand the individual's qualification by a new qualification in a different field
- Improving – improves knowledge and skills in the relevant field,
- Complementary – complements the knowledge of the job seekers in line with requirements of the future employer,

- Employment-related – organised by the employer to assist the employee in performing other jobs and tasks – normally during working hours.

The number of participants in retraining has been growing, particularly in relation to the development of an active employment policy and the rate of unemployment (the number of job seekers registered at labour offices). There have also been changes in the structure of participants in retraining. In 2002 a total of 36,015 people undertook retraining, of which two thirds were women and one third men. Approximately 10 thousand participants in retraining were school leavers. Individuals aged 20-24 formed the largest group. Specific retraining was the most frequent form (37% of all participants). Other frequent forms included non-specific, complementary and motivational retraining. Almost two thirds of participants in retraining attended courses shorter than 3 months. Some 65% of participants found a job within 1 year of the completion of the retraining course.

The development of the numbers of participants in retraining and the level of costs over the last 8 years is illustrated in the table II.2-6.

Table II.2-6 Numbers of participants and costs of retraining

Year	Number of participants in retraining	Costs (thousand CZK)
1995	13 454	100 091
1996	12 107	91 727
1997	11 448	90 418
1998	16 381	147 325
1999	22 938	227 957
2000	33 331	334 794
2001	35 145	382 652
2002	36 015	370 431

Source: Ministry of Labour and Social Affairs

Retraining in the Tábor region

In February 2003 the rate of unemployment in the Tábor region was 6.01 %. In 2002 the labour office in Tábor organised retraining for 188 people and there has been a slight increase in the number. Approximately 70% of individuals who completed retraining found a job within 6 months. Retraining was organised both for larger groups (motivational and

PC courses), and for individuals – courses targeted on particular occupations. The labour office organises retraining in co-operation with public as well as private training providers in the region (private ones predominate). The total cost of retraining incurred by the Tábor labour offices was 1,702 thousand CZK in 2002. Retraining is viewed by labour office staff as the most efficient measure within an active employment policy.

11.2.5 Opportunities for further development

In the upcoming years Czech education policy should take more account of the objectives and principles of the European Memorandum on Lifelong Learning and other relevant documents of European education policy. Positive developments in this respect included the establishment of the Human Resources Development Council under the Czech government, and the activities of certain regions. Barriers limiting access to education for young people should be removed both in initial and continuing education in order to enhance participation in education. In the area of initial education there is a need for a more flexible and faster introduction of modular programmes, and for improving educational opportunities at the tertiary level, which would meet the existing demand and alleviate the discrepancy in this respect between the CR and most EU countries. In order to ensure the systemic development of continuing education and training it is necessary to set up an appropriate national framework with the relevant legislation and institutional structures. Moreover, regional structures should be formed so as to facilitate co-operation between

various partners in the public sector, educational institutions, companies and associations in order to increase participation in CVT.

The development of CVT will be affected by the introduction (or non-introduction) of financial and non-financial incentives. The target groups and mechanisms have already been identified. These indirect incentives should focus on various actors: employers (e.g. possible deduction of training costs from the corporate tax base, training levies), training providers (e.g. differentiated "coefficients" determining state funding with respect to their activities in CVT), individuals (e.g. possible deduction of training costs from individual income tax base), job seekers (e.g. differentiated material security depending on participation in retraining) etc.

Another challenge lies in the approaching accession of the Czech Republic to the European Union and the opportunity for using European funds. The most important ones include the European Social Fund and its measures aimed at promoting the development of lifelong learning. The prerequisite for its use is the existence of organisations capable of designing and running extensive educational projects, particularly at regional level.

11.3 DEMAND FOR CVT ON THE PART OF ENTERPRISES AND THE EXISTING SUPPLY

11.3.1 Demand for CVT on the part of enterprises

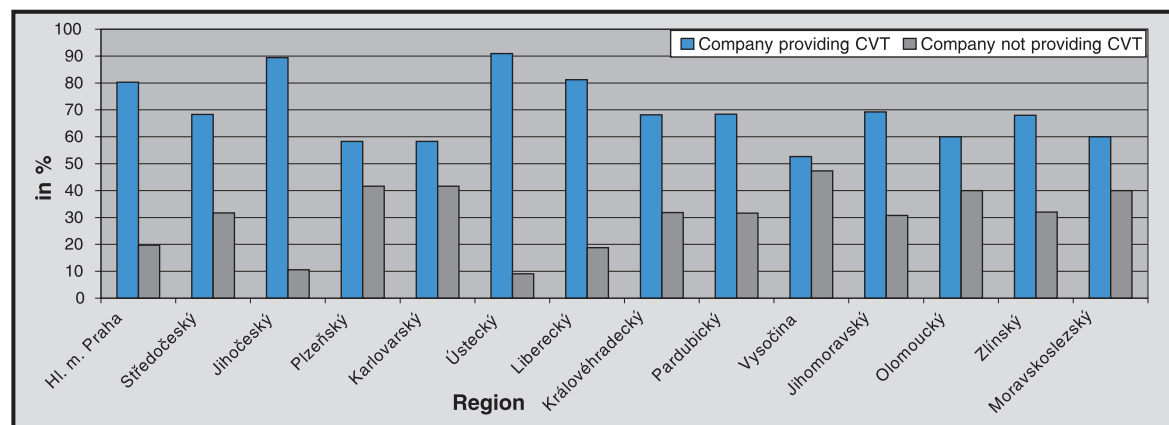
Existing demand for CVT on the part of companies may be assessed based on a survey focused on training in companies, which was conducted in 2002 among 428 companies. Over 70% of companies organise training for their employees and 40% of companies offer financial contributions for training even if it is outside the scope required by the employer. This implies that continuing training of employees is considered by most employers to be an important aspect of business development.

The Information System for Lifelong Learning Project

The Institute for Information on Education is implementing a project entitled "**Information System of Continuing Education and Training as Part of Lifelong Learning**", which has been commissioned by the Ministry of Education, Youth and Sports. The project's duration is two years (2002 and 2003) and the outcome should be a model of an information system of CVT. The design

and implementation of the information system (and linking it to the information system of initial education and training) is closely related, above all, to the needs of its potential users and resources (in terms of legislation, technical solutions and financial resources) available to the organisation responsible for the system. The information system, which would contain the relevant information, appears to be a prerequisite for any strategic or operational steps and decisions designed to promote the development of lifelong learning.

When assessing the distribution of companies which organise CVT for their employees in terms of their residence, it is clear that demand for CVT differs region by region. Training receives considerable attention in the Ústecký, Jihočeský and Liberecký regions, and also in Prague. Conversely, the ratio of companies involved in training and those not involved in training is almost 1 to 1. A relatively large proportion of companies who do not provide CVT to their employees can be found in the Karlovarský, Plzeňský and Moravskoslezský regions.

Graph II.3-I Companies providing and not providing CVT to employees by region (in %)

Source: Institute for Information on Education

The most frequent topics of CVT courses provided by employers include business and accounting, foreign languages, computer technology and its use, courses focused on technologies and marketing and driving courses. The overall variety of courses organised by companies is much wider. Within the sample surveyed some 20 types of training courses were identified, while some

companies organised up to 10 courses on different topics. (Statistical Annex, table E.2)

CVT courses organised by companies are in most cases delivered by external training providers. Employers prefer training organisations accredited by the MEYS. Some employers do not know whether or not their training provider has the MEYS accreditation.

Table II.3-I Providers of first five CVT courses for enterprises in %

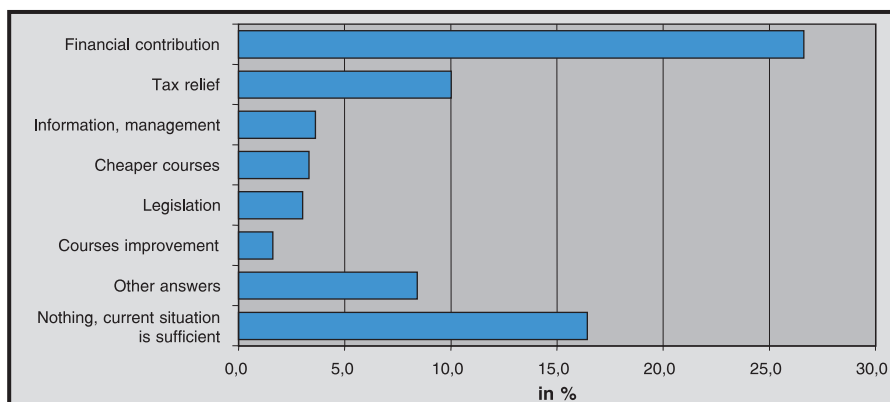
Company training providers	1 st course	2 st course	3 rd course	4 th course	5 th course
1. Internal training courses	8,1	7,8	2,2		
2. Training provider with MEYS accreditation	36,3	37,2	39,1	58,3	75,0
3. Training provider without MEYS accreditation	10,8	10,9	10,9		
4. Not sure whether the provider has MEYS accreditation	24,1	26,4	28,3	33,3	25,0
5. Another organisation	19,3	17,1	17,4	8,3	
6. Does not know, no answer	1,4	0,8	2,2		

Source: Institute for Information on Education

The fact that 60% of the companies under review prefer external training providers suggests that they are more or less happy with their provision. Almost one third (30%) of companies prefer their own training courses. This is in line with the results of the CVTS 2 survey, which are presented in the 1st part of this chapter. A majority of companies (85%) **prefer short, intensive training courses to long courses.**

The demand of companies for CVT would certainly be increased by state support provided to organise such activities. As the graph below illustrates most employers calling for changes would **welcome financial support from the state for the CVT of employees or some form of tax allowance** related to the provision of CVT. Interestingly, some employers (not a negligible proportion) are satisfied with the current situation and do not demand anything from the state.

Graph II.3-2 What conditions and incentives for CVT development provided by the state would be welcomed by companies (in %)



Source: Institute for Information on Education

State bodies should not disregard the most frequently cited requirements, the satisfaction of which would facilitate more extensive CVT of employees and CVT in general. The positive effects of both direct and indirect incentives can be seen in EU member countries where they are widely used. At present, Czech companies may only receive financial support for retraining and the creation of new jobs. The objective of this support is to increase employment, or to promote investment and create new jobs, although in some companies it may also benefit CVT of employees.

The Use of Incentives in Autopal, s.r.o. in Nový Jičín

In 1998 an investment incentives scheme was introduced in the CR. It is administered by the Ministry of Industry and Trade in co-operation with other ministries, mainly the MLSA. There are five investment incentives including interest-free loans for the creation of new jobs and for settlement of costs related to the training of employees. Both loans are extended by the MLSA. Upon meeting the relevant requirements, part of any interest-free loans may be converted into subsidies to an extent depending on the rate of unemployment. Autopal, s.r.o. in Nový Jičín, which produces parts for the car industry, applied in 1999 through the CzechInvest agency for interest-free loans and other investment incentives. Since Autopal (part of the Visteon company which is committed to investing approx. 33 million USD in 2000-2003) met the requirements, it was granted the loans and other advantages (e.g. a five-year income tax holiday, duty-free import of technologies). The MLSA extended an interest-free loan totalling 20,680 million CZK for the creation of 167 new jobs, and an interest-free loan of 3,460 million CZK for training the relevant labour force

(for a period of three years). Upon meeting the relevant terms 40% of the amount for training was converted into a subsidy. This gave substantial help to Autopal. Autopal trains over 4,000 people every year. In 2001 its expenditure on training constituted 2.37% of total labour costs, which is about double the national average.

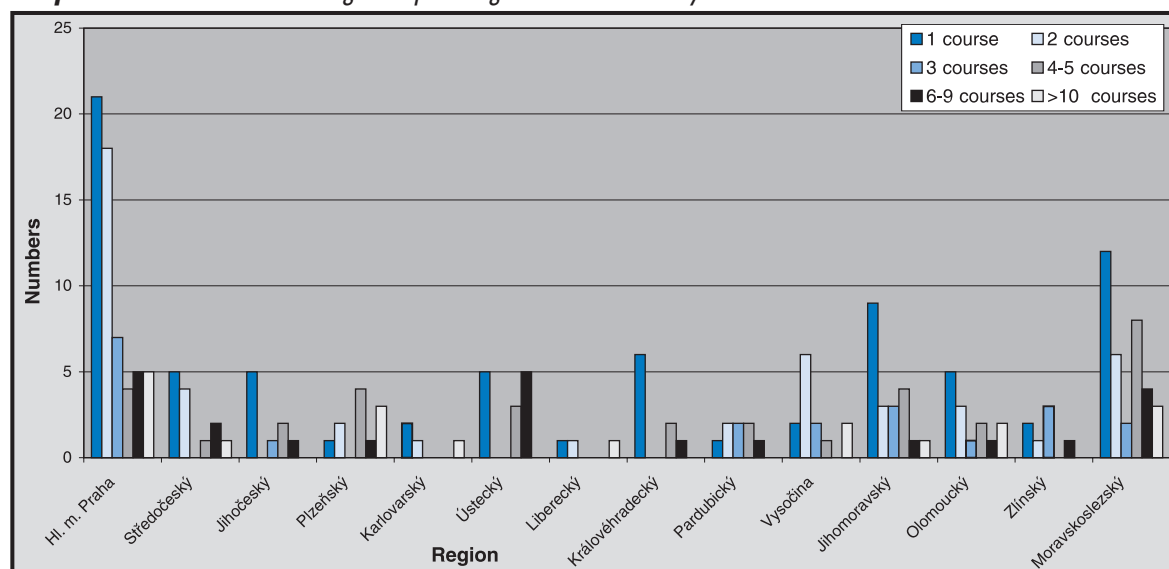
II.3.2 CVT provision

Providers of CVT include, in addition to schools, training firms. In the following text we will focus on the provision of training firms. There are firms providing courses accredited by the Ministry of Education, Youth and Sports, the other group of providers consists of firms without this accreditation.

II.3.2.1 Training courses accredited by the MEYS

A total of 1,044 companies were identified as providing courses accredited by the MoEYS within the project "Design of an Information System of CVT as part of Lifelong Learning" implemented by the IIE. The companies were contacted in the project and 244 training firms provided information about their provision. Data from 234 firms were processed. The focus of training programmes (either on companies or the general public) was also taken into account in processing the data.

When observing the range of programmes on offer, **most companies provide only one type of course** (35%), or 2 types (21%). Only in exceptional cases do companies provide more than 10 types of training courses.

Graph II.3-3 Numbers of training firms providing courses accredited by the MEYS

Source: Institute for Information on Education

As the graph illustrates, most types of courses are provided by organisations based in Prague, in Moravskoslezský and in Jihomoravský region. Most training organisations appear to be concentrating on CVT in a particular field.

An analysis of the training provision (covering both courses for companies and for the general

public) suggests that the most frequent subjects include computer literacy, foreign languages, trade, management skills, accountancy and taxation, construction, forestry, catering, hairdressing and beauty therapy. Sporting activities are also among the more frequent topics.

Table II.3-2 Accredited training programmes – most frequent subject of first five courses for companies(A) and for the public (B) (in %)

Subject of courses	1 st course		2 nd course		3 rd course		4 th course		5 th course	
	A	B	A	B	A	B	A	B	A	B
Foreign language	6,9	9,7	8,2	13,0	7,6	12,7	10,6	15,9	11,8	14,3
Accountancy and taxation	4,8	12,5	7,2	13,0	4,5	11,1	6,4	11,4	5,9	11,4
Trade	4,1		1,0		6,1				11,8	
Management and administration	8,3	4,2	9,3	3,3	7,6	3,2	6,4	4,5	2,9	
PC and informatics	20,7	20,1	15,5	12,0	16,7	12,7	19,1	11,4	14,7	8,6
Construction	4,1	2,1	4,1	3,3	3,0	3,2	2,1		5,9	2,9
Forestry	4,8	3,5	7,2	5,4	10,6	6,3	10,6	6,8	8,8	5,7
Healthcare		6,9		2,2		3,2				
Hotel trade	4,1	2,1	4,1	2,2	1,5		2,1		2,9	
Sports	5,5	8,3	2,1	8,7	3,0	9,5	2,1	6,8	-	5,7
Hairdressing, beauty therapy	6,2	7,6	7,2	12,0	9,1	9,5	12,8	13,6	11,8	11,4
Transport services	1,0		1,0		6,1		2,1		5,9	
Others	29,4	22,9	33,1	25,0	24,2	28,6	25,5	29,5	17,6	40,0

Source: Institute for Information on Education

It is obvious that the focus of the training provision responds to the requirements of the labour market – employers and the general public. In addition to vocational skills employers demand computer literacy and command of foreign languages. Other courses are focused primarily on specific skills demanded by the labour market – accountancy, hairdressing, beauty therapy or catering.

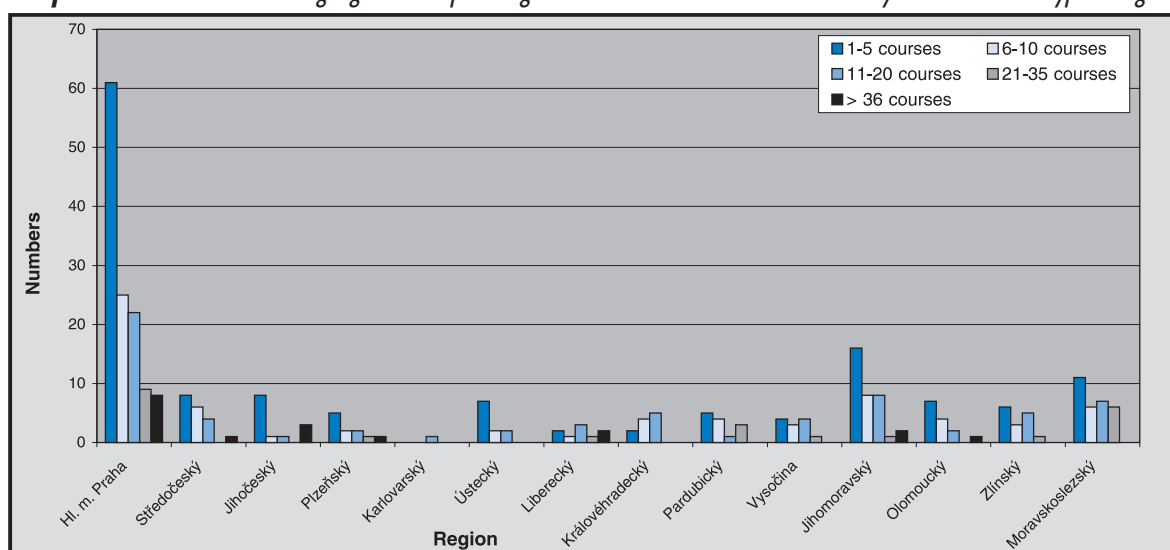
II.3.2.2 Provision of CVT courses without MEYS accreditation

The examined sample consisted of 337 organisations which provide CVT programmes,

which are not accredited by the MEYS. 71 of them also provide accredited courses. A total of 2,197 training agencies were contacted. The questionnaire distinguished between training courses designed for companies and those for the general public.

As regards the types of courses provided by training firms, **almost one half of companies deliver 1-5 types of courses (44.5%)**, one fifth provide 6-10 types of courses and one fifth 11-20 types. Distribution of training organisations by number of course types in various regions is shown in the graph below.

Graph II.3-4 Numbers of training organisations providing CVT courses without MEYS accreditation by number of course types in regions



Source: Institute for Information on Education

It is obvious that the longest list of courses is offered primarily by training organisations based in Prague. A higher number of course types is also provided by organisations in the Moravskoslezský and Jihomoravský regions.

As concerns the structure of courses according to their focus (as in the case of accredited programmes there is not a large difference between courses designed for companies and those for the general public), foreign languages, computer skills and management and administration are among the most frequent topics.

II.3.2.3 Differences between the provision of accredited and non-accredited programmes

When comparing the structure of training courses with MEYS accreditation and those without it, there are certain differences to be noted.

It is apparent that training organisations providing accredited programmes focus more on one or two subjects or specialisations. Only a small proportion of these organisations provide more than 10 types of courses. Conversely, the provision of organisations without MEYS accreditation is less specialised and more variable, since 38% of these companies provide more than 10 types of courses.

There are other differences (as Tables II.3-2, II.3-3 illustrate), in **the structure of most frequently provided courses in terms of their specialisation**. Accredited courses focus most often on computer skills, IT, hairdressing, beauty therapy and foreign languages. Non-accredited courses also focus on foreign languages, computer literacy and management skills, but they also often aim to develop personal skills, or competencies necessary for work in security services.

Table II.3-3 *Non-accredited training programmes – most frequent subject of first five courses for companies (A) and the public (B), in %*

Subject of courses	1 st course		2 nd course		3 rd course		4 th course		5 th course	
	A	B	A	B	A	B	A	B	A	B
Personal skills	6,1	2,0	6,4	1,0	5,0	3,9	5,1	1,4	5,9	2,3
Foreign language	33,6	32,9	38,5	38,5	37,9	41,3	40,9	46,6	39,8	42,6
Trade		0,8		3,4		1,1		1,4		
Accountancy and taxation	2,6	2,4	3,7	2,9	0,6	2,8	0,7	3,4	1,7	3,9
Management and administration	10,9	5,1	12,8	4,8	8,7	3,4	12,4	2,7	10,2	3,9
PC and informatics	10,9	11,4	11,2	10,6	11,8	11,7	11,7	13,0	16,1	14,7
Engineering and electrotechnics	7,0	3,9	6,4	3,8	5,6	3,9	5,8	3,4	6,8	3,9
Healthcare		2,7		2,4		1,7				0,8
Hotel trade		1,2				0,6		1,4		0,8
Sports		2,4		1,9		1,7		2,1		7,1
Transport services	3,5	2,7	2,7	1,0	3,1	1,7	2,2	1,4	4,2	2,3
Security services	3,1		4,3		5,0		4,4		3,4	
Others	22,3	32,5	13,9	29,8	22,4	26,3	16,8	23,2	11,9	17,7

Source: Institute for Information on Education

It is also interesting to compare **which courses are viewed by training organisations to be most in demand, and whether they think there is a higher level of interest in CVT compared to five years ago**. While there are almost no differences as regards preference for courses (both by companies and the public) – both types of organisations (with and without accreditation) agree that courses in greatest demand include foreign languages, computer skills and IT, accountancy and management. However, their opinions diverge as regards the importance of CVT. Representatives of accredited organisations are somewhat more pessimistic – 39% of them noted growing interest in CVT on the part of the public and 36% on the part of companies. Representatives of organisations providing non-accredited programmes see more interest compared to previous years – 47% on the part of companies and 45% on the part of the public.

II.3.2.4 Opportunities for further development

Over the following period the supply of and demand for CVT will continue to be affected by the training needs of companies as well as individuals.

The development of supply of CVT to satisfy demand would be promoted by more systematic monitoring of training needs both at national and regional levels. In order to enhance the quality of CVT it is necessary to develop systems of accreditation of CVT providers or training programmes. As the implementation of the information system of CVT progresses, it is possible to expect improved information and counselling services, which will help define training needs more accurately and to match supply and demand in the area of CVT.

II.4 CONCLUSIONS

A number of conclusions may be derived from the previous data. A characteristic feature of the current situation in CVT is that its components are, in most cases, developing independently – i.e. without a link to other CVT components. Moreover, CVT as a whole is not properly linked to initial education and training. On the one hand this makes the particular component of CVT more comprehensible for the actors concerned, on the other hand it stifles its development, as recognition and application of learning outcomes achieved in one sub-system in another system is more difficult.

However, the implementation of the concept of lifelong learning requires that various sectors and forms of learning should be seen as one entity, because measures designed to support the development of such an entity may be more efficient and beneficial for all those concerned.

Another characteristic feature of the existing situation in CVT is that its development is based on supply and demand. On the one hand this facilitates free choices of actors both on the part of demand and on the part of supply. On the other hand, this does not provide stimuli for higher participation in education or for higher expenditure on education. Consequently, the effects of CVT on economic and social development are limited. It is clear from comparison of this situation with that in EU member countries that the CR should also introduce appropriate incentives stimulating actors in CVT to speed up its development. The incentives should be indirect and should create a framework for free choice of all concerned with CVT.

The data concerning the supply of CVT also show that there is not an efficient system of quality assurance. Although some training programmes are accredited, they only constitute a part of CVT, while in most cases companies and individuals facing a choice of appropriate training lack clear information about the quality of the provision. An effective system of quality assurance would help expand the supply of CVT and its higher quality would promote the intensity of its outcomes.

There are several proposals to improve the situation in CVT in the Czech Republic, but they still await implementation. The European Union has presented various strategic documents concerning the aims of education policy, as well as specific information and experience concerning promotion of the development of CVT. Inspiration, background information and proposals are available. It is now up to the institutions and bodies responsible to take appropriate action.

CHAPTER III.

REQUIREMENTS AND CONDITIONS OF LABOUR MARKET FLEXIBILITY

III. REQUIREMENTS AND CONDITIONS OF LABOUR MARKET FLEXIBILITY

III.1 LABOUR FLEXIBILITY AND MOBILITY¹

In view of growing unemployment economists have, for over a decade, been debating ways of creating more and better jobs – one of them being higher labour market mobility and flexibility. The European welfare state is being criticised for excessive social protection, which deters companies from creating jobs. The American model is often cited as an contrary example – it offers limited social security, but supports mobility in the labour market and a wider range of forms of working activity. While in the US flexibility is more likely to be identified as bad jobs and fast turnover of the labour force, the EU pursues the concept of adaptability, where flexibility is associated with social protection and government support.

In reality, the differences are not so large, and neither are the effects of the different approaches on the economy entirely clear. At least until the mid-1990s labour productivity grew faster in the EU than in the US, so respect for the social dimension of work obviously paid off. As the labour market rigidities strengthened, European Employment Strategy was launched at the European summit in Luxembourg as a reaction. It rests on four pillars: promoting employability of the labour force, their adaptability, support for entrepreneurship and equal opportunities for all. Flexibility and adaptability in a way relate to all pillars, but they are explicitly formulated in the one concerned with adaptability of the labour force.

The Lisbon summit in 2000 set out specific goals in the area of employment, which the members states must achieve by 2010. One year later the Stockholm summit formulated intermediate goals until 2005. In 2002 the implementation of the aforementioned strategy was reviewed and an innovative strategy was drafted. After assessment of the previous approaches, new guidelines were formulated, which form a basis for a simplified and more efficient approach. They include labour market liberalisation and development of new forms of work organisation, support for entrepreneurship in administrative and capital areas, changing undeclared work into regular jobs, support for occupational and territorial mobility and many other proposals (Presidency Conclusions of the Brussels European Council, 20 and 21 March 2003).

In view of the agreed date of the CR's accession to the EU the current approaches to employment and

employability must adhere to the principles of the European Employment Strategy. The amended guidelines, which also include mechanisms for co-ordination of broad economic policy and employment policy, apply fully to the Czech Republic. It is therefore necessary to design a long-term outline of national employment policy until 2010, which will follow the principles and objectives of this strategy and set out objectives and a timeframe for attaining the Lisbon goals with respect to the situation and needs of the Czech labour market (Operational Programme HRD, 2003).

The term flexibility is not neutral and may have various meanings. For some it is a synonym for modernisation and dynamics (OECD, 1999), for others, in contrast, it describes man's subordination to economic concerns with destructive effects on personal integrity and social cohesion (Sennet, 1998). Besides praising flexibility as a cure for unemployment and source of economic growth there are also sceptical voices stressing the associated insecurity and instability of work conditions. Flexibility does provide an opportunity for mobility and free choice, but it also raises concerns as it threatens the traditional sense of security.

In order to understand better the broad concept of flexibility some researchers make a distinction between an *adaptive* and *innovative* process of "flexibilisation", depending on the relationship between the world of work and social protection. While adaptive flexibilisation requires liberation

¹ Petra Štěpánková, MA., contributed to the development of the background material and studies. The text contains some findings and data which are outcomes of the project SERD-1999-00178 Fifth Framework Programme "Households, Work and Flexibility" co-ordinated by Claire Wallace, Institute for Advanced Studies (Vienna) in 2000-2003.

from excessive social protection, innovative flexibilisation means not only the passive adaptation of man, but also his active adaptation through the welfare system. This system facilitates a stable environment where people can adjust and develop their skills and work habits more easily (Vobruba, 2001).

When considering flexibility, its various types must be distinguished. There is so-called *numerical flexibility*, which consists in merely adjusting the number of workers and the number of hours they work to company needs. In practice this entails flexible working hours, employment contracts and place of work. In certain aspects it is linked to “higher”, so-called *functional flexibility*, which concerns the structure of skills and competencies and an adjustment of the workers to the needs of the work organisation, which is thought out way in advance as part of a clear vision. Inside companies we speak about *internal flexibility* and when labour market segments and overall employment are concerned, we speak about *external flexibility*.

Labour flexibility is closely linked to *labour mobility*. The growing complexity of a career – as opposed to the fixed careers of the past – far more often leads to changes of employment, occupation, work status and workplace. As part of its transition to the market economy the Czech population found itself, almost overnight, in an environment full of changes (as distinct from the very stable life and work patterns of the past), although their intensity was partly stifled by government regulations. Continuing changes may result in an undesired fragmentation of professional careers and segmentation of the labour market into the so-called “primary” sector with stable jobs having good career prospects and so-called “secondary” sector with temporary, unattractive and badly paid employment opportunities.

Ten commandments of new employment strategy in the EU

The new employment strategy adopted by the European Council in June 2003 is focused on outcomes and should assist in creating more jobs, better jobs and an inclusive labour market in order to render employment attractive. The following ten priorities have been set to achieve this:

1. Active and preventative measures for the unemployed and inactive;

2. Job creation and entrepreneurship;
3. Address change and promote adaptability and mobility in the labour market;
4. Promote development of human capital and lifelong learning;
5. Increase labour supply and promote active ageing;
6. Gender equality;
7. Promote the integration of and combat the discrimination against people at a disadvantage in the labour market;
8. Make work pay through incentives to enhance work attractiveness;
9. Transform undeclared work into regular employment;
10. Address regional employment disparities.

Although adaptability is given considerable attention in the debate on employment policy, it is not yet a priority. This may be because it is not so long ago that unemployment grew to the present high level, and the social safety net is effective, albeit costly and tempting. However, this should change in the future, otherwise problems of employment will grow. With the increasing proportion of the labour force in services, the diversity of work contracts will grow. Moreover, as the living standards improve, there is more interest in part-time jobs, particularly on the part of women. The pace of adjustment of the Czech labour market to global competition will be critical. In addition to other factors, a change in attitudes of managers, entrepreneurs and employees will play a vital role in this process.

In this respect our accession to the EU will be very important, as we will enter an environment combining market forces and governing system, while taking account of both economic performance and its social dimension. The integration process has several levels – from binding principal social rights to harmonised work safety regulations, from “approximated” working conditions, working hours and labour protection to the “converging” areas such as guaranteed income and employment standards (Threfall, 2003). Therefore, it is not so much a matter of binding regulations as of incentives to use methods tried and tested abroad – e.g. the “open method of co-ordination” and the dissemination of “best practices”. It is openness towards changes and willingness to respond to new trends in the labour market that is of fundamental importance in terms of the position of the Czech economy in the globalising world.

III.1.1 Institutional-legislative environment and actors of flexibility

The context of the current changes occurring in the labour market has many dimensions. There are various individual as well as collective actors. There are various “bottom up” factors (company and market dynamics, but also the family and the mentality and life style of the population), and “top down” factors (primarily the state and its bodies, legislation and legal environment). The “in between” factors include trade unions, employees’, professional and civic associations. An open market economy constantly disrupts the established components of security, while the globalisation processes intensify the existing tensions and problems. A very important factor affecting work flexibility and mobility is the institutional environment, i.e. the conditions, limitations, incentives and rules, which are developed both for the employers and employees. This environment is shaped, above all, by legislation and enforcement of established regulations, and also by government policies concerning entrepreneurship and social protection. Steps towards increased flexibility are being considered in all areas. Experts are asking to what extent developed and transitional countries can face “Eurosclerosis” as regards a sufficient elimination of barriers to mobility and flexibility in the labour market (Riboud, Silva-Jauregui a Sánchez-Páramo, 2002). Flexibility cannot be imposed by a decree, neither can we protect ourselves against it. It can only be fostered and carefully regulated within the web of various actors concerns.

III.1.1.1. The state and government policies

The processes leading to globalisation and increasing flexibility weaken the regulatory role of the state. Nevertheless, the state retains the responsibility for generating the legislative and institutional environment promoting labour market flexibility, and for assisting disadvantaged groups in terms of social security and, most importantly, their “activation”. The state’s role varies depending on the welfare system traditions, and changes as various democratic governments take power. Despite extensive convergence of general approaches there is still diversity in specific policies. The future role of the state consists in the creation of conditions for the realisation and mobilisation of the population’s work potential so that people may live on earned income and not welfare benefits (OECD, 2003).

Tax policy. Reducing the tax burden on both employers and employees is an efficient way of increasing flexibility, which has been tested in many EU countries. High taxes and particularly mandatory contributions affect the willingness of companies to recruit new people and people’s

interest in employment (according to calculations employees receive only 27% of gross labour costs). The system must be set so that even partial activity is better than complete inactivity. Although an overall reform of public finances is necessary to alleviate the budget deficit and improve the economy, only some measures have been suggested to reform the pensions and tax system.

The major features of the Czech tax system are similar to other OECD countries, and the overall tax burden hovers at the OECD average. However, it is far higher than it was in countries at the same level of development, or than it is in the CR’s competitors, such as Greece, Ireland, Portugal and Spain. As the table illustrates, the tax burden is higher particularly in the case of individuals, an exception being the rate of taxation of above-average wages in Ireland. The taxation of income of families with two children is higher compared to Ireland and Portugal. Conversely, the CR scores better in comparison with Greece in two out of three cases and in one case in comparison with Spain. Comparison with other countries – see Statistical Annex, table F.1.

Table III.1-1 Income tax and social security contributions in selected OECD countries (in %)

	An individual with an income at			A married couple with 2 children – one income is average and the other at		
	67 % of the average	100 % of the average	167 % of the average	0 % of the average	33 % of the average	67 % of the average
CR	41,4	42,6	45,0	31,4	34,5	36,6
Greece	34,9	35,8	38,9	35,9	35,6	35,5
Ireland	26,5	36,1	45,7	25,6	26,5	28,7
Portugal	30,6	33,8	38,9	26,9	27,9	29,4
Spain	34,4	38,7	40,7	33,5	36,3	36,1

Source: The Tax/Benefit Position of Employees 2000.

Note: Income tax and social security contributions = employees’ and the employers’ social security contributions plus personal income tax minus transfer payments as a percentage of gross labour costs (=gross wages plus contributions of employers).

According to analyses carried out by the OECD and other institutions it is mandatory social contributions that particularly increase labour costs in the CR. The result is growing unemployment, mainly among the low-skilled labour force. OECD experts therefore stress the necessity of lowering mandatory social security contributions and increasing personal income tax (Bronchi and Burns, 2000).

Housing policy. There are still systemic changes to be completed, which would liberalise the housing market and facilitate work-related migration. Deregulation of rents is too slow to protect the housing stock, prevent illicit deals and support the construction of rented housing. This situation was criticised by the UN Economic Commission in its report of July 2002 presenting the CR as an example of an erroneous policy, which is not targeted on those in need and, conversely, supports those who are better off. The situation remains good for those who already have a place to live (particularly tenants of former state-owned flats), but it is critical for young people who seek new housing and, of course, for all those who would otherwise be willing to move for the sake of work.

Rent regulation is a major reason why (a) necessary investment in the existing housing fund is being postponed; (b) new houses with rented flats are not being built; (c) prices of new houses and flats are soaring partly for speculative reasons. A large proportion of new flats are affordable only for a small part of the population. As a result, geographical mobility in the labour market has almost ceased to exist. The main channel of changes is still exchange of flats between families, illicit sublets etc. Although the total number of flats should suffice (424 flats per 1000 people – as in the US), many remain unused and there is an unnecessary housing scarcity.

Education policy. Employment depends on the people's level of employability, which is primarily determined by their educational attainment, experience, willingness to acquire continuously new knowledge and skills, and their flexibility and adaptability. This is why the government policy pursues a knowledge-based society – for example by supporting investors implementing projects in the CR in the area of IT and strategic services (customer support centres, shared services centres, software development centres, expert and service centres). Promotion of the development of these services will speed up laying the foundations of

an information society, i.e. the development of information technologies, infrastructure and human capital.

However, the development of a knowledge-based society is quite slow in the CR. The existing system of financing (tertiary education institutions, in particular) fails to respond to the changing demand for graduates – professionals. One of the problems is further education, which is the subject of Chapter II.

Social policy. State intervention in the population's income ensures the social solidarity appropriate for modern society. According to O. Schneider's and T. Jelínek's analysis (2001) most social programmes in the CR are well targeted. However, the system suffers from the adverse side of a focus on individual situations – the poverty trap. The more targeted the benefits to the poorest groups, the more they disrupt their work incentives. Families where each additional crown of income from work is taken away by an equal reduction of social benefits can hardly be expected to show great inclination to work.

The poverty trap problem has no simple solution. The current Czech government has opted to increase the minimum wage. However, this only works at the very lowest level of income, while the poverty trap may also confine families with income near average. According to the EU and OECD recommendations the Czech system must be transformed into one more targeted to the poor with simultaneous inclusion of work incentives. However, it is necessary to do away with abuse of the social and sickness benefits system, particularly on the part of low-income categories, and to reform radically the unsustainable pensions system (OECD, 2003). For details see III.1.1.3.

Active employment policy. A modern system of employment services enhances flexibility in the labour market particularly as it supports people in seeking new jobs or in starting up a business. Employers are provided with financial support to create new jobs and to re-train their employees. Re-training of the unemployed is organised and there is support for the creation of socially purposeful jobs and works beneficial to the public.

Active employment policy (AEP) was very intensive immediately after 1990. Later it was reduced, a move justified by low unemployment. After 1998 AEP again expanded, but unemployment began to grow at the same time. Between 1997 and 2001

the expenditure on AEP increased 7.5 fold (in current prices) and its proportion in total expenditure on employment policy gradually grew from 14% to 43%. In 2002 expenditure dropped by a half billion as a result of austerity measures, and the proportion of AEP in total expenditure decreased to 35%, which was understandably reflected in the lower number of new jobs.

In the course of 1998-1999 the Ministry of Labour and Social Affairs (MLSA) prepared a first National Plan of Employment (NPE), which was based on the EU employment guidelines and set out four major priority areas to be addressed in order to lower unemployment:

- *Support for employability* of human resources (improvement of skills and motivation to work instead of requiring social benefits);
- *Development of entrepreneurship* and creation of jobs (better conditions for small and medium-sized companies, revitalisation of selected large companies, enhancement of the competitive environment and investment incentives);
- *Promoting adaptability* of employees and employers (flexible work organisation, motivation of employers to improve the skills of their employees);
- *Elimination of all forms of discrimination* (based on age and gender, creation of conditions for affirmative interventions in favour of disadvantaged groups).

These pillars were elaborated on in detail in National Employment Action Plans (2001-2003). The Operational Programme – Human Resources Development was prepared for 2004-2006 and a Single Programming Document for Objective 3 – NUTS 2 Prague. The documents identify areas for support from the European Social Fund. There were further stimuli from the EU concerning employment policy. In May 2000 the Joint Assessment Paper of Employment Policy Priorities was signed, which “presents an agreed set of employment and labour market objectives necessary to advance the country’s labour market transformation, to make progress in adapting the employment system so as to be able to implement the Employment Strategy and to prepare it for accession to the European Union”.

Flexibility in the labour market is also supported through other channels, particularly through financial support for entrepreneurship provided by the Ministry of Industry and Trade (MIT). Information support for the development of entrepreneurship is provided by 35 regional counselling and information centres (RCIC) and 5 business and information centres (BIC), which have their branches and external counsellors. Every year the centres provide some 10 thousand information services, which assist in the start-up of new businesses and creation of new jobs (Operational Programme HRD, 2003).

Assistance to self-employment in Moravia

An important role in assisting individuals in starting up a business is played by courses organised by the CAPAC Morava association, which was set up in 1993 as an initiative of the Czech and French ministries of labour and social affairs. The courses consist of several stages from a defence of the business project to the actual establishment of the business. Emphasis is placed on personal responsibility of each participant for acquiring all necessary knowledge and skills to launch a business (responsibility for the chosen business strategy and readiness to implement it). In spite of this, an important part is played by an individual adviser to each participant (an experienced businessperson). A total of 123 courses for 1,702 participants have been run since CEPAC Morava was set up. The rate of success is 95% - the courses either lead to the launch of a business or to employment (Operational Programme HRD, 2003).

III.1.1.2 Labour legislation²

Czech legislation concerning industrial relations is in line with European standards and in major respects it is compatible with EU law. The Labour Code (first enacted in 1965 and amended nearly 30 times since) does not fully meet the current needs of society. One of its specificities is the prevalence of “cogent” (directive) provisions, whereas, for the purpose of enhancing flexibility in the labour market, non-mandatory (discretionary) provisions are more needed. It is necessary to set principal rules of conduct in labour relations and minimum

² In this part we use certain parts of a study carried out by RILSA entitled „The Impact of Labour Law on the Situation in the Labour Market“. Team leader: JUDr. Daniela Bruthanová, team members: Ing. Magdalena Kotýnková, CSc., JUDr. Věra Štangová, CSc., Doc. JUDr. Petr Tröster, CSc. and JUDr. Margerita Vysokajová, CSc.

(or maximum) requirements for employees while showing respect for the justified interests of both employees and employers.

The most recent, so-called “harmonisation” amendment to the Labour Code (in effect from 1 January 2001), was focused primarily on implementation of the relevant EU directives in Czech labour law. The amendment reinforces the position of employees in labour relations, mainly by the introduction of the principle of equal treatment, elimination of discrimination in recruitment and work processes, imposition of an obligation for the employer to provide the relevant information etc. Moreover, it provides for various forms of flexible work – the amendment codified flexible working hours (not included in the government proposal and despite the pressure of trade unions), while it maintained the opportunity for “chaining” fixed-term employments one after another.

In addition to individual rights, collective rights were codified in the law on collective bargaining (1991), which established pre-conditions for bargaining by means of modifying the process of concluding collective agreements, including resolution of work-related disputes. The law on employment abolished the former system of administrative regulation of employment and, at the same time, created a legal framework for the labour market. An amendment is under preparation, which would, *inter alia*, facilitate the employment of foreigners.

In addition to traditional forms of employment, the existing labour legislation also allows for less common forms, such as flexible working hours, part-time work or temporary employment.

Flexible working time. In order to ensure a better use of working hours and to meet personal needs of employees the employer may, upon agreement with the relevant trade union organisation, introduce flexible working hours. The employees themselves decide on the beginning, or even end, of working hours in individual days within the framework of time periods designated by the employer. Flexible working hours may take the form of (a) a flexible working day where the employee decides on when to begin his/her shifts and is obliged to work the full shift falling on that day, (b) a flexible working week, where the employee decides when to begin and finish his/her shifts and in the week concerned is obliged to work the full weekly working time, (c) a flexible four-week period, where the employee decides when to begin and finish his/her shifts and in the period of four successive weeks is obliged to work the full working

time fixed by the employer in accordance with the weekly working time for such a four-week period.

Reduced working hours and other adjustments. The employer may, for operational reasons, agree with the employee a working time that is shorter than the prescribed weekly working time. Reduced working time may also be agreed with the employee, or allowed on health or other serious grounds on the employee’s part, provided that operations so allow. Employers are obliged to establish conditions so that they may comply with such requests. Reduced working time need not be spread over all working days. The employee with reduced working time is entitled to a proportional wage. If operations allow, the employer may agree, at the request of the employee based on health or other serious grounds, on a different adjustment to the prescribed weekly time or a reduced working time.

Continuing education and training (CET) and distance studies (DS). Participation in CET and DS, through which the employee should acquire skills stipulated in legal regulations or to meet requirements necessary for a due performance of the work agreed in the employment contract, is an impediment to work on the part of the employee. Participation in CET and DS for the purpose of improving skills to perform the work agreed in the employment contract is considered as a work, for which the employee is entitled to a payment. The MLSA, in agreement with the MEYS regulates, by means of a decree, the provision of relief from work and social security to employees undertaking courses, and the level of reimbursement for the wages provided for the period of such training. If the relevant relief from work and social security is not provided for in a legal regulation, the relevant provisions, which may be more favourable for employees than in a legal regulation, may be laid down in a higher-level collective agreement.

Temporary (fixed-term) employment contracts. In principle, employment should be agreed for an indefinite period of time, provided that its duration is not explicitly stated in the employment contract. It is prohibited to agree fixed-term employment with graduates from secondary schools and universities, secondary vocational schools and training centres who enter the employment relationship to perform work for which they are qualified, and with juveniles and employees pursuant to the respective provisions of the collective agreement. The prohibition does not apply in cases where the individual asks the employer in writing to agree a fixed-term employment relationship. This means that the law allows for circumvention of this exception and for “chaining”

(after expiry of one fixed-term contract another is immediately concluded) of fixed-term employments with no limitation, which does not enhance legal security of the employees. This situation will be solved by the Labour Code amendment in 2004. According to the Labour Force Survey 9% of employees had fixed-term employment contracts at the end of 2002 (double compared to 1993). The Centre for Empirical Research (CER) states 19%. According to research carried out by the RILSA at labour offices there is an increasing incidence of fixed-term employments, often for very short periods. Evidence of misuse of this type of employment is the absolutely inappropriate practice of concluding employment contracts with teachers only for the duration of the school year (without holiday months).

The Dutch way: More flexibility for permanent staff, more security for temporary staff

The gap between a large degree of security for employees with permanent contracts and weak protection of employees with fixed-term contracts is becoming a serious problem, as it may result in labour market segmentation. The Dutch law on flexibility and security (Wet Flexibiliteit en Zekerheid), which builds on the principle of “more flexibility for permanent employees, more security for temporary employees” and, in this way, integrates trade unions’ requirements for more security and employers’ requirements for more flexibility, attempts to address this problem. The newly introduced provisions include reduced notice periods and better access to unemployment benefits when notice is given on economic grounds. With an explicit reference to the need for flexibility the law fosters part-time employment, fixed-term (temporary) employment, short-term contracts and work organised by recruitment agencies.

Denmark has taken similar steps when it introduced obligatory activation and training, which resulted in a radical decrease in a two-digit rate of unemployment. This country has since been viewed as an example of combining solid social security with newly-introduced flexibility in employment (so-called “flexicurity”) – insecurity in employment should be offset by security in the social area.

Quasi-employment relationships. The relatively tight regulations concerning labour relations tends to promote their circumvention, e.g. by “employing” fictitious “entrepreneurs” (i.e. individuals with a business licence, but, as a rule, without the possibility of carrying out the relevant business activity). Another example is the use of a mandate contract in line with

the Commercial Code. These are ways of covering up employment, on which individuals agree either for lack of other alternatives or since they are unaware of the negative impact on social insurance and security. Illicit employment relationships are widespread in small and medium-sized companies and their number is increasing – particularly in trade and catering, but also in construction and agriculture (Kubínková et al., 2003).

Experts argue that the labour legislation in place in the CR is outdated and fails to foster new forms of employment. As a result, flexibility is promoted not through labour law, but through civil or commercial law, where “employees” do get remunerated, but they are not entitled to any protection. Social protection of employees as laid down in the existing labour regulations often turns into positive discrimination in the labour market, which deters employers from concluding proper employment contracts. Besides reducing labour costs it is necessary to establish a flexible and efficient inspection system and institutions dealing with labour disputes. The necessary change includes convergence of Czech labour law with the relevant EU directives, and also re-codification of the existing legislation – particularly in order to establish more discretion in concluding contracts in the area of individual and collective labour relations (Kubínková et al., 2003).

The current situation is aggravated by the fact that our country is far from perfect as regards law observance and enforcement. The contributing factors include both the overcomplicated and inconsistent legislation and slow work of courts, and the non-existence of inspection bodies in the area of employment, which is coupled with insufficient information flows between individual state administration bodies. However, it is sometimes difficult for small and medium-sized employers to comply with labour regulations, so they are tempted to circumvent them – some employers even boast that they do not need the Labour Code and set their own rules. The lack of transparency in the labour market and inappropriate law enforcement also create conditions for the development and application of solutions which support a grey economy and sidestep the state.

III.1.1.3 Employment protection and social security

Employment protection includes regulatory provisions that relate to “hiring and firing” (minimum notice periods and severance pay, dismissals terms and reasons for unfair dismissal).



It also includes limits concerning temporary and part-time contracts, regulation of working time etc. In broader terms employment protection also includes the issue of holidays, maternity and parental leave, sickness benefits, treatment of non-standard employees, equal rights enforcement etc. On the other hand, employment protection includes minimum wages and unemployment benefits, while distinguishing short-term and long-term unemployment.

The relationship between employment protection and employment rate

Since the early 1990s economists have been examining the relationship between legal and social protection of employment on the one hand, and employment and unemployment rates on the other hand. The outcomes of various studies generally point to a negative relationship – the stronger the protection of employment, the lower the rate of employment. However, the analyses differ as to the intensity of this relationship and the extent to which work protection standards affect employment of various categories of the labour force. It turns out that strong protection has a negative impact particularly on

employment of young people and women, while its impact on employment of men at the best productive age is weak or non-existent. Conversely, excessive protection of dependent employment may promote self-employment, provided that the establishment and operations of such businesses are not overly restricted by administrative regulations. The studies also agree that while the strength of trade unions has negative effects in terms of the rate of employment, better centralisation and co-ordination of collective bargaining may attenuate these effects to a considerable degree (Addison a Teixeira, 2001).

In terms of international comparison, the Czech Republic (as other countries of Central and Eastern Europe) oscillates between two extremes. On the one hand there is not such freedom in the CR in employment contract and, consequently, the pressure for labour flexibility is not so high as in the US and UK. On the other hand labour legislation is not so restrictive as in some southern EU member countries. Large companies' staffs and full-time employees with permanent contracts enjoy more protection, while social protection of employees with fixed-term contracts is considerably weaker – which, however, is a factor limiting flexibility. (Table III.1-2).

Table III.1-2 *Employment protection legislation in some candidate countries and in the EU (index)*

	CZ	SK	HU	PL	SI	Average of candidate countries ¹⁾	EU ²⁾ average
Protection of regular employment (scale 0-3)	2,8	2,6	2,1	2,2	3,4	2,7	2,4
Protection of temporary employment (scale 0-3)	0,5	1,4	0,6	1,0	2,4	1,2	2,1
Collective dismissals legislation (an index consisting of four indicators)	4,3	4,4	3,4	3,9	4,8	4,1	3,2
Index of strictness (a weighed average of 22 indicators)	2,1	2,4	1,7	2,0	3,5	2,4	2,4

Source: Funck and Pizzati, 2002:286.

1) Includes the CR, Estonia, Hungary, Poland, Slovakia and Slovenia.

2) Without Greece and Luxembourg

The OECD methodology for calculating the indicators is described in Funck and Pizzati, 2002:299-303.

As regards protection of wages and income in the case of loss of employment, the Czech Republic introduced in the early 1990s standard market economy measures of European type – i.e. a minimum wage and unemployment benefits.

The minimum wage was for the first time set in 1991 at 2,000 CZK (53% of average wage). Soon afterwards it was increased to 2,200 CZK and later

to 2,500 CZK. It was frozen for many years and only in January 1999 was it increased to 3,250 CZK, in January 2000 to 4,000 CZK (32% of the average wage), in July 2000 to 4,500 CZK (36%), in January 2003 to 6,200 CZK (42%) and most recently in January 2004 to 6 700 CZK. In 2000 the minimum wage exceeded the level of the living minimum set for a single adult. The impact of this change on employment has not yet been established.

Unemployment benefits were for the first time introduced in 1990. Each individual who was employed for at least 12 months in the course of three years before applying for assistance in job search is entitled to financial support. In 1992 the period during which the unemployed person may apply for benefits was shortened to 6 months and unemployment benefits were set at 60% of the last wage for the first three months and 50% for the other three months. This was changed in October 1999 and job seekers get only 50% of their former wage in the first three months and 40% in the other three months (60% if they undertake retraining). Since 1999 the upper limit of benefits is 2.5 times higher than the respective subsistence level (1.5 times before) and 2.8 times higher for those who participate in retraining (1.8 times before).

Although the Czech system of social security was made far more simple and transparent after 1989, there is a problem consisting in two potential sources of support for the unemployed. While the eligibility criteria for unemployment benefits (paid from social insurance) are very tight and tested (at least formally) against job search, social benefits (depending on the family situation) are more generous. Social benefits are tested against household income, but not against efforts to increase or even secure any income from work. In the EU this general ailment of welfare systems is currently being attacked by the principle of “making work pay” instead of the state.

An important change, which has been debated for a long time, would be a distinction between the current official “living minimum” and the so-called “subsistence minimum” set at 60% of the living minimum level. The standard living minimum level would only be applied for a limited period (and tested against an actual job search), and then the individual would only be entitled to the “subsistence minimum”. Another stimulus for active job-seeking would be a conversion of current tax allowances (applied before computing tax in the form of deductible items) into tax credits (applied after computing tax in the form of items deductible from the tax amount to be paid. There is more ways how to weaken demotivation of the Czech benefit system (Schneider a Jelínek, 2001).

III.1.1.4 Employees and employers, the role of trade unions

Employees’ commitment to work, willingness to adapt and loyalty largely depend on the quality of the relationships between them and the employers. The established nature of these relationships changes as the average time spent with one employer becomes

shorter and employees more often change jobs. Employers in turn use regulated staff turnover and pressure for flexibility as part of a company policy designed to achieve an optimal composition of the labour force and its efficient use. Recruitment costs are decreasing and the search for job seekers including top specialists is presently easier, particularly due to the Internet and the work of recruitment agencies.

Czech managers’ views of labour flexibility and its application

The Institute of Sociology of the Academy of Sciences in co-operation with the Czech Society for Human Resources Development carried out a survey among 154 managers in order to examine their views of labour flexibility. The managers answered the question “what does flexibility mean for Czech companies” by saying that it was “the ability to influence easily the number of employees and the hours they work” (7.2 points at a 0-10 scale), and “the ability to transfer employees to perform different work tasks” (6.9 points). This means that both forms of flexibility – numerical and functional – are important for them. Conversely, “the ability of the company to assist the employees in combining better their work and family” scored far less (4.4%). The question of whether the process of increasing flexibility may be denoted as an effort to transfer the market risk from companies to employees received 11% of “yes” answers, 31% of “no” answers and 57% of “partly” answers. Proven forms of flexibility include agreements on working activity (78%) and part-time jobs (70%). Surprisingly, fixed-term agreements received less positive rating (did not prove good for 14% and 27% lacks the experience), and so did jobs arranged through agencies (not good for 20% and 39% lacks the experience), and workers with a business licence (not good for 11% and 35% lacks the experience). Home-working does fall within the good, proven forms, but its use is still negligible (71% lacks the experience).

The efficiency of a company depends very much on the flexible skills of its employees. They build on general education and life-long contact with the world of knowledge. It is lifelong learning that enhances functional flexibility – i.e. the capacity to perform various tasks. It is neither based on encyclopaedic knowledge, nor too narrow a specialisation, but on the capacity to learn, to acquire quickly new knowledge and to adapt to teamwork. The growing importance of communication among employees is the reason why so-called soft skills are currently being



stressed more than ever before. They include the capacity to work in a team, to find new solutions and motivate oneself as well as others.

The view of the advantages of flexible forms of employment varies depending on which point of view of the employment relationship is taken into

account. A survey carried out by the CER agency among various parties to the social dialogue has produced interesting results – out of 55 interviews conducted in early 2003 25 were with employers, 5 with representatives of employers' associations, 17 with trade unionists and 8 with staff at labour offices.

Table III.1-3 Comparison of flexible forms of work organisation and working time in terms of their advantages viewed A. by representatives of employers and employers' associations, and B. by representatives of trade unions (absolute number of answers)

A. Representatives of employees and employers' associations

	Part-time jobs	Flexible working time	Unevenly distributed working time	Fixed-term employment	Home-working
Advantages from employers' perspective	15	17	20	23	13
Disadvantages from employers' perspective	14	11	9	6	14
Advantages from employees' perspective	14	28	16	7	22
Disadvantages from employees' perspective	13	1	13	22	6

B. Representatives of trade unions

	Part-time jobs	Flexible working time	Unevenly distributed working time	Fixed-term employment	Home-working
Advantages from employers' perspective	15	14	13	17	11
Disadvantages from employers' perspective	2	1	1	0	3
Advantages from employees' perspective	4	15	4	0	6
Disadvantages from employees' perspective	13	0	11	17	7

Source: CER, 2003.

Flexible working patterns and non-standard employment contracts are not always used for the benefit of the employees. However, it is very difficult for an individual to stand up against practices such as forced part-time employments or "chaining" of employment contracts, since, in a globalised economy, it is not quite possible to reckon with intervention by the state or trade unions. Perhaps the strongest hope in this respect lies in the companies' concerns about their reputation. If bad treatment of employees damages the company's reputation, it will find it difficult to attract talented experts and to procure public contracts – eventually, its customers may turn their backs on such a company. As in western countries Czech managers are increasingly more concerned about corporate culture which helps attract and keep good workers.

The labour force skills is no longer a matter of just initial school education. More and more often new

skills are acquired during a career, be it at the employer's or the employee's initiative. This is also linked to the change in the field of work. According to a survey "Ten Years of Social Transformation" only two thirds of economically active people work in the field for which they studied (trained) or a related one. Nearly one third of workers undertook a training course in the last ten years (at least two months long), while one tenth of the respondents were participating in some form of training at the time of data collection. One half of respondents stated they had a user's knowledge of computer programmes necessary for their work, one tenth use the Internet every day.

These relatively favourable figures document the skills level of the Czech labour force (as they perceive it). Their self-confidence corresponds to this – two thirds of economically active respondents say their educational attainment is sufficient for them to perform their job,

one fourth say it is definitely sufficient to ensure their career development in the relevant field, and one fifth believe their education facilitates transfer to a different field. Almost one fifth of economically active respondents are thinking of undertaking continuing training in the following two years. .

As regards foreign languages, a mere 35% of respondents admitted to not knowing any language at the basic conversation level, while 30% commands one, 23% two and 12% more than one language. However, the outcomes of the aforementioned study appear somewhat exaggerated, since they differ from general experience and from other, only slightly older studies – according to SIALS survey of 1998 45% of respondents only knew Czech (Human Resources 1999:95).

Adaptability of Czech labour force and the institutional environment in cross-national comparison

According to the World Competitiveness Yearbook compiled annually by the International Institute for Management Development in Lausanne on the basis of statistical data and opinions of a panel of 3,678 experts, the CR does not score well in terms of adaptability of human resources and business environment. The CR ranked 40th of 50 countries in the flexibility and adaptability indicator (“Are people flexible enough to adapt to change?”). It ranked 37th in the equal opportunities indicator (“discrimination by race, gender or family background disadvantages people in society”), and 44th in terms of training (“What priority is given to training in companies?”). Only in terms of labour market regulation (“labour market regulations, such as recruitment and dismissal rules, the minimum wage etc. are/are not flexible enough”) did the CR rate much better – 17th. The burden of taxes and contributions is also very high – the CR ranks 37th as regards corporate income tax and 47th as regards the level of employers’ contributions for social and health insurance. In terms of adaptability and flexibility Slovenia, Germany, Poland and France were denoted as even less adaptable (The World Competitiveness Yearbook, 1996-2002).

Adaptability of companies and flexibility of the labour force may be considerably enhanced (in the context of so-called “negotiated flexibility”) or reduced by social dialogue. According to authors of the study “Development of Social Dialogue in the CR” there are not enough participative elements in management’s approaches to social dialogue. The business sector does not see collective bargaining as a motivation potential, and social dialogue is marked by insufficient feedback

information. Only the most recent amendment of the Labour Code, in effect from 2001, laid down the right of employees to information and discussion on major changes concerning the company’s future.

The amendment also provides for more opportunities in terms of the content of collective agreements. This concerns determination of the period for which working time may be unevenly distributed, reduction of the “stand-by” time at the workplace to less than 400 hours in one calendar year and determination of “stand-by” time at another place. Collective agreements may also stipulate a scope of overtime work which the employee must perform on the instruction of his/her employer which is lower than that stipulated in the Labour Code, etc. As regards wages, it is possible to set a higher minimum wage than that prescribed by the government, to agree a different bonus for night work and in arduous or health-damaging conditions than legal regulations stipulate.

Higher-level collective agreements (HLCA) constitute an important framework for regulation of industrial relations. Their remit was extended in 2001 and they currently concern 735 thousand employees. HLCA provisions in the social area include preference for permanent employment contracts and extension of leave by one week. The provisions also identify the relevant circumstances and conditions under which an employee may be given compensatory wages for leave at the level of average income, etc. There are also provisions concerning training of employees. However, they only enumerate and specify the circumstances in which the employer should make it possible for the employee to further upgrade his/her qualification.

Involvement of trade unions in negotiating flexibility and solving labour market problems

An agreement between social partners set off the process of reduction of unemployment in the Netherlands. In 1982, as part of the so-called “Wassenaar” agreement trade unions committed themselves to wage restraint, support for job-seeking initiatives and flexibility in the labour market combined with reduction and internalisation of labour costs – all this in exchange for higher employment. And the number of jobs did increase quickly in the 1990s. Trade unions were also involved in the introduction of controlled flexibility, which made it possible for individuals to conclude individual contracts to “sell” and “buy” working days. Small economies make use of other advantages, i.e. easier dialogue and the possibility of achieving national consensus on necessary changes. So-called “negotiated flexibility” requires co-operation of trade unions and employers’

associations, and the relevant political will. Social partnership traditionally constitutes a strength of employment policy in Belgium and Austria, but also in Ireland, Finland, Great Britain under Tony Blair and other countries.

Nonetheless, the role of trade unions is currently changing and becoming irreversibly smaller. In 1994 one third of the Czech population was convinced of the indispensability of trade unions, while it was only one fourth in 2000 (Kadavá, 2001). Membership of trade unions is also decreasing (according to Public Opinion Research Centre, one quarter of employees are currently organised in trade unions, while it was 40-50% in mid-1990s). This trend is related to the increasing importance of SMEs where trade unions are weaker. Globalisation also has its effects, since it gives large companies far more power

against trade unions, since it provides them with the opportunity to move to pursue cheap labour.

Increasing labour flexibility also involves individuation of employment relationships, which weaken trade unions' bargaining position. However, in the long term it is not good if trade unions seek to maintain a secure but not very efficient status quo, since it makes desired changes difficult. As the example of the Netherlands and other countries illustrates (see the box), trade unions are an important partner as regards "negotiated flexibility", which very much facilitates the solving of labour market problems. A broader consensus of social partners is a prerequisite for increasing flexibility and mobility in the labour market in the CR also. Social partners are faced with requirements to use flexibility-enhancing processes to find a new balance between the requirements of the modern economy and justified claims of employees.

III.1.2 Main forms of flexibility and their use

The development of flexible forms of work, which improve the conditions for labour supply on the basis of equal opportunities and combination of work and family obligations, is one of the key instruments of European employment policy. Employment Guidelines stress the support for changes and adaptability at work as one of the pillars of modern labour market policy and combating unemployment. In principle, there are three types of work flexibility: (a) flexibility of time (the length of working period and its structure); (b) flexibility of the place of work (prompted by new opportunities for work at home or outside production centres or offices); c) flexibility of employment contract and of working conditions (various non-standard forms such as part-time jobs or agreements on working activity). All those processes feed flexibilisation of working career and its "de-standardisation" – e.g. paralleling work and education or their alternation during a career, more frequent changes of job and occupation, and (not very desirable) fragmentation of the career. Another related aspect is a more flexible approach to combining work and family and sharing what used to be strictly separated roles of men and women in the economy and society.

III.1.2.1 Working time flexibility³

Although the weekly working time in the CR decreased in recent years, it is still four hours longer than the EU average (41.6% compared to 37.7%). The working time distribution is still traditional in the CR – while in the EU 15% of employees work less than 30 hours per week, it is only 4% in the CR. Over one half of employees work the same number of hours every day and week and the beginning and end of the working time is fixed. Variations appear in industries which are either seasonal (agriculture, construction), or where work is organised in shifts (transport, telecommunications, posts, healthcare). Flexible working time, special working schedules or any other irregular patterns concern one sixth of the labour force.

Overtime work. Overtime work constitutes a traditional type of flexibility, which facilitates a response to fluctuations in demand for labour. It suits most employers and employees. In this way employers avoid recruitment and training of new workers (the need for whom may even be temporary). Remuneration for overtime work constitutes an important part of the pay and therefore employees mostly protest against its reduction (e.g. in healthcare). A serious problem, which is also pointed to by trade unions, is unpaid overtime work, or inappropriate records of overtime work. According to research conducted by RILSA in 2000, one half of workers received no payment for overtime work and one fifth of small organisations do not keep records of overtime work.

³ In this part we use and partly reproduce some sections of the study „Analysis of Employment Forms and Working Time Organisation“. A final report prepared by CER in co-operation with RILSA. Prepared by Mgr. Jaromíra Kotíková, RILSA, February 2003.

Shift work. Besides overtime work, shifts are the most frequently used form of flexibility in the CR. Traditionally, it is most common in manufacturing industry, and in recent years has been increasingly used in services. According to the HWF survey 15% of workers in the CR work shifts, most of them in rotating schemes. A survey carried out by RILSA among employees working shifts revealed that this arrangement of working time does not suit 18% of them and they would like to change it.

Flexible working time. The use of flexible working time is quite common particularly in administrative occupations. Its most frequent form consists in the possibility of choosing the time of the beginning and end of the working time within certain brackets. As distinct from part-time jobs, flexible working time is beneficial both for employers and employees. If employers resist it, although the nature of the work permits it, they do so particularly as they fear abuse

on the part of employees. Research conducted by RILSA has shown that employees with flexible working time, together with employees using regular working time, rank among those most satisfied with working time arrangements.

Unevenly distributed working time. The most recent amendment of the Labour Code allows for differentiated length of working over a period up to one year. The working time distribution must be in conformity with legal limits for a maximum length of working time and overtime work. This permits employers to eliminate overtime work, which is less beneficial for employees who lose the relevant bonuses. Unevenly scheduled working time is not yet very common in the CR. It is most frequently used in agriculture and construction. Its use is expected to grow in the future, although it is most likely not going to contribute to increased employment.

Table III.1-4 Working schedule (%) in 2001

	CZ	HU	SI	NL	S	GB
Regular working hours from Monday to Friday	51,1	52,4	49,8	28,6	64,2	54,2
Shift work	15,9	8,7	24,6	0,0	8,1	12,8
Flexitime	13,5	1,9	10,4	13,0	2,9	9,4
Special working schedule	8,8	4,2	4,0	44,2	11,3	10,7
Other working schedule	10,6	32,8	11,3	14,3	13,4	12,9
Total	100,0	100,0	100,0	100,0	100,0	100,0

Source: HWF research, economically active population outside agriculture.

According to comparative HWF data Sweden has the highest proportion of standard weekly working hours, while the Netherlands has the highest proportion of non-standard working schedules (frequent part-time and shared jobs). Flexible working time was most frequently mentioned by Czech and Dutch respondents. Hungarians most frequently state other irregular working schedules, which are related to a high incidence of multiple jobs. Some unexpected differences between countries point to a methodological problem – i.e. the terminology concerning working time schedules is not standardised, so the same types may be presented under various rubrics etc.

III.1.2.2 Flexibility of the workplace

The processes of promoting flexibility bring about a far more extensive mobility of the labour force. This may take various forms. The traditional ones include migration and daily commuting, but also home

working with an occasional contact with the employer. New forms permitted by modern means of communication include changing workplaces (shifts between various workplaces or tele-working in particular, i.e. work performed mostly at home with a regular contact to the company management and co-workers via the Internet). The Internet also facilitates regular work consultations and conferences, so it reduces the need for commuting and business trips.

In the CR workplace flexibility so far involves commuting to work and migration. While migration only concerns some 3% of the population, 17% (one third of the labour force) work outside their localities of residence and commute to work. According to various surveys this figure is still higher. The intensity of commuting is mainly the result of the density of population. Most commuters head to large cities, particularly Prague, where the estimated number of working population is 1.6 million (as opposed to 1.2 million inhabitants). Commuting is also frequent in

Moravia, which is the result of high unemployment. As distinct from migration, commuting as a form of territorial work mobility is supported by trade unions. However, it is restricted by the reduction of the network of public transportation.

In principle, commuting to work in the CR still has considerable potential in terms of flexibility. This concerns, above all, the lower-skilled labour force, which lack appropriate motivation since the difference between income from work (less travelling

and other expenses) and the easily available social benefits is still too small. This is why the MLSA is planning to introduce travel allowances for the unemployed as part of active labour market policy. Transport allowances are currently provided to families with low income as part of the state social support scheme. There are plans to abolish this system and to re-introduce travel passes for students and employees with the corresponding subsidies to transport providers.

Table III.1-5 *Place of work in relation to place of residence (%) in 2001*

	CZ	HU	SI	NL	S	GB
At home	4,1	3,9	1,2	23,4	1,9	3,7
Combined home and elsewhere	4,1	3,4	3,9	7,8	2,7	4,4
Within the locality where you live	44,6	62,4	36,0	39,0	61,9	44,6
Within a different locality to which you commute	41,4	25,2	48,8	19,5	27,9	39,2
Abroad	0,2	0,3	1,2	0,0	0,2	0,5
Always changing	4,9	4,0	8,9	9,1	4,9	7,0
Other	0,6	0,8	0,0	1,3	0,4	0,5
Total	100,0	100,0	100,0	100,0	100,0	100,0

Source: HWF research, economically active population outside agriculture.

The HWF survey shows high proportions of people working outside their locality of residence. This concerns more young employees – 47% of people aged 25-34 commute to work. Although modern forms of work location are not so common, the proportion of people who work exclusively or partially at home approaches one tenth, and almost one tenth of men mention a frequent change of the workplace. Home working is characteristic of the highest-skilled categories, such as researchers (23% work exclusively or partially at home), and also of the lowest-skilled categories who perform badly paid work. Of all regions Prague supplies the largest proportion of jobs in the locality of residence, and also the highest proportion of people working abroad (nearly 3%).

Unlike commuting, the intensity of migration decreased paradoxically after 1989. However, it is probably higher than demographic statistics show, as the data do not cover hidden migration to illicitly rented flats. Migration is discussed in more detail in section III.1.3.2 where attention is also paid to the aversion of Czech workers to migration, resulting both from objective reasons of a non-

functional housing market, and subjective reasons consisting in an fixation to the present locality of residence.

III.1.2.3 Flexibility of employment contract⁴

Full-time permanent employment contracts predominate in the Czech labour market. Only 8% of employees have a “non-standard” contract, while there is not a growing trend according to statistics. Moreover, since 1994 there has been an increase in the duration of employment (more than three years). This applies to the labour force in general and to self-employed persons in particular. While immediately after 1990 the labour force was newly confronted by the market economy, the introduction of which resulted in large shifts between industries and sectors, the second half of the 1990s was more stable and the situation did not change much in recent years.

Part-time jobs. Labour force surveys show a small number of employees with shortened working time. The proportion of part-time jobs even dropped from 6% in 1993 to 5% in 2002 (the EU

⁴ In this part we use the study „Analysis of Employment Forms and Working Time Organisation“ prepared by CER in co-operation with RILSA. Final report prepared by Mgr. Jaromíra Kotíková, RILSA, February 2003.

average is 18%). Part-time employment in the CR concerns, as in most other countries, mainly women.

The weak interest of Czech workers in part-time jobs is primarily related to the low level of real income they offer, but also to the fact that part-time employment is still less beneficial than complete inactivity (the unemployed lose benefits if they take on however small a job, and women on maternity leave are not allowed to earn extra money, otherwise they lose entitlement to the social benefit). Since 2004 these rules should be changed. Nevertheless, as real income and living standards continue to grow, more people will be able to afford to work part-time.

One fifth of the reasons for not taking on part-time jobs is, according to labour force surveys, disagreement on the part of the employer (this concerns mostly women). Men use part-time jobs mainly due to health reasons or in order to pursue further education, women state care of children as the primary reason.

According to surveys, part-time jobs are not very beneficial for either employees or employers. Employees have lower income and reduced social security, employees have to bear higher fixed labour costs (education, training or administration). The CR does not have schemes supporting part-time employment which can be found in western Europe, e.g. tax allowances (Great Britain), lower social security contributions (France, Belgium), or direct assistance (the Netherlands).

Surveys suggest a shift in working time distribution from 1999 until 2002 towards shorter hours. This corresponds to a change of 2001 in the Labour Code, whereby the working week was shortened from 42.5 to 40 hours and overtime work was reduced. The relatively low share of underemployment (involuntary part-time jobs) suggests that part-time jobs are not rated as inferior

in the CR. Remuneration for part-time employment compared to full-time is satisfactory, unlike in EU countries where an hourly wage in part-time jobs is lower than in full-time employment. The overall monthly average wage of employees working less than 20 hours per week is even higher in the CR than that of workers with a 30-34-hour week. Part-time jobs seem to predominate in professional activities and therefore are better paid.

On the other hand, countries in transition differ from their western counterparts not only in the proportion of part-time jobs, but also their quality. These jobs are typical of less stable forms of work, such as work without a formal contract, fixed-term employment, work organised by agencies or self-employment. It is believed that in the CR and Hungary part-time jobs may be abused in that they are declared as part-time in the employment contracts, but the actual time worked corresponds to the regular working week – the intention is, of course, to reduce tax obligations (Štěpánková, 2003).

Fixed-term employment. Although this is one of the main forms of flexibility in employment in the CR, the number of fixed-term contracts is not growing, and their proportion even dropped from 6% in 1993 to 4% in 1998. It then increased to 5% in 2002 but still remains twice as low as the EU average of 11%. In reality there are likely to be more such jobs than statistical data show. Employers often use them to avoid difficulties and costs related to dismissals. Fixed-term contracts are more often concluded with women than men, and also with elderly people (38% of the employees aged 60 and more).

If there are basically no legal restrictions to fixed-term employment, it results in abusive practices – particularly in the form of “chaining” short-term jobs. Only rarely are employees given a permanent contract upon expiry of their first fixed-term contract. Specialists in public services, such as

Table III.1-6 Self-employment and non-standard forms of work in 2000 (%)

	CZ	HU	SI	NL	S	GB
<i>Men and women:</i>						
Self-employment	14,5	14,6	22,5	14,3	5,6	11,8
Part-time jobs	5,4	3,6	10,6	41,1	22,6	25,0
Fixed-term employment	6,9	5,8	4,2	11,9	13,1	6,2
<i>Women:</i>						
Self-employment	9,0	9,6	18,4	12,1	2,9	7,4
Part-time jobs	9,5	5,8	13,2	70,5	36,0	44,6
Fixed-term employment	8,5	5,7	3,6	15,0	15,7	7,4

Source: Employment in Europe 2001.

teachers, physicians, researchers and journalists, are often forced to accept fixed-term employment. In terms of international comparison (table III.1-6 and table F.2 in Statistical Annex), fixed-term employment is far more common in Spain (25%), Portugal, France and Finland (14-15%) compared to the CR, and only negligible in Ireland, Austria and Great Britain (4-6%).

Employment arranged through agencies. This practice, which constitutes a very dynamic form of flexibility in EU countries, is not very common in the CR. The operations of firms arranging for short-term labour supply are neither allowed, nor prohibited, and so the legislative vacuum provides room for abusing employees' rights. The use of workers supplied by agencies in the CR is more common in foreign-owned companies. As in the case of fixed-term employment, agencies focus on the lower-skilled labour force. The practice where agencies have their own staff and lend them to various employers is not very frequent. Since it is not permitted by law, agencies circumvent this, if need be, by obtaining a license to perform additional activities. The workers are normally hired for a period agreed with the employer. This is most frequently used to facilitate the work of students.

Employment through agencies hiring workers

A survey carried out by RILSA among 542 employees was concerned with the terms under which recruitment agencies hire workers and send them to companies for a period of time. The worker is paid by the agency and is registered in the agency's database; when the agency has no order, he/she is unemployed. According to responses:

0.9 % of respondents would accept such a job unconditionally

9.7 % of respondents would accept it if it was interesting

26.8 % of respondents would accept it if it was very well paid

41.0 % of respondents would accept it if they could not find any other job

21.6 % of respondents would not accept such a job on any conditions.

III.1.2.4 Promotion of work and employment flexibility in EU countries⁵

Adaptability at work is one of the key aims of the European Employment Strategy, which is regularly updated in "Employment Guidelines". By adopting the guidelines EU member countries commit themselves to increasing adaptability of employees and companies to changes with regard to both work flexibility and social security. Among other things it is necessary to pursue diversity of contractual and working terms including working time, to support development of skills and ensure better balance between working and private life. To this end member states should streamline their labour legislation by means of lifting regulations excessively restricting dynamics in the labour market and employment of disadvantaged categories. Governments of West European countries support the development of flexible forms of employment by means of various programmes and schemes.

Programmes supporting working hours shortening. A regular practice in France involves financial incentives for employers, particularly limiting social security contributions – in force from 1996. Aubry's law effective from January 2000 reduced working time in companies with over 20 employees (from 2002 for all) to 35 hours a week, and mandatory contributions may also be reduced provided that companies shorten working time and, at the same time, recruit new workers (OECD 1999). A similar approach was adopted in Belgium where companies' social security allowances were conditional upon creation of new jobs by means of shared work or a new part-time position, or severance of employment of some employees on grounds of family care, education etc. In the period 1997-2000 Belgium companies undergoing restructuring were entitled to lower social security contributions provided they adopted measures aiming to reduce working time and maintain the same number of employees.

Work-sharing schemes. A pre-condition for work-sharing is a team approach and the capacity of employees alternating in one job to stand for one another. The ILO distinguishes two types of shared work: (a) voluntary work-sharing at company level (in Austria and Scandinavian countries, which apply fiscal incentives for employers); (b) shared

⁵ In this part we use the study „Analysis of Employment Forms and Working Time Organisation“ prepared by CER in co-operation with RILSA. Final report prepared by Mgr. Jaromíra Kotíková, RILSA, February 2003.

work introduced by legislation, which primarily concerns shortening legally prescribed working time. In Great Britain shared work is a matter of agreement between the employer and the employee, since it is not fostered by any legal regulation. The UK government seeks to eliminate the barriers employers face in using this and other forms of employment flexibility.

Part-time retirement. This practice allows for continuation of economic activity of people at retirement age, constitutes an alternative to increasing retirement age and also partially deals with the problem of getting the unemployed back to work. Employees who have reached legal retirement age can work shorter hours and collect part of their pension in addition to their wage. This approach was pioneered by Sweden, which introduced this practice in the late 1980s and replaced it, in 2001, by a flexible retirement age. In Belgium, employees over 55 may shorten their working time by one half and, if an unemployed person takes up the vacancy, they are entitled to a partial unemployment benefit and a contribution from the employer, while the company is entitled to reduced social security contributions. Germany adopted a law on gradual transition to retirement in 1996. It stipulates that employees at the age of 55 may reduce their working time by one half while retaining 70% of net income and 90% of contributions to pension insurance. Those minimum amounts are paid to the employers provided that the vacancy is taken up by an unemployed person. Austria enacted in 1997 a law providing for part-time retirement for all employees over 50.

Job rotation. This is an active labour market policy programme, which helps activate the unemployed and also prevents new unemployment by means of training employees whose jobs are threatened by restructuring. It also assists small and medium-sized firms, in particular, in maintaining or improving their competitiveness. Rotation of employees occurs in a situation where employees on leave for training purposes are replaced by “substitutes”, e.g. unemployed individuals, who are trained in advance. This method works well in Scandinavian countries as part of an active employment policy, where the substitutes are entitled to the appropriate wage partially paid by the labour office. In Sweden companies are provided with resources for each employee undertaking training on the condition that none of these employees will be dismissed. The

motivation of the unemployed to take part in this programme is also strengthened by their entitlement to a benefit amounting to 96% of their previous income.

Promotion of part-time jobs. Great efforts are made to put part-time jobs on an equal footing with full-time employment and their expansion as a result of direct support. The support takes the form of financial incentives aiming at transforming full-time jobs to part-time ones, or at recruiting new part-time staff. In France the “Quinquennale” law was in place from 1993-2001, which provided for a three-percent allowance to social security contributions for employers who transform full-time jobs to part-time ones or recruit new part-time employees. Italy enacted a law in January 2000 which regulates part-time jobs and introduces deduction of contributions for a period of three years. The Netherlands introduced in 1996 equal working conditions and social rights for part-time workers. A common practice consists in reducing employers’ social security contributions paid for new part-time recruitments. Another form of support is entitlement to partial unemployment benefits for those unemployed who decide to take on a part-time job (Belgium and the Netherlands in the 1980s). A disadvantage of this approach is the growth of involuntary part-time employment and widening the gender gap as it is mostly women who profit from this.

New forms of flexibility in terms of the length and organisation of working time

Staggered hours. Employees begin and end work at a varying time, which is fixed (this form is used in offices in larger cities or in companies the units of which may operate independently.)

Compressed work-weeks. Working days are longer, but the week is shorter. For example, a 38-hour working week may be divided into 4 days of 9.5 hours each. By rotating these days the operating hours may be expanded to 5-6 days a week.

Flexitime. Employees come to and leave the workplace at a time of their discretion on the condition that they will all be present for a fixed time.

Work in groups. Working groups are focused on carrying out an assignment and their working time therefore varies within a designated period. The employees have, as a rule, a fixed deadline for completing their assignment.

On-call work. This is occasional work depending on company needs. This form applies, for example, to an

employee during a particular shift or at a time when he/she does not work but must be readily available.

Sabbatical. A period of a leave for study purposes concerning, above all, academic and some other professions. During a sabbatical the employee collect wages or unemployment benefits and their employment is retained for them.

Educational leave. It may be paid or unpaid, the employment is normally retained.

Part-time retirement. The employee reduces his/her workload and gradually departs from a career to retirement (RILSA, 2002b).

III.1.3 Labour force changes and labour mobility

Along with adaptability and flexibility of the labour force, their occupational and territorial mobility is another pillar of European employment policy. This is why the Skills and Mobility Action Plan has been developed, which is concerned, inter alia, with improvement of the system for recognition and transparency of qualifications and skills, transferability of entitlements to social benefits and pensions, establishment of appropriate incentives in terms of taxes and benefits and the use of immigration potential. Member states seek to promote transparency of employment and educational opportunities and to facilitate access to information for all job seekers within the EU. This approach constitutes a challenge for the Czech Republic, where after the initial “employment miracle” unemployment grew, the labour market swayed and competition toughened. However, the attitudes of employees are still rather rigid and their expectations from the state welfare system are great.

III.1.3.1 Shifts in labour force composition

The initial years of transformation were characterised by business start-ups on a massive scale and a mostly voluntary termination of employment in state-owned companies. An extensive departure of pensioners and people at retirement age, and partly also women, from the labour force resulted in reduced labour supply. In terms of mobility transfers from agriculture and industry to the atrophied tertiary sector prevailed. Since 1993 labour force surveys (LFS) have been carried out, which make it possible to track the changing numbers and composition of the labour force, and their mobility during the last year. The launch of large-scale privatisation coincided with the surveys, although the actual restructuring of former state companies occurred much later. The changing composition of the labour force testifies to important mobility processes.

Gender and age. Since 1993 there has been no change in the composition of employees by gender, as distinct from the previous period, when many women stopped working. The number of employees at retirement age dropped by almost one half between 1989-1992, but then began to go up again. The LFS mark a growing number of employees aged 50 and more. Their proportion increased from 18% to 25% between 1993 and 2002, which contrasts with the declining proportion of young people up to 24. This change in age structure of the labour force was caused by the general ageing of the population and longer years of studies (both initial and continuing).

Education. After lifting tight regulations in secondary and tertiary education the proportion of students at secondary vocational schools decreased considerably in the early 1990s. Compared to 329 thousand students in 1990-1991 there were only 201 thousand in 1995-1996 and 190 thousand in 2000-2001. Contrary to this, the number of students of upper secondary programmes with “maturita” who mostly plan to continue their studies at universities increased. The flight from manual professions (which occurred in other countries in transition) can be partially explained as a reaction to totalitarian controls over the education system, and partially as a desire for better working conditions. Another reason consisted in better opportunities for those with higher educational attainment and its much higher return in terms of income.

The economic sector. From 1990 the proportion of the labour force in the primary and secondary sectors decreased in favour of the tertiary sector – more considerably for women than for men. The only exception was construction, which retained the same strong position. Within the tertiary sector there was a steep increase in banking and insurance, but the proportion of the labour force began to drop again after 1999 when large banks were privatised at last. After 1993 the rise of the tertiary sector was much lower than before. Business service boomed as well as public administration, as distinct from stagnating labour force figures in healthcare, education and research.

Occupation. The early 1990s were marked by the commencement of entrepreneurship and an increase in the number of self-employed persons. Following changes in industry structure the occupational structure of the labour force also changed. While the number of manual workers (skilled and unskilled) decreased, the number of professions requiring higher qualification increased (e.g. managers, professionals). The growing hierarchy of occupations is increasingly apparent in wage differentiation, which motivates career development.

Entrepreneurship. (For details see chapter III.2). The proportion of entrepreneurs (independent with employees) grew only slightly from 3% in 1993 to 4% in 2002, while the percentage of the self-employed (without employees) increased from 6% in 1993 to 10% in 2000 and to 11% in 2002. There are twice as many men working on their own account than women. While self-employment as a main source of income is not so common, it is far more common as second working activity. Of those who are second job holders 55% men and 45% women stated that they performed this second job on their own account. LFS obviously do not cover all second job holders, since they are often not mentioned – the proportion is therefore likely to be higher.

III.1.3.2 Labour mobility

In connection with massive privatisation, restructuring and expansion of the tertiary sector of the economy, mobility of the labour force increased in all its forms – i.e. shifts between firms and industries as well as occupational and territorial mobility. The labour force flows copy certain previous EU trends, in particular advance of the service sector.

The real extent of mobility in 1990-2000 is clearer from international comparison. While the overall number of moves was higher in the CR than in “reforming” Slovenia, it was lower than in “stable” Great Britain. A specific feature of the Czech labour market consisted in many simultaneous changes and people more frequently started up a business or took on secondary employment. Moreover, Czech workers have more experience with unemployment than Britons, although the long-term average unemployment rate in the CR was lower. This implies that liberalisation of the labour market coupled with economic reform actually did not cause larger mobility than is common in western countries (however, Great Britain was also experiencing important changes in the period under review, and data for another western European country is not presented).

Table III.1-7 Labour mobility in 1990-2000 (%)

Type of shift	CZ	SI	GB
Changed job once	31,3	14,7	18,6
Changed job more times	25,7	9,3	27,2
Changed occupation once	24,9	7,2	9,4
Changed occupation more times	13,1	3,5	7,7
Started private business	26,4	5,7	7,8
Promoted	23,6	16,1	22,3
Demoted	10,0	3,5	2,2
Started second job	13,4	5,5	6,4
Lost employment once	16,8	12,2	11,3
Lost employment more times	7,6	3,1	4,2
Total number of changes			
None	50,0	57,7	39,7
1-2	24,8	30,2	45,4
3 and more	25,2	12,1	15,0

Source: HWF survey, only respondents in the labour force for the entire period.



International comparison points to a great potential of labour mobility as a strengthening component of the European labour market. In the CR the potential of mobility has not been fully used, particularly as regards moves to the services sector. Compared to western European countries the proportion of services in the CR is lower and their structure is less favourable, since personal services prevail over services based on “manipulation with symbols and information”, corresponding to the knowledge-based economy. In terms of employment structure the education and research sectors are under-staffed and have not yet become a major source of economic growth. Unlike western European countries the CR also lags behind in business services, research and development and public and social services.

Occupational mobility is – and will remain for some time – limited by the nature and structure of education, where life-long learning and retraining still do not play as important part as is needed. (For details see Chapter II.2.6) In most western countries retraining is viewed as the core of active employment policy. There are still small pressures for professional mobility in the CR. As a result of the slow pace of modernisation, low growth of labour productivity and the cheap labour strategy there are not only weak pressures for departure of workers from low-productive jobs, but, most importantly, limited opportunities for transfers to high-productive and skill-intensive jobs. On the other hand, certain traditional manual skills are missing (particularly in machinery), and there are often shortages of low-skilled labour force such as seamstresses or construction workers, who migrate from countries where labour is even cheaper.

Insufficient adaptability of the Czech labour force is to blame for the situation where, in some regions, certain jobs remain vacant although unemployment is relatively high, and they are filled by a cheaper foreign labour force. Employment of foreigners increases the flexibility of the lower tiers of the labour market in particular, but pushes wages down to levels unacceptable for Czech workers. The introduction of visas for foreigners from Eastern Europe was intended to restrict the inflow of illegal workers. On the other hand, the MLSA intends to fill labour market gaps and improve the age structure of the population by “regulated” immigration.

Foreign workers come mainly from Ukraine, Poland, Moldavia, Romania and Vietnam. While

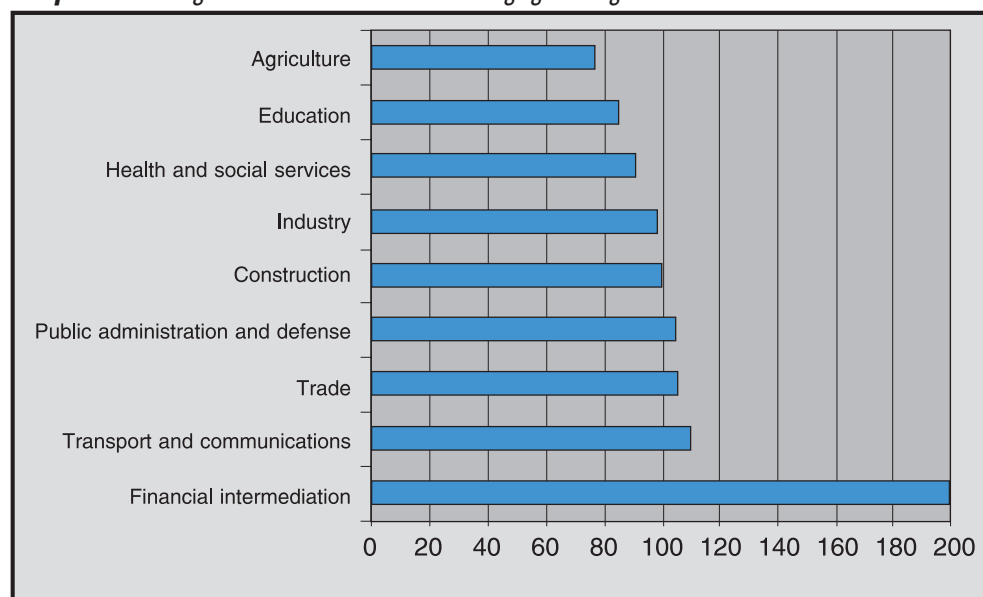
in 1992 there were roughly 47 thousand foreigners with a valid work permit, it was 149 thousand in 1995 and in 2002 (with already high unemployment) it was 105 thousand. Out of this figure 45 thousand held a work permit (regulation applied) and 60 thousand a business licence (no regulation – often a cover-up for employment). Employment of Slovaks is not regulated in the CR, and labour offices had 57 thousand employed Slovaks in their files in 2002.

III.1.3.3 Wage differences

Work flexibility and mobility share one common base of motivation – i.e. remuneration and its differences. Wage differences are most often monitored from an industry perspective. After 1989 wages decreased in agriculture, manufacturing industry and transport, and increased in the tertiary sector. The largest shift occurred in banking where wages soared. Over the last two years some wage fluctuations occurred in healthcare, education and public administration. There was a slight increase in the early 1990s followed by a slide backwards and in 1998 the wages were at their lowest. Only in the previous year did the wages of teachers and healthcare personnel (and also administrative staff) increase as a result of faster wage growth in the public sector. (Statistical Annex, table F.3) Wage differences in 2001 are illustrated in the following graph III. 1-1.

As part of the pursuit of equal opportunities and de-standardisation of employment forms for women attention must be paid to the wage gender gap. It was slightly narrowed after 1989. In 1988 the average wage of women working full-time accounted for 71% of that of men. It increased to 76% in 1996, but then dropped again to 72% in 1998 and stabilised at 74% by 2001. Wage differences between men and women remain large also in western countries. In the late 1990s the average hourly gross wage of women in OECD countries was between 80% and 90% of that of men. The best success rate was scored by France and the US where the gender gap has been reduced since the 1980s to two thirds of the initial figure (Employment Outlook, 2002). In the EU women’s wages are on average 15% lower than men’s. This ranks the CR closer to southern European countries where the differences are above average.

Graph III.I-I Wages in civilian sector in % of average gross wages in 2001



Source: Statistical Yearbooks of the CR.

The main change in wage differentiation in the CR was a higher return to education. According to data from Microcensuses, workers with elementary education (which is a quickly disappearing category) experienced a drop from 90% to 70% of the average wage, while people with higher education improved their position from 134% of

the average income in 1988 to 165% in 1996. Since the results of Microcensus 2002 are not yet available, we use the data from the 2002 wage survey which reveal that wages of people with elementary education further dropped to 67% of the average, while those of people with higher education increased to 175%.

Table III.I-8 Relative earnings by level of educational attainment in OECD countries around 2000 (in % of earnings of persons with upper secondary and post-secondary education)

Country	Men		Women		Total	
	Lower	Higher	Lower	Higher	Lower	Higher
Czech Republic	75	178	72	170	68	179
Hungary	75	237	71	162	71	190
France	88	163	79	152	84	155
Germany	80	139	72	137	75	141
The Netherlands	86	130	71	148	83	135
Sweden	87	140	88	122	89	131
Great Britain	72	151	70	183	67	161
USA	64	175	62	166	65	169

Source: Education at a Glance, 2002.

Note: Lower = education lower than upper secondary and post-secondary. Higher = tertiary education. Includes 25-64 age group.

There are also large differences in wage levels by educational attainment among countries. Wage differentiation by education is considerable in OECD countries – from small differences in welfare states (Sweden Denmark, Norway) to considerable

differences in liberal states (Great Britain, USA). According to the data wage level differences by education in the CR and in Hungary are higher than is common in West Europe and similar, on average, to the USA.

The impact of expansion of education on remuneration

The larger the proportion of higher educational attainment in the population (the case of developed countries), the lower the return on education (Baudelot and Glaude, 1990). This relationship partially explains why education in countries in transition may be better remunerated compared to more developed countries: while in the former higher educational attainment concerns a small proportion of the population, in developed countries this proportion is large. However, this finding has not been confirmed. For example, D.G.Sullivan and T.M. Smeeding conclude that “while there is evidence that sufficiently increased supplies of highly educated workers can reduce or reverse growing education premiums, the cross-section evidence is not consistent with the claim that among advanced (OECD) nations higher levels of educational attainment are associated with lower levels of inequality” (Sullivan and Smeeding, 1997:12). In reforming countries the education premiums grew along with the growing supply of educated people – the most so in the Czech Republic. Since there is an opposite trend in

other countries (e.g. in Austria), the relative earnings of persons with higher education are eventually very similar in both countries (Večerník, 2001).

III.1.3-4 Family and flexibility in employment

When flexibility is discussed, only its benefits for companies are often stressed and its benefits for employees omitted – e.g. the opportunity to be employed without neglecting family. In the CR the conflict between work and family is not so strongly felt as in western Europe. (Table III.1-9) The real situation is apparently different, since employment terms in these countries are more conducive to family life – e.g. in Great Britain nearly one half of women hold part-time jobs, in the Netherlands it is even a majority, and Sweden generally applies strong pro-family policies. Czech specificities are related to the position of women in the labour market and established patterns from the past, with the only slowly changing stereotype of full-time employment of women followed by a “second shift” at home, considered a matter of course.

Table III.1-9 Employment/family conflicts (% of “often” and “always” answers) in 2001

	CZ	HU	SI	NL	S	GB
Work makes it difficult for the respondent to do some household tasks	13,0	14,9	15,2	19,8	22,4	21,8
Work makes it difficult for the respondent to fulfil some responsibilities towards family	9,2	10,1	15,4	8,1	14,4	13,1
The responsibility towards family prevents the respondent from doing his/her job adequately	1,9	2,0	1,5	0,0	1,9	4,6
The respondent has to take work home to finish it	9,0	6,9	8,4	20,9	13,5	11,5
The respondent prefers to spend more time at work than at home	3,0	0,8	2,1	7,0	1,9	3,1

Source: HWF survey, economically active outside agriculture

The conflict between work and family will certainly receive increasing attention. In the CR 40% of employees would prefer shorter working hours, while half of them state as the reason lack of time for their family. (Table III.1-10) Employers’ efforts to raise labour productivity will call for stronger commitment to work, and so there will be fewer opportunities to deal with personal matters at work. Women will more often take on more demanding jobs and will be busier. Not only women, but also men must become more “flexible” in combining their professional and family roles. This process, which is in line with West European trends, calls for changes in mentality, but also the institutional framework of the two domains – work and family.

Policies assisting in fitting together work and family are being developed in various areas. The first of them is labour legislation, which ranks the CR among relatively developed countries. The existing labour law fosters various forms of employment (flexible and shorter working time) with regard to family and personal circumstances. However, the implementation of these provisions is limited by employers’ indifference and unwillingness to meet often justified requirements of their employees. The problem rests more in the motivation of employers to make practical use of all options laid down by the regulations currently in place. Interest in part-time jobs is discussed in detail in III.1.2.3 of this chapter.

Table III.I-10 *Wish to work shorter working hours and the reasons (%) in 2001*

	CZ	HU	SI	NL	S	GB
Respondent does not want shorter working time	62,0	72,7	73,5	37,5	64,6	75,9
Respondent wants shorter working time to spend more time with family (at home)	19,1	13,6	10,9	11,6	18,6	11,8
Respondent wants shorter working time, because he/she does not like working long hours	10,2	3,3	5,1	.	5,6	4,9
Respondent wants shorter working time for other reasons	8,7	10,4	10,5	50,9	11,3	7,4

Source: HWF survey, economically active outside agriculture.

Balancing work and family is related to firm strategies concerning human resources management. A receptive attitude to employees' family needs may be an important performance and loyalty incentive, and what is more, one that is less costly than others. The legislations provides for various options, including home-working, individual work schedules, part-time jobs, special programmes for women and men who return to employment after parental leave, or a nursery school at the workplace. Higher co-ordination costs may be offset by more satisfaction among employees and their higher productivity.

Fitting employment and family together in Belgium, the Netherlands and Denmark

In 2002 Belgium introduced a "time credit" of one year, on which employees may draw either by interrupting employment or shortening working hours without losing the entitlement to social security. The "time credit" may be expanded on the basis of a company or industry agreement to five years. The Netherlands has a law stipulating that the employee may agree with the employer on interrupting a career in order to study or to look after

his/her family for two to 18 months, and in this period the employee is entitled to a benefit of EUR 440 per month. The employee must be replaced by an individual who is a social benefits recipient or is returning to the labour market. Job rotation also existed in Denmark, where employees could interrupt their career to study or to look after children and go on paid leave, while being replaced by unemployed persons. If the situation in the Danish labour market deteriorates, re-introduction of this practice is expected as it supports family and lifelong learning at the same time. Since 2000 a law has been in place in the Netherlands stipulating that an employee's request for shorter working time may only be rejected if there are serious grounds on the employer's part. The law on "work and care", in effect from 2001, provides employees with an opportunity to take ten days off during one year to take care of sick family members.

III.1.3-5 Work values and mobility potential

Modern trends of globalisation and the demands for flexibility increase the importance of human values underlying economic behaviour. Values attributed to work are especially important in the

Table III.I-11 *The importance of work in 2001 (% of answer "definitely agree" and "agree")*

Reasons for work	CZ	PL	SI	A	NL	S
To fully develop your talents, you need to have a job	78,0	91,1	69,5	87,8	36,0	44,7
It is humiliating to receive money without having to work for it	43,8	62,1	56,0	48,5	22,8	37,9
People who do not work turn lazy	77,6	76,9	84,4	73,3	30,2	35,9
Work is a duty towards society	59,9	76,0	74,0	79,7	52,2	54,7
People should not have to work if they do not want to	34,7	68,5	17,2	13,5	21,5	12,3
Work should always come first, although it means less spare time	51,6	59,3	52,4	53,7	16,9	24,2

Source: European Values Survey, adult persons up to 65 years of age.

situation where stability is replaced by mobility, a predictable career by unexpected changes in the meanings and institutional framework of work, and a strict line between work and family is blurred by opportunities for their harmonisation. People are faced with new challenges and requirements to adapt, and acquire new competencies to do so.

Despite certain changes in attitudes over recent years Czech workers appreciate work and employment less than their western counterparts, prefer routine to independent work and rely more on the state as a guarantor of jobs and social security (Večerník, 1999). However, it is impossible to generalise and not heed differentiation, which, in the open space of opportunities, is constantly growing. The category of workers who took up the challenge to adapt to the western working style is ever more numerous, and they, of course, expect

appropriate remuneration. Although this change is linked to education, education itself does not guarantee or indicate a change in attitudes.

Performance, loyalty and adaptability of an employee are derived from his/her view of the value of work and its importance in life. As Table III.1-11 illustrates, Czech respondents can be praised for their views of work as a condition for developing one's talents. Unlike respondents in other transitional countries, they tend to view it less as an obligation to society. Czechs are therefore in between Poles and Slovenians as regards the opinion that an individual should not be forced to work if he/she does not want to. However, the figures raise suspicion when comparing Czechs with traditionally hard-working nations such as the Dutch or Swedes who are far less enthusiastic about work as the most important activity in life.

Table III.1-12 *Satisfaction in main employment in 2001(index)*

	CZ	HU	SI	NL	S	GB
Overall satisfaction	64,3	65,2	68,8	84,9	81,1	78,2
A. Job stability	71,1		72,7	91,1	89,1	86,2
B. Period for which job contract is concluded	62,0	77,1	64,5	85,9	72,7	75,8
C. Working time	70,9	65,3	74,7	83,6	84,6	83,3
D. Location of the workplace	49,1	73,8	51,5	71,2	59,6	62,0
E. Level of income	60,8	43,3	62,0	79,4	74,0	72,7
Arithmetic mean A-E	63,0		66,2	82,6	77,5	77,4

Source: HWF survey, economically active up to 65 years of age.

Note: The index is calculated using a five-level scale where "very satisfied" = 100, and "very dissatisfied" = 0.

Positive perception of work is also reflected in perceived and expressed satisfaction with employment. As Table III.1-12 shows, the overall level of satisfaction in western countries is higher than in transitional countries. The differences concern virtually all components of employment. There is very low satisfaction with the location of the workplace and income, which affect lower

overall satisfaction with employment – in the CR, Slovenia, the Netherlands and Great Britain. Conversely, respondents in the CR are most satisfied with job stability and the working time, similarly to Sweden and Great Britain. Individual components of satisfaction show lower figures than overall satisfaction, which points to the "value added" of their combination.

Table III.1-13 *Liberty in decision-making about various aspects of job and work in 2001 (in %)*

Aspect	CZ	HU	SI	NL	S	GB
Number of working hours	20,9	22,0	21,6	34,0	35,9	30,9
Working schedule	17,7	23,2	22,0	42,3	35,8	31,2
Overtime work	27,3	25,4	25,4	61,6	58,8	43,8
Place of work	19,3	21,4	20,5	25,7	27,7	21,2

Source: HWF survey, economically active up to 65 years of age.

Answers on decision-making were recoded so that 1= 'I decide myself' and 0=all other variants.

It is also important to what extent the employee feels free to decide on the working time, work tasks and location of work. The assumption is that the more developed the economy and the more skilled labour force, the more discretion is provided to employees. Table III.1-13 illustrates a simplified picture, where full discretion of an individual is contrasted with other alternatives. There is a marked contrast between transitional and western countries, which is the

strongest in the case of overtime work, although in this area the discretion of Czech, Hungarian and Slovenian workers is the highest of all transitional countries. This is clearly not a purely subjective picture, but the result of a number of factors such as qualification structure of the labour force, the content and organisation of work which, put together, distinguish between “an average worker” in the East and in the West and point directly to flexibility and indirectly to labour productivity.

Table III.1-14 *Willingness to accept certain conditions if losing job. Question: Imagine that you had no job and could get a new one only under certain conditions. Would you be willing to ...*

Type of activity	CZ	HU	SI	BG	NL	GB
1. Work more	39,5	.	53,2	57,5	27,4	53,6
2. Move (migrate) to another settlement	15,9	19,1	26,0	27,3	25,4	38,6
3. Accept less attractive work conditions	16,6	25,0	23,7	33,0	20,3	27,2
4. Retrain for another profession	57,5	58,0	40,2	46,2	50,2	64,3
5. Learn a new foreign language	39,7	44,6	48,6	36,9	63,2	57,4
Average number of activities	1,14	.	1,73	1,96	1,72	1,52

Source: HWF survey, economically active up to 65 years of age.

Only answers “yes” were taken into account. The other two answers were “maybe” and “no”.

Table III.1-15 *Willingness to accept certain conditions if being offered a better paid job. Question: Imagine that you were offered a new job position with twice the salary you have now. Would you be willing to ...*

Type of activity	CZ	HU	BG	NL	GB
1. Work more	63,9	.	70,1	31,6	63,8
2. Move (migrate) to another settlement	26,4	26,8	36,2	28,9	50,3
3. Accept less attractive work conditions	31,8	29,1	41,7	19,1	39,8
4. Retrain for another profession	67,6	60,9	54,1	46,4	70,2
5. Learn a new foreign language	49,1	47,5	44,2	60,5	63,8
Average number of activities	1,61	.	2,36	1,70	1,82

Source: HWF survey, economically active up to 65 years of age.

Only answers “yes” were taken into account. The other two answers were “maybe” and “no”.

Work values determine the flexibility and mobility potential to a great extent. This can be inspected, in a simplified manner, by questions under which conditions an individual would be willing to get a job in the case of unemployment, or a better job promising far higher earnings. It means the “push” strategy (in the case of necessity), or “pull” (in the case of strong motivation).

If they were unemployed and could get a job, almost one half of Czech respondents said they would not opt for any of the alternatives suggested. However, the willingness to retrain is not negligible, as distinct from the low willingness to

accept worse working conditions or to move after work. Hungarians and Slovenians are more willing than Czechs to learn a new language. However, if offered a job with double the respondent’s current pay the proportion of respondents who would not be interested is lower (42%). Again, retraining is the most favoured option, the least favoured one is migration.

Overall, “voluntary” motivation in the form of higher income appears to be more efficient than “forced” acceptance of employment. This holds true for other countries under review as well, although the differences are much smaller than in



the CR. In the Netherlands both the “push” and “pull” strategies are considered to be equal, which is evidence of the great value placed on employment (interesting in a country which for long lived on a welfare cushion). Czechs consider longer working hours as an acceptable option leading to higher earnings, but not as a way of getting a job in the case of unemployment. As regards languages, Czechs are less ready to learn foreign languages than Britons – which is a somewhat surprising finding in view of the different opportunities in terms of using Czech and English.

International comparison puts Czechs’ attitudes to work in a critical light. Although the differences in motivation to get a job if unemployed on the one hand and to double one’s own earnings on other hand are understandable, they are extreme among the Czech population, and suggest a low value attributed to employment in general. Czechs are less willing to work longer hours and to agree to worse employment terms to get a job. The CR rates first as regards dissatisfaction and simultaneously lax attitude to work, despite the already high unemployment rate. The figures also indicate a relatively weak flexibility potential, which would also have to be activated by a considerable wage increase.

On the other hand, flexibility and adaptability in employment are not new concepts for the Czech population. What is new are certain forms of flexibility. One must bear in mind the heritage of communism, which unintentionally prompted individuals and families to seek various ways of adapting and finding subsidiary sources necessary for survival or improvement of living standards. After November 1989 most individuals and households responded actively to the changed economic conditions – about one half of the economically active population was active in some way in order to adapt to the new situation or to improve their position – of course, including the grey economy (Večerník, 1998:187-190).

In the framework of Central European transitional countries Czech households are less dependent on the grey economy. Since the performance of the Czech economy was relatively good, the Czech population was far less trained in performing more jobs in parallel, and in supplementary and illegal activities than, for example, Poles or Hungarians. At the same time, it had a weaker agricultural background than Slovaks. However, spontaneous flexibility hovering in between the legal and illegal economy exists in the CR as well. This includes

self-employment in addition to regular employment, or performance of regular jobs on the basis of a business licence, taking social or sickness benefits while performing various hidden gainful activities, etc.

These and other similar “strategies” are certainly not employed exclusively in countries undergoing transformation. However, they are quite typical of them – as distinct from countries with established rule of law, transparent business environment and a consistent supervisory role of the state. Various alternatives to formal economic strategies are evidence of lax attitudes to traditional work virtues and indifference as regards responsibility in labour relations and obligations to society and the state. However, they may suggest more willingness to adapt than people are ready to admit – although always on the condition of a sufficient income.

III.1.4 Conclusions and recommendations

The labour force in the Czech Republic has undergone considerable changes since the early 1990s: after 1989 one half of the economically active population experienced a change in relation to employment, company, occupation or position at work. One fourth of the labour force launched self-employment activities and the same proportion experienced unemployment. In careers voluntary mobility prevailed over forced mobility, and upturn over downturn. From international comparison it is clear that what, in the CR, is considered to be extraordinarily large mobility after November 1989 is standard in developed countries with their increasingly mobile and flexible labour markets.

It is important that there are no severe obstacles to mobility in terms of legislation. The extent of flexibility is rather limited by lower wages (limiting interest in part-time jobs and work-sharing schemes), and also by established habits on the part of employees and employers. On the other hand, there are various “flexible” practices at the edge of legality, or legal instruments are abused against employees (e.g. “chaining” of fixed-term employments). There is still a great potential in terms of work flexibility – the proportion of services is low in the CR and their structure lags behind developed countries, as personal services prevail

over modern information services typical of a knowledge-based economy.

Opinion surveys which help establish the potential of work mobility and flexibility of the Czech labour force, bring positive as well as negative results. On the one hand they point to readiness of workers to adapt, either when “pushed” by a loss of employment or “pulled” by higher earnings. On the other hand, motivation in the form of higher income is to an excessive extent stronger than motivation to obtain a job in the case of unemployment. Unhappiness with and a lax attitude to employment are still rather strong, despite the high unemployment rate. Easily accessible social benefits promote dependence on the state, while inappropriate enforcement of regulations creates conditions for inventing and applying various sources of living, which sidestep both the open market and the state.

However, the need for more flexibility in the labour market is a generally acknowledged problem, which is also addressed in “European Employment Strategy”. The Strategy rests on four pillars – employability of the labour force and their adaptability, promotion of entrepreneurship and equal opportunities for all. New recommendations of the European Commission set out priorities in the area of employment. They include, for example, better assistance to job seekers, the possibility of transforming undeclared work into regular employment, higher investment in human capital and a strategy of lifelong learning and active ageing. Employers should be given incentives to create new jobs, to employ disadvantaged individuals, to create new jobs in the social economy and industries responding to new requirements.

In the Czech Republic flexibility at work and employment is rather low, but there are conditions for it to increase. Strategic documents of the Ministry of Labour and Social Affairs have been gradually moving from general formulations to specific measures. Like other reforming countries of Central and Eastern Europe, the Czech Republic oscillates between two extremes in terms of employment strategy and prospects in terms of flexibility. On the one hand it does not reach such flexibility as the US or Great Britain, on the other hand labour legislation is not as restricting as in some southern EU members. Within such broad limits there are several alternatives leading to increased flexibility and, consequently, employment participation.

Reforming the tax and welfare systems. A principal path to higher flexibility, tested in many EU countries, consists in reduction of the tax burden and finding the appropriate degree of social protection. At the same time, it is important to prevent employers from abusing the existing legislation against employees. Income from work and social benefits should not be entirely mutually exclusive, since this either results in social dependency or stimulates departure to the grey economy.

Promoting equal opportunities and preventing segmentation of the labour market. Social policy must be more focused on the prevention of problems related to employment in order to prevent labour market segmentation. It must not contribute, through excessive social protection and advantages for employees with permanent contracts, to marginalisation of employees in non-standard forms of employment. The principal task is to ensure equal access to education. In view of the speed at which knowledge and skills become outdated it is necessary to promote lifelong learning and education.

Making use of flexibility to improve the quality of working and family life and their smooth combination. Flexibility of working time may be used to harmonise work and family duties. Flexibility of work may be used to promote autonomy in decision-making. Although the degree of insecurity will grow, if adequate efforts are made it will be possible to strike a balance, where as many people as possible will have jobs under acceptable terms and will be able to lead satisfactory private lives.

The Czech approach cannot differ from the European one, which, for many years, has been modelled upon “flexicurity”. It was codified in the Netherlands, activated in Denmark and on the whole, it is in line with the general aims of institutions such as the International Labour Organisation (which formulated the so-called “decent work agenda” in 1999), or the European Union with its continuously updated employment strategy. The core is always to establish an appropriate compromise between protection of work and adequate space and incentives for change, mobility, development of skills and, consequently, for higher commitment to and efficiency of human work.

III.2 ENTREPRENEURSHIP

Entrepreneurship is based on flexibility and capacities of individuals, their visions, creativity, motivation, and willingness to work hard and bear risk. Entrepreneurship is also based on the ability to recognise opportunities offered by the relevant markets as well as on a wish to be independent and to enjoy work¹. These are reasons why entrepreneurship is understood, above all, as a state of mind reflecting attitudes and skills of individuals and their professional competence.

The Czech Republic experienced a period where, for a long time, the tradition of entrepreneurship was disrupted. The private sector virtually ceased to exist and the population even failed to understand the basics of a typical market environment. It is therefore important to follow the extent to which this disadvantage has been tackled in the course of the transformation period and how the business sector has developed in terms of the numbers and structure of entrepreneurs and the stability of their position.

Entrepreneurship is indispensable for the development of the economy, society and individuals. It is a prerequisite for economic and social development, since it puts into practice new concepts and innovation. For individuals, entrepreneurship not only constitutes a career and a chance to make use of one's talents, but, most importantly, also a source of income. The importance of entrepreneurship for the development of society and individuals induces the introduction of various forms of support for business start-ups and development, which often constitute coherent policies (access to finance, administrative measures, taxation, health and social insurance contributions). However, such policies may only support the efforts of an individual. Their success will always depend on the individuality of each entrepreneur.

III.2.1 EU incentives for the development of entrepreneurship

The EU considers the development of entrepreneurship and investment in knowledge and innovation to be the key to the opening of new opportunities for economic growth and, as a result, the fulfilment of the ambitious ten-year aim set forth at the Lisbon summit in 2000. The aim is "to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion".

The development of entrepreneurship is the subject of all major documents regulating the activities of the EU member states. The most important documents include Broad Economic Policy Guidelines and Guidelines for the Employment Policies of Member States. The EU's aims concerning entrepreneurship are summarised particularly in the *Action Plan to Promote Entrepreneurship and Competitiveness*, the *Charter for Small Enterprises* and the *Green Paper on Entrepreneurship in Europe*.

Measures promoting entrepreneurship concern, above all, activities affecting the **business environment**, i.e.

administrative costs related to business start-ups, wind-up mechanisms, taxation, law enforcement, imposition of sanctions, access to loans and venture capital for beginning entrepreneurs and for small and medium-sized companies, and the public sector efficiency.

In addition to improving the business environment, attention is also paid to enhancing **individuals' preparedness** for independent business activities in order to support their willingness to bear risk and to raise their chance of success by means of providing the relevant information. In the *European Strategy for Full Employment and Better Jobs for All* adopted in 2002, the aim of enhancing professional competence of entrepreneurs is set out in

priority 2 - „job creation and entrepreneurship“. One of the tasks for the member states within this priority is to "encourage the creation of more and better jobs by fostering entrepreneurship". The support for entrepreneurship should take the form of "promotion of education and training in entrepreneurial and management skills". The relevant training should "make entrepreneurship a career option for all, particularly women, unemployed and inactive individuals who want to work".

In 1999 the Industrial Council adopted the *Action Plan to Promote Entrepreneurship and Competitiveness*, which designated seven areas on which the member states and the EC should focus. The first two areas concern the training of human resources for entrepreneurship. As regards training in entrepreneurship skills member states should support entrepreneurship by focusing on the education system (primary and secondary schools, universities, technical colleges) and by developing co-operation between educational institutions and small and medium-sized enterprises in order to facilitate acquisition of

¹ Satisfaction at work is expressed by 33% entrepreneurs without employees, 45% entrepreneurs with employees, but only 27% of employees. According to Third European survey on working condition 2000, European Foundation for the Improvement of Living and Working Conditions

entrepreneurial and management skills. The EC promised to support pilot activities designed to acquaint students with business management. The second area concerns training programme. Member states should develop, in all schools, courses focused on entrepreneurship and courses which would better meet the needs of SMEs, and encourage participation in these courses. The EC promised to develop a Business Education Network in Europe (BENE) and to ensure access to training within the Leonardo programme for SMEs.

One year later, in June 2000, the European Council adopted the *Charter for Small Enterprises*, which covers 10 key areas. The importance attributed to human resources is clear from the fact that the first key area concerns education and training in entrepreneurial skills. Emphasis is placed on the need to incorporate education in entrepreneurship into primary and secondary school curricula.

In 2003² the European Commission issued the Green Paper on Entrepreneurship in Europe which sets out three pillars for action, the implementation of which should foster the development of a society promoting entrepreneurship. Within the first pillar, “bringing down barriers to business development and growth”, member states should provide support to entrepreneurs in their acquisition of skills facilitating their adaptation to changing conditions. The third pillar, “fostering a society that values entrepreneurship”, calls upon member states to adopt measures designed particularly for young people in order to provide them with courage appropriate skills to start up a business. The support should also be provided to their trainers.

The development of entrepreneurship should restore the dynamics of the EU’s economic growth and to increase employment. In 2001 the European Council adopted an objective of creating approximately 15 million new jobs by 2010³.

III.2.2 The development of entrepreneurship in the CR in 1995 - 2002

The number of entrepreneurs is growing

The development of entrepreneurship is documented by the changes in the total number of entrepreneurs – both the number of self-employed persons without employees and self-employed individuals with employees. The following data only concern entrepreneurs for whom private business is the main employment. Entrepreneurial activities as a second job are not part of this indicator. The number of self-employed individuals increased over the eight-year period by over 167 thousand – there were 733 thousand self-employed persons in the CR in 2002.

As the graph III.2-1 illustrates, the total number of entrepreneurs rose constantly thanks to the growing number of entrepreneurs without employees. The average annual growth in the number of entrepreneurs without employees was 5.4%, in the group of entrepreneurs with employees it was only 0.4%. This very low average increase is caused by three cases of year-on-year decline: 2% in 2000, 3% in 1999 and almost 5% in 2001⁴. Conversely, the number of entrepreneurs without employees increased every year – a steeper increase occurred in 1998 (13%) and in 2002 (nearly 8%).⁵

The number of entrepreneurs with employees increased in the eight-year period by 4.6 thousand. The largest increase occurred in the branch of hotels and restaurants (an increase by 5 thousand) and in transport (4.1 thousand). Most business closedowns occurred in trade, repairs of motor vehicles and consumer goods (5.5 thousand entities), and in construction (1.6 thousand).

The number of entrepreneurs without employees increased in the period under review by 165.9 thousand entities. All branches except agriculture

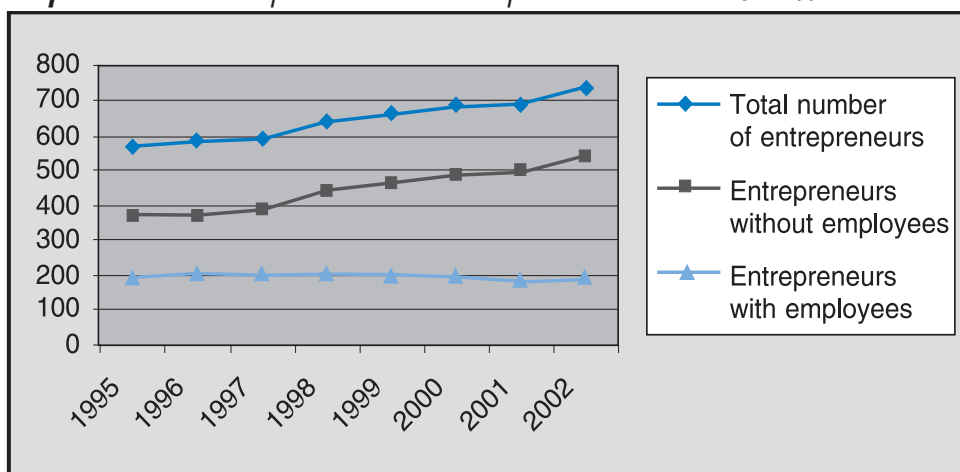
² Green Paper on Entrepreneurship in Europe, Brussels, 21.1.2003, COM (2003) 27 final

³ “Increasing labour force participation and promoting active ageing”, Council document 6707/02, 08.03.2002, adopted on the basis of COM (2002) 9 final, 24.01.2002

⁴ In 1997 the year-on-year decrease in the number of entrepreneurs with employees was caused by business closedowns particularly in trade, repairs of motor vehicles and consumer goods (a year-on-year fall by 3.8 thousand entities – i.e. 6% of entrepreneurs with employees in this industry) and in real estate, renting, business services and research and development (year-on-year decrease by 1.9 thousand entities – i.e. 9%). In 1999 the reduction in the number of entrepreneurs with employees was primarily caused by the construction industry (a year-on-year fall by 2.9 thousand entities – i.e. 2.7%), and healthcare (a year-on-year decrease by 2.7 thousand entities – i.e. 17% of entrepreneurs with employees in this industry). In 2001 the largest reduction in the number of entrepreneurs with employees occurred, as in 1997, in trade, repairs of motor vehicles and consumer goods (8.3 thousand entities year-on-year – i.e. 14%) and, as in 1999, in construction (year-on-year decrease by 3.6 entities – i.e. 12% of entrepreneurs with employees in this industry).

⁵ In 1998 this steeper increase was caused by the construction industry (a year-on-year increase in the number of entrepreneurs without employees of 19.4 thousand – i.e. almost 28%) and in other public, social and personal services (a year-on-year increase of 7.8 thousand individuals – i.e. 25%). In 2002 a steep increase occurred in trade, repairs of motor vehicles and consumer goods (9.6 thousand year-on-year – i.e. 9%) and in real estate, renting, business services and research and development (a year-on-year increase by 9.6 thousand individuals – i.e. 14%).

Graph III.2-I *The development of number of entrepreneurs in the CR in 1995 – 2002*



Source: CSO, Labour Force Survey

and hunting (a decrease by 3.1 thousand) contributed to this increase. The largest increase in the number of entrepreneurs without employees occurred in construction (65.3 thousand), real estate, renting, business services, research and development (19.9 thousand) and in trade, repairs of motor vehicles and consumer goods (an increase by 18.2 thousand).

From the data available it is impossible to establish the specific causes for the increase in the number of self-employed individuals and the year-on-year fluctuations. It is only possible to define the major reasons. The principal driving force is the desire to have one's own business and be independent. This also reflects general economic conditions where, if the economy grows, entrepreneurship is stimulated by a growing demand for goods and services and, conversely, in the period of economic stagnation and lack of employment opportunities in companies self-employment may be a way of addressing a personal situation. The effects of outsourcing also play a role, where companies get rid of various services and operations may spin off and become independent units. If there is a new owner, the number of entrepreneurs with employees increases. The development of entrepreneurship and the number of entrepreneurs is also affected by the policy related to the support of SMEs.

In addition to economic conditions, entrepreneurship is also driven by so-called fiscal reasons – i.e. a possibility of paying lower taxes and health and social insurance contributions.

For example, it seems that an increasing number of companies hire own-account workers to perform activities earlier performed by employees. This saves labour costs, because companies do not pay health and social insurance contributions for these individuals. Moreover, self-account workers are not covered by collective agreements and therefore are not entitled to various forms of support from cultural and social needs funds, and companies are not liable for their work-related injuries.

Own-account work is fiscally more favourable not only for companies, but also for self-employed individuals. This is because it is possible, through manipulating costs, to decrease the level of declared net income and, as a result, the level of taxes and contributions paid for social and health insurance and employment policy.

Another reason is that employers consider the existing system of the protection of employees to be too extensive, making it impossible for them to respond flexibly to decreasing demand by dismissals. Conversely, they believe that co-operation with own-account workers is far more flexible.

The latter reasons for an increase in the number of self-account workers lead to the creation of “false self-employed persons” who only work for one business entity. The CR is not the only country where this negative phenomenon occurs – it was identified earlier in developed market economies. Some countries, such as Germany, Belgium and Greece, have already adopted measures designed to counteract these practices. The CR should learn from the experience of these countries.

Measures against “False entrepreneurship” in Germany

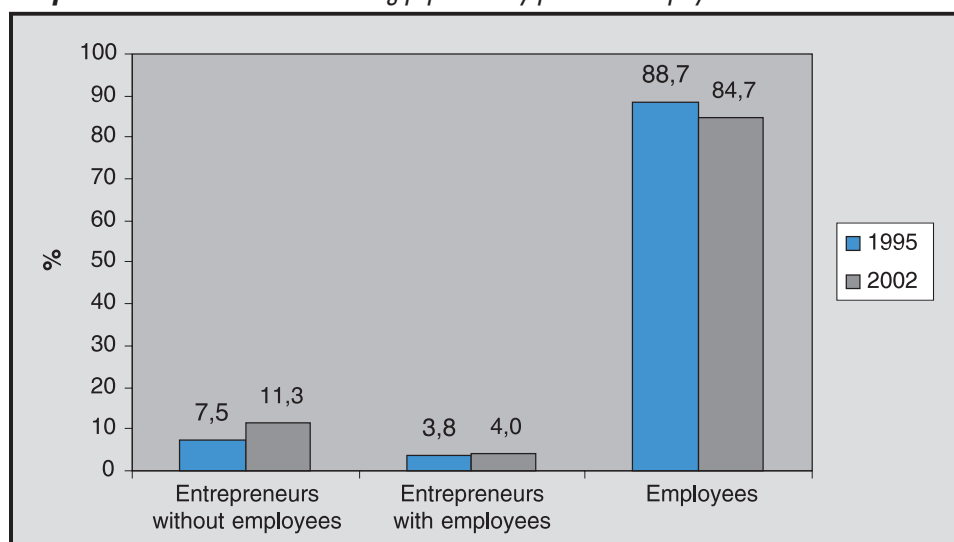
In the 1990s Germany saw an increase in self-employment. However, surveys revealed that many of the self-employed only work for one entity. The Federal Ministry of Labour estimated that in 1995 the proportion of false self-employment was 12-27% of total self-employment. A measure adopted in 1999⁶ aimed to counteract this practice. It divided the self-employed according to five criteria. If an individual meets any three of the five criteria, he/she is considered to be an employee with the relevant duties concerning social insurance. The criteria were as follows: (i) the individual does not employ other persons for a wage exceeding 630 DEM per month, (ii) the individual is strongly dependent on one client for a long time, (iii)

the individual performs tasks for the client which a firm comparable to this client assigns to its employees, (iv) the individual does not act as an entrepreneur, (v) the task the individual performs for a client is the same he/she performed for the same client earlier as an employee.

The proportion of entrepreneurs in total employment shows a slight increase

As the graph III.2-2 illustrates, there was a slight increase in the proportion of entrepreneurs in total employment in the period under review. In 1995 the proportion was 12% and in 2002 it was 15%. The increase occurred thanks to the increase in the number of entrepreneurs without employees (own-account workers), while the proportion of employees decreased.

Graph III.2-2 The structure of working population by position in employment in 1995 and 2002



Source: CSO, Labour Force Survey

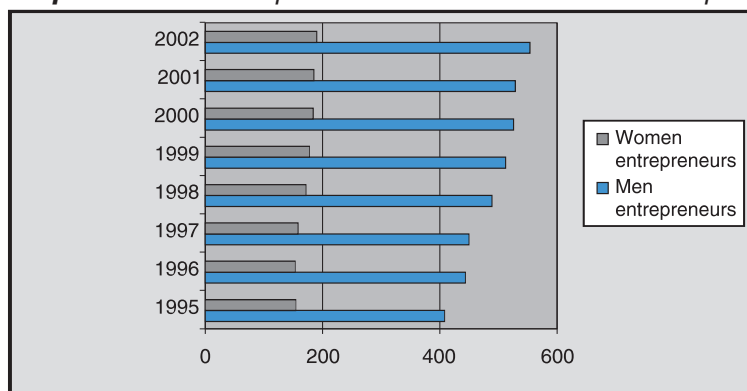
The proportion of women entrepreneurs in total self-employment shows a slight decrease

In the CR, entrepreneurship has so far been more a men's domain. The proportion of women in the total number of entrepreneurs in the period under review was oscillating around 27%. It peaked in 1995 (27.9%) and it was lowest in 1996 and 2002 (26.7%). Although the number of women entrepreneurs increased in this period by nearly 39 thousand, the increase in the number of men entrepreneurs was more robust (almost 136 thousand), which was manifested in the decrease in the proportion of women in self-employment. This development is illustrated in the following graph III.2-3.

The trend of lowering the proportion of women entrepreneurs in the total number of self-employed persons is distinct from the OECD average data, where the proportion of women in business has been on the rise since the 1970s. Of course, this does not apply to all countries. In some countries (e.g. Germany and Spain) the proportion of self-employed women fell temporarily in the 1980s. However, this trend was reversed in the 1990s and the figures began to rise again. The average proportion of women entrepreneurs in total self-employment in the OECD countries was 26.4% in the 1970s, 28.1% in the 1980s and 29.2% in the 1990s.

⁶ The law on false entrepreneurship “Regulungen gegen Scheinselbständigkeit” was enacted in 1998 as part of a labour market reform programme. However, the definition of false self-employment was changed in 1999 in the law on promoting self-employment “Gesetz zur Förderung der Selbstständigkeit”

Graph III.2-3 The development of the number of women and men entrepreneurs in 1995 - 2002



Source: CSO, Labour Force Survey

Comparison between the CR and the EU average points to a smaller difference compared to the OECD average. In 2000 the proportion of women in total self-employment in the EU was 27.3%, which is a mere 0.6 p.p. higher than in the CR. However, the average figure covers relatively large differences between the member states. For example, in Finland the proportion of women-entrepreneurs was 30.6%, while in Ireland it was only 16.4%.

It is perhaps not surprising that the proportion of women entrepreneurs with employees in the total number of entrepreneurs with employees is lower than the proportion of women entrepreneurs without employees in the total number of the self-employed without employees. These proportions also tend to decline – the decrease was larger in women entrepreneurs without employees (1.7 p.p.) than in women entrepreneurs with employees (1.5 p.p.). In 1995 women entrepreneurs without employees accounted for 30% of all entrepreneurs without employees. In 2002 it was only 28%. Similarly, the proportion of women entrepreneurs with employees dropped from 24 to 23%.

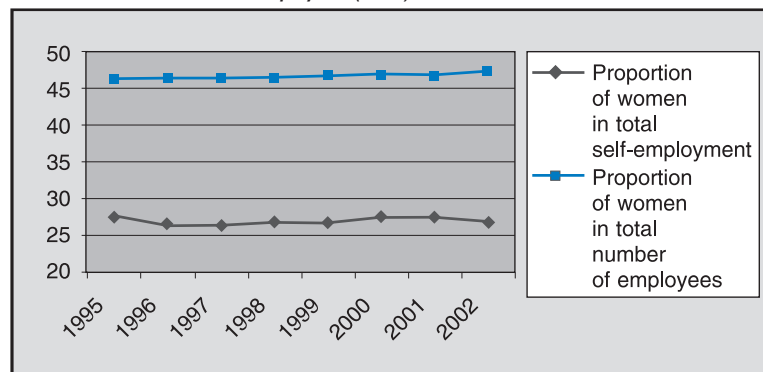
At the turn of the millennium, women accounted for approximately 43% of total employment. They made

up 46% of employees, but only 27% of entrepreneurs. It may be inferred from this that women, compared to men, more prefer an employee status. There are various reasons for this which range from a different attitude to self-employment and the willingness to bear risk to a larger role of women in family and household matters and availability of services facilitating this role. The number and age of children also plays a role, and so do the attitudes of family members to self-employment of women and the woman's role in family and society in general.

On the other hand, there is a number of women entrepreneurs who, for the very reason of a better harmony between family and working life, prefer self-employment – particularly a form of self-employment where they may work at home and which is less demanding in terms of time.

As the graph III.2-4 indicates, women – according to their proportion in entrepreneurs and employees – have preferred, since 2000, an employee status. Since this year, their proportion in the total number of employees has increased slightly, while their proportion in total self-employment has declined.

Graph III.2-4 The development of the proportion of women entrepreneurs in total self-employment and the proportion of women in total number of employees (in %)



Source: CSO, Labour Force Survey

The OECD studies⁷ point to the fact that women must face other difficulties resulting, to a degree, from the different nature of entrepreneurship of women compared to that of men. Women normally start up enterprises with less capital, their business projects are less ambitious, they invest less and incur less debt. Moreover, their position in the labour market is less favourable, because they acquire fewer contacts in their previous employment, they are less mobile because of family care. Women entrepreneurs also have a more difficult access to loans, as they tend to do business in services where the demands for tangible assets are lower, and, as a result, they have more limited opportunities in terms of offering banks these assets as collateral for loans.

The identification of the specific difficulties faced by women entrepreneurs has prompted some countries to introduce special programmes promoting entrepreneurship of women in order to close gender gap in terms of chances. The programmes focus, above all, on facilitating access to capital, but also on special training and counselling in entrepreneurship. The programmes facilitating entrepreneurship of women also receive substantial assistance from the EU. It is possible, within operational programmes for human resources development, to draw resources from the European Social Fund also for these measures.

Support for women's entrepreneurship in programmes co-funded from the European Social Fund

The CR intends to make use of the opportunity for drawing resources from the European Social Fund by means of the Operational Programme Human Resources Development (OP HRD), which has been developed by the Ministry of

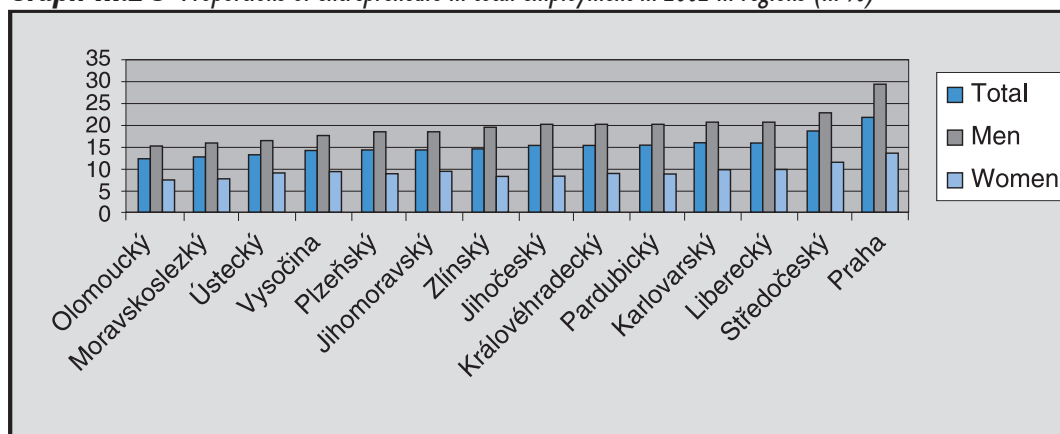
Labour and Social Affairs for 2004-2006. One of the specific objectives set out in the OP HRD (the "Equal Opportunities for Women and Men in the Labour Market" measure) is to "support women launching self-employment activities". This forms the prerequisite for the support of projects focusing on women entrepreneurs. Of course, the extent to which this opportunity will be made use of will depend on the quality of the projects submitted.

The projects supported within the OP HRD must be implemented outside the capital Prague. However, women entrepreneurs in Prague are also entitled to this assistance. It will be possible to draw resources within the Single Programming Document – Objective 3 NUTS 2 Prague (SPD 3), which sets forth, as one of its priorities, "Equal Opportunities for Men and Women", which will be implemented by means of a measure entitled "harmonisation of family and working life". Although the programme to be implemented in Prague does not specify that women entrepreneurs should be supported, this type of support can be provided within the objective of "support for alternative job opportunities including work from home" (the use of IT).

The level of entrepreneurship differs among regions

As Graph III.2-5 indicates, the proportions of entrepreneurs in total employment are quite similar in ten out of fourteen regions. In 2002 these proportions ranged from 14 to 16%. Praha and Středočeský region show much higher figures – 21.6% and 18% respectively. Conversely, the proportions are considerably lower in the Olomoucký region (11.6%), Moravskoslezský (12.1%) and the Ústecký region (13%).

Graph III.2-5 Proportions of entrepreneurs in total employment in 2002 in regions (in %)



Source: CSO, Labour Force Survey

⁷ Women's Entrepreneurship: Exchanging Experiences between OECD and Transition Economy Countries", DT/LEED/DE (99), Paris

It is possible to trace a link between the proportion of entrepreneurs and the rate of unemployment. Regions with a higher proportion of entrepreneurs show below-the-average unemployment, whereas regions with the lowest proportion of entrepreneurs have the highest rate of unemployment.⁸ As entrepreneurship is affected not only by the economic situation in the particular region, but also a number of other factors, lower unemployment does not automatically mean a higher level of entrepreneurship. On the contrary, some regions with low unemployment in 2002 also had a relatively low proportion of entrepreneurs in the same year. The Vysočina region is an example with the unemployment rate of 5.1% and entrepreneurs accounting for a mere 14% of the working population. Similarly, in the Plzeňský region the rate of unemployment was low (4.7%), and so was the proportion of entrepreneurs in total employment (14.1%).

Links between entrepreneurship (self-employment) and the rate of unemployment in the EU

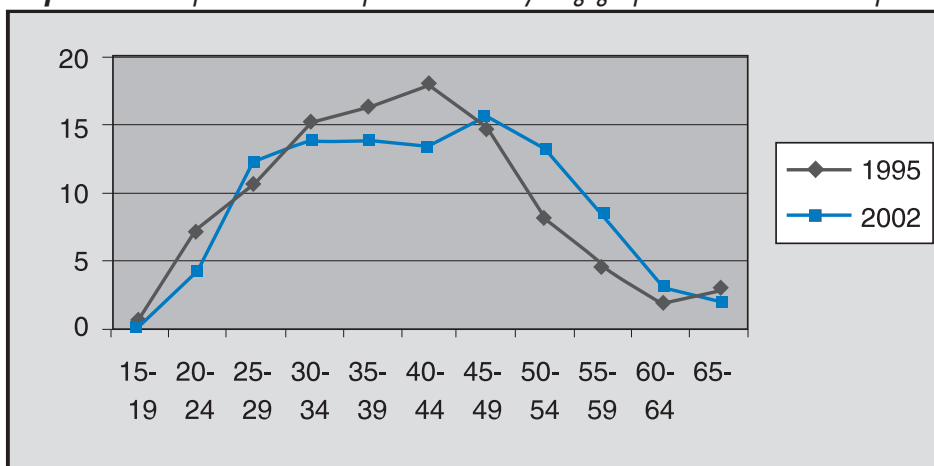
The likelihood of self-employment is negatively linked to the rate of unemployment. The increase in the unemployment rate by 1 p.p. reduces the likelihood of self-employment by 0.15 p.p. It therefore seems that self-employment in Europe is a response to the high demand for labour force – individuals more likely become self-employed if there are more opportunities in the labour market.⁹

There are quite significant differences in terms of entrepreneurship of men and women in regions. They are largest in regions with a high proportion of entrepreneurs in the working population. In Praha the difference between the proportion of men entrepreneurs in the total number of working men and the proportion of women entrepreneurs in the total number of working women is 15.6 p.p. The lowest difference (7.5 p.p.) is in the Olomoucký region.

Age structure of entrepreneurs is becoming more even

Over the last eight years the distribution of entrepreneurs in the 25-54 age group has become more even, and the same applies to women entrepreneurs in the 35-54 age group. These age groups make up the largest proportion in the total number of men/women entrepreneurs. The proportions of entrepreneurs in the relevant five-year age groups in the 25-54 range grew more even – as the standard deviation indicates. In 1995 the standard deviation was 3.8 and in 2002 only 1.1. The differences in terms of proportions of women entrepreneurs in the total number of women entrepreneurs in the various five-year age groups were larger, and although they were reduced, they still remain larger compared to men. The standard deviation in the proportion of women entrepreneurs in five-year age cohorts between 35 and 54 was 4.7 in 1995 and it dropped to 2.3 in 2002.

Graph III.2- 6 Proportions of men entrepreneurs within five-year age groups in the total number of entrepreneurs in 1995 and in 2002 (in %)

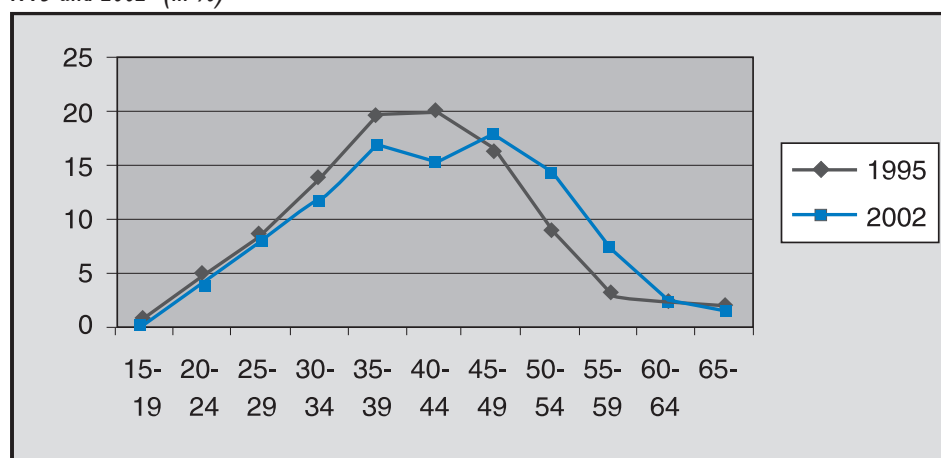


Source: CSO, Labour Force Survey

⁸ In 2002, the average annual rate of unemployment in the CR was 7.3% according to LFS. In Praha it was 3.5%, in Středočeský 4.9%, in the Liberecký region 4.7%, in the Olomoucký region 9.6%, in Moravskoslezský 13.3% and in the Ústecký region 12.8%.

⁹ Prepared based on Labour Market Transition in the context of Social Exclusion

Graph III.2-7 Proportions of women entrepreneurs within five-year age groups in the total number of women entrepreneurs in 1995 and 2002 (in %)



Source: CSO, Labour Force Survey

The age and education of beginning entrepreneurs in European countries

In European countries¹⁰ the average age of persons starting up a business is around 35 years. This means that the decision to launch entrepreneurial activities comes several years after the completion of studies and acquisition of specific knowledge as an employee and/or manager. Entrepreneurs in services show higher educational attainment than entrepreneurs in manufacturing industry. There is also lower educational attainment in construction, transport, hotels and restaurants and accommodation. In general, new entrepreneurs continue the same activity which they performed before becoming entrepreneurs.

Entrepreneurs work longer hours than employees

Entrepreneurs spend far more time at work than employees. The main reason for this is that, for entrepreneurs, work is far more often a way of fulfilling one's own ambitions and a source of satisfaction. Moreover, the link between commitment to work and remuneration is much closer in the case of entrepreneurs as compared to employees.

Although the differences in terms of time spent at work between entrepreneurs and employees are still considerable, they tend to lessen. In 1995 the average number of hours employees spent at work in one week was almost 38, while entrepreneurs worked almost 51 hours a week – i.e. over one third more. Over the last eight years the situation

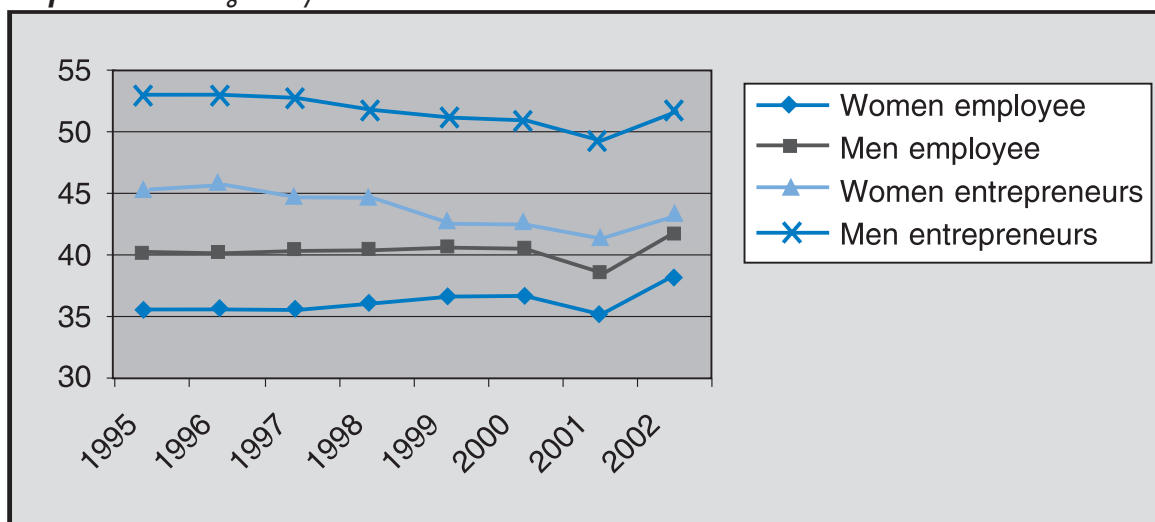
changed radically, since entirely opposite trends occurred in both categories. The number of hours employees spent at work increased to 40.1 in 2002 (an increase of almost 6%), while entrepreneurs worked fewer hours (49 – a 3% decrease).

The increase in the average number of hours worked reflects, above all, better work organisation, reduction of time during which employees do not work, elimination of downtime at work. On the contrary, entrepreneurs began slowly to devote more time to out-of-work activities.

There are quite large differences in the average number of hours spent at work between men and women – both in the category of entrepreneurs, and employees. In 2002 men entrepreneurs worked 11 hours more per week than women entrepreneurs, and men employees worked 3 hour more than women employees. These differences suggest that women, on average, are willing to devote far less time to their work and that they make more effort to combine working and family life. Women also more often conclude employment contracts for shortened working hours. A certain role in this respect may be played by the fact that women more often occupy jobs which make it impossible to make full use of the working time, where the work is not evenly distributed throughout the working time and may be largely irregular (services). Conversely, men, especially entrepreneurs largely tend to prefer work, or providing higher income for the family, to the actual family life.

¹⁰ In addition to the existing EU member states Liechtenstein, Iceland, Norway and Switzerland are included. Based on "SMEs in Focus".

Graph III.2-8 Average weekly number of hours worked



Source: CSO, Labour Force Survey

The graph III.2-8 shows two quite radical changes in the number of hours spent at work – in 2001 and in 2002. In 2001 the statutory working time of 42 hours was officially reduced to 40 hours per week.

The differences between entrepreneurs in terms of time spent at work are branch-related. Entrepreneurs in agriculture and hunting work longest hours (56.4). They are followed by entrepreneurs in hotels and restaurants (56.1) and mining and quarrying (54.2). Conversely, the branches with the lowest demands in terms of time in 2002 included education (37.7 hours per week), other public, social and personal services (41.5) and in health and social work (44.4). It is possible, with a degree of simplification, to see a link between the proportion of women entrepreneurs in various branches and the number of hours worked. The branches with a higher proportion of women entrepreneurs also show lower time demands. For example, in education where, in 2002, the proportion of women entrepreneurs in the total number of the self-employed was 54%, men entrepreneurs worked 43.3 hours per week, while women worked only 31.6 hours. The average was 37.7 hours – as mentioned above.

Entrepreneurship by branches

Entrepreneurial activities vary branch by branch. The proportion of entrepreneurs in the total number of the working population exceeded 20% in six branches, of which four fall within the sector of services. The largest proportion of entrepreneurs

in total employment occurs in construction (35.2%) followed by real estate, renting, business services and research and development (35.1%). On the contrary, the lowest proportion was in mining and quarrying (1.9%) and public administration, defence and social security (1.3%).

The relatively large proportions of entrepreneurs in total employment in particular branches are mainly the result of the high proportion of entrepreneurs without employees. Higher proportions of entrepreneurs with employees suggest that small firms prevail in the particular branches. The largest proportion of entrepreneurs with employees in 2002 was in hotels and restaurants (11.8%), followed by trade, repairs of motor vehicles and consumer goods (8.5%). See table III. 2-1.

Despite the fact that the development of private enterprise in the Czech Republic was disrupted in the post-war period, the CR, on average, is comparable with the EU in terms of quantitative characteristics of entrepreneurship. In 2002 the CR scored 1.3 p.p. more in the proportion of entrepreneurs in total employment.

However, the data in the table III. 2-2 point to a considerable difference in the branch structure of entrepreneurs. In the EU there is a typical high share of entrepreneurs in total employment in agriculture. While in 2002 the proportion of entrepreneurs in agriculture was over 50% in EU member states, it was only hardly 16% in the CR. The reasons rest in the different historical development – the disturbed attitude to private farming has been restored only to a limited degree, and people

Table III.2-1 *Proportion of entrepreneurs in total employment by branches in 2002 (in %)*

Branch	Entrepreneurs		
	With employees	Without employees	Total
Construction	6,5	28,7	35,2
Real estate, renting, services, R&D	5,8	29,4	35,1
Other public, social and personal services	3,3	24,2	27,5
Trade, repairs of motor vehicles and consumer goods	8,5	18,7	27,2
Forestry, fishing	1,8	21,5	23,4
Hotels and restaurants	11,8	9,8	21,6
Financial intermediation	1,9	16,6	18,5
Agriculture and hunting	3,4	10,4	13,7
Transport, storage and communications	3,7	7,7	11,4
Private households with employed persons	0,0	7,7	7,7
Health and social work	4,7	2,9	7,6
Manufacturing	2,1	5,2	7,3
Electricity, gas and water supply	1,1	4,2	5,3
Education	0,7	2,2	2,9
Mining and quarrying	0,5	1,4	1,9
Public administration, compulsory social security	0,5	0,7	1,3

Source: CSO, Labour Force Survey

prefer to continue collective farming to the uncertainty and risk entailed in private farming.

Another large difference occurs in construction, where, conversely, the CR scores a far higher proportion of entrepreneurs compared to the EU.

Table III.2-2 *Proportion of entrepreneurs in total employment by branch in 2002 in the CR, EU and selected EU member states*

Branch	CR	EU-15	B	IRL	NL	FIN
Agriculture (A-B)	15,6	51,3	54,4	73,8	45,0	62,6
Industry (C-F)	13,3	11,0	8,6	13,9	6,6	9,1
Mining and quarrying (C)	1,9	0,0	0,0	0,0	0,0	0,0
Manufacturing (D)	7,3	7,3	4,8	7,2	4,1	6,2
Electricity, gas and water supply (E)	5,3	0,0	0,0	0,0	0,0	0,0
Construction (F)	35,2	21,7	22,2	26,5	13,4	19,0
Services (G-Q)	16,8	13,0	14,7	12,5	8,9	9,8
Wholesale and retail trade, repairs of motor vehicles, motorcycles and consumer goods (G)	27,2	20,6	28,6	16,2	10,3	16,0
Hotels and restaurants (H)	21,6	21,2	38,2	14,8	11,5	12,8
Transport, storage and communication (I)	11,4	10,6	3,9	16,8	5,8	12,6
Financial intermediation (J)	18,6	6,8	13,3	4,0	3,7	0,0
Real estate, renting and business activities, R&D (K)	35,1	20,8	23,2	18,8	14,5	15,3
Public administration (L)	1,3	0,0	0,0	0,0	0,0	0,0
Other services (M-Q)	10,3	9,4	10,3	9,8	8,7	6,1
Proportion of entrepreneurs in the working population – total	15,4	14,1	14,0	17,6	10,3	12,8

Source: CSO

The gap was almost 14 p.p. in 2002 (the difference between the CR and the Netherlands was almost 22 p.p.). This may be explained by the fact that, on average, there are larger construction firms in the EU and also by the fact that some firms in the CR use a high number of self-employed workers.

There is also a larger proportion of entrepreneurs in the CR in real estate, renting, business services and research and development. In 2002 the difference was 14 p.p. As the Czech economy approaches the EU averages, the other characteristics may also be expected to converge – including the representation of various branches in the economy and branch structure of entrepreneurship. Nonetheless, certain differences between countries will persist.

Women prefer service sector

As the following table illustrates, women focus their business activities mainly on services. Over 70% of women entrepreneurs operate in four branches. Three of them correspond with the overall branch structure of entrepreneurs – only the fourth is manufacturing instead of construction. The sequence of industries also differs – most women do business in trade.

It is impossible to prove a supposition that women entrepreneurs are most involved in those branches where they are most often employed. Of the total number of working women most of them work in manufacturing (24%), trade and repair (16%), healthcare and social work (12%), and in education (11%). The reason is that conditions for entrepreneurship are not identical in all branches, be it because the nature of work or the prevalence of public ownership in certain branches (healthcare, education).

Table III.2-3 – Proportion of women entrepreneurs in total number of women entrepreneurs by branch, proportion of women in total employment by branch in 2002 (in %)

Branch	Women entrepreneurs			Employed women
	With employees	Without employees	Total	
Trade, repairs of motor vehicles and consumer goods	33,8	26,7	28,3	16,0
Property, renting, services, R&D	5,3	23,5	19,4	5,9
Other community, social and personal services	5,7	17,2	14,6	4,7
Manufacturing	7,1	11,1	10,2	24,3
Healthcare, veterinary care and social work	20,3	3,7	7,4	11,6
Hotels and restaurants	16,2	4,3	6,9	4,6
Finance and insurance	0,5	4,1	3,3	2,7
Agriculture and game-keeping	2,5	2,6	2,6	3,0
Education	1,8	2,4	2,3	11,3
Transport, storage and communications	3,0	1,6	2,0	5,3
Construction	2,7	1,4	1,7	1,8
Public administration, defence, social security	0,9	0,7	0,7	6,8
Forestry, fishing	0,2	0,3	0,3	0,4
Electricity, gas and water supply		0,3	0,2	1,0
Households with employed persons		0,1	0,1	0,1
Mining and quarrying	0,0	0,0	0,0	0,4

Source: CSO, Labour Force Survey

Occupational structure of entrepreneurs is stable

As regards the occupation structure, there are considerable differences between entrepreneurs with employees and those without employees. The range of occupations (according to ISCO) is far narrower in the category of entrepreneurs with employees, which results from a different position. In 2002 55% of *entrepreneurs with employees* were

classified in ISCO I – legislators, senior officials and managers. The proportion of legislators may be assumed to be more or less zero – therefore this is the position of senior officials and managers. The second largest group (13%) of entrepreneurs with employees consists of scientists and professionals (ISCO 2). The proportions of all other groups are below 10%. Entrepreneurs belonging to the category of crafts and related trades workers

had over eight percent (ISCO 7 – 9%), and so did service workers and shop and market sales workers (ISCO 5 – 8.7%) and technicians and associate professionals (ISCO 3 – 8.6%). The proportions of the other categories range from under 1% to 3%.

Over the last eight years no significant changes occurred in the proportions of occupational categories – the occupational structure is stable. A slight shift only occurred in the category of crafts and related trades workers. Their proportion decreased from 10.2% to 9% in this period. This constitutes a change of over 1 p.p. Changes in other categories stayed below 0.6 p.p.

The distribution of *entrepreneurs without employees* is far more even – the proportions of the categories range from nearly 2% to 33%. The most numerous category of entrepreneurs without employees is that of craft and related trades workers (ISCO 7 – 33.3%). They are followed by the category of technicians and associate professionals, the proportion of which is twice as low (ISCO 3 – 16.8%). Two other categories exceed 10% – service workers and shop and market sales workers (ISCO 5 – 14.9%) and scientists and professionals (ISCO 2 – 13.8%). The proportions of the remaining categories range from nearly 2% to 6%.

The occupational structure of entrepreneurs without employees was also quite stable in the 1995-2002 period, although the changes in the proportions of individual categories were larger than those in the group of entrepreneurs with employees. The only significant increase occurred in the largest occupational category – i.e. crafts and related trades workers (ISCO 7), which corresponded to the decrease in the proportion of

legislators, senior officials and managers (ISCO 1) and skilled agriculture and forestry workers (ISCO 6). The proportions of the two categories decreased by 4.5 p.p. and 2.4 p.p. respectively.

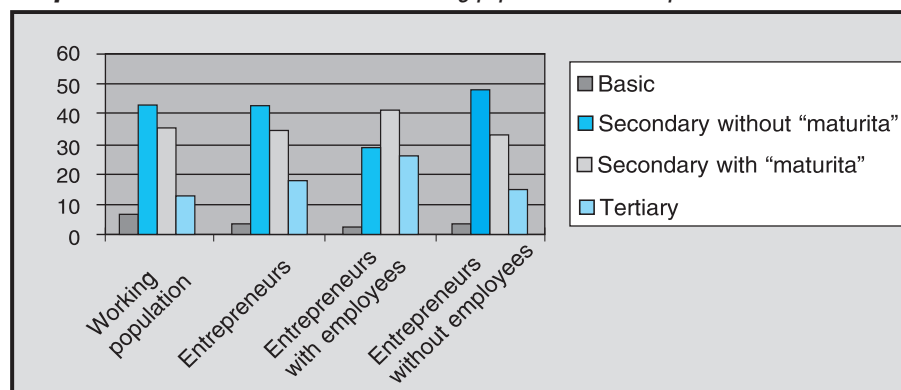
Educational attainment of entrepreneurs corresponds to educational attainment of the employed population

The education structure of entrepreneurs by educational attainment is, to a large degree, identical with the education structure of total employment and changed very little over the last eight years. A positive development is that educational attainment of entrepreneurs has improved slightly – i.e. the number of individuals with secondary and higher education has increased, although more slowly than in total employment.

In 2002 most entrepreneurs had upper secondary education without “maturita”, similarly to the total number of employed individuals (43% and 43,5% respectively), and upper secondary education with “maturita” (35.% and 35.9% respectively). The education structure of entrepreneurs is more favourable compared to the working population in terms of the number of individuals with tertiary and basic education. It is understandable that people with basic education prefer an employee status – their proportion in total employment was 7.3% in 2000 and a mere 3.3% of entrepreneurs had basic education.

Although the education structure of the employed population and that of entrepreneurs is comparable to a large degree, the graph III.2-9 points to quite considerable differences within the category of entrepreneurs.

Graph III.2- 9 Education structure of working population and entrepreneurs in 2002



Source: CSO, Labour Force Survey

Entrepreneurs with employees show higher educational attainment than entrepreneurs without employees. In 2002 the proportion of university degree holders in the number of entrepreneurs with employees was almost double compared to the proportion of this category in the number of entrepreneurs without employees (27% as opposed to 15%). The proportion of individuals with secondary education with “maturita” was also higher (41% compared to 33%). More than one fifth of entrepreneurs with employees had secondary education without “maturita” and 2.4% had only basic education. Over the eight years under review the proportion of entrepreneurs with employees who only had secondary education without “maturita” decreased by 3 p.p. The proportion of those with only basic education is basically stable (2.5-2.4%). It seems that it is practical experience and entrepreneurial spirit that plays an important role in the case of entrepreneurs with such a low educational attainment. It is impossible to infer from the data available whether these individuals achieved some entrepreneurial skills in specialised courses.

The influence of qualification and nationality on the likelihood of self-employment in the EU member states

The likelihood of self-employment increases along with educational attainment. Individuals with a higher level of human capital are more capable of recognising

business opportunities in the labour market, or of making better use of them. The nationality of an entrepreneur also plays a role in some countries. In Greece it is clear that self-employment is more common among native Greeks, and other than Greek nationality, or place of birth outside Greece, has a negative and quite strong impact. On the contrary, in the UK nationals from countries outside the EU are more likely to become self-employed compared to Brits.¹¹

The position of entrepreneurs was consolidated in 2002

The likelihood that an entrepreneur who was self-employed a year ago will retain this position one year later was quite high (almost 95%). The remaining 5% are cases where an entrepreneur becomes an employee (approx. 3%), unemployed (approx. 1%) or inactive (approx. 1%). The likelihood of a changed position is gender-specific. As the table below shows, women are twice as more likely to become unemployed and almost three times more likely to become inactive as compared to men. This is due to the fact that entrepreneurship of women is more risky for reasons mentioned previously (lower capital, smaller investment, limited trade contacts, etc.), and that women devote more time to family (inactivity in economic terms). However, this is not the only reason for transition to inactivity. As in the case of men, the reasons for inactivity may include full-time study or retirement.

Table III.2-4 *The likelihood of change in the position of entrepreneurs in 2002**

Economic position in 2002	Position of entrepreneurs in 2001		
	Total	Men	Women
Entrepreneur	94,7	95,3	92,9
Employee	2,9	2,9	2,9
Unemployed	1,1	0,9	1,8
Inactive	1,3	0,9	2,3
Total	100	100	100

Source: CSO, Labour Force Survey

*The likelihood (in %) that the an entrepreneur in 2001 remains an entrepreneur in 2002, becomes an employee, unemployed, inactive

Success in entrepreneurship

The rate of success in private enterprise is expressed not only in terms of economic expansion - as an increase in the relevant commodity market

share or profit, but also in terms of viability. The viability of enterprise expressed by the length of existence of business entities in the CR is negatively affected by the interruption of private business for

¹¹ Based on Labour Market Transitions in the context of Social Exclusion

forty years. In addition to the general culture of the entrepreneurial environment, lack of experience passed on from generation to generation and acquired through training, the disruptive influence of the forty-year pause can be seen in the negligible number (and proportion) of business entities which have been around for more than twenty years. On the other hand it is surprising that they exist at all, as they must have operated still in the previous regime, which did not favour private enterprise. Nevertheless, in 1995 a total of 8.8 thousand business entities stated that they had existed for over 20 years. Of these the highest number was from other public, social and personal services (1.7 thousand) and healthcare and social work (1.6 thousand). In 2002 the number of these businesses was 13.9 thousand with the same proportions in terms of industry as in 1995 (2.5 thousand and 2.4 thousand).

A positive development is that, in the period under review, the number of entities operating for over three years increased considerably – the first three years constitute a critical period during which the exit rate is the highest. In 1995 the proportion of entities operating for over three years was only 49.5% of the total number of entrepreneurs with and without employees. In 2002 it was 80.9%.

In 2002 the largest proportion of businesses operating for more than three years occurred in healthcare and social work (91.1%) and in agriculture and hunting (90.7%), while the lowest proportion occurred in financial intermediation (60.9%) and education (71.7%). This is because in some branches entrepreneurship began to develop with more intensity and earlier than in other branches. Moreover, account must be taken of the number of new businesses – i.e. the number of entrepreneurs operating for less than three years.

III.2.3 Conclusions

Entrepreneurs form a heterogeneous group across age groups and groups with varying work experience, education and family background. What they share is the willingness to bear business risk and desire to be independent both in terms of decision-making and finance.

It is very good that the CR managed, in the course of eight years to bridge the forty-year gap in the development of private enterprise and, in 2002, showed a larger proportion of entrepreneurs in total employment than the EU average. However,

this illustrates quantity not quality. It does not indicate the level of advancement of the entrepreneurial environment. In this respect, the CR still has a long way to go.

The number of entrepreneurs is growing – particularly thanks to an enormous increase in the number of entrepreneurs without employees. This increase certainly also includes so-called “false entrepreneurship”, where, effectively, employment is replaced by self-employment. In view of the negative impact of this phenomenon on state budget revenues and revenues from social security, health and retirement contributions, the so-called “false entrepreneurship” must be chartered with more focus and effort. Moreover, specific measures designed on the basis of foreign experience must be adopted to minimise such practices.

Unlike most developed countries, the proportion of women entrepreneurs in the CR is decreasing slightly, although the absolute number of women entrepreneurs is rising. It would be advisable to analyse this unfavourable trend, to identify the principal causes and to focus attention on eliminating barriers hindering women interested in this type of career from launching a private enterprise and to retain it. The proportion of women entrepreneurs should, in the long term, approach the proportion of women in total employment, i.e. 43%.

Entrepreneurship is also viewed as a way of reducing unemployment. This is why employment policies in most EU member states include assistance to the unemployed in going into self-employment. As unemployment in the CR grows, more emphasis must be placed on programmes for beginning entrepreneurs – both in the form of appropriate financial and loan conditions, and in the form of counselling and specialised courses.

Business success is, to a large degree, associated with the individuality of each entrepreneur. Appropriate education is certainly a plus. It is necessary to pay more attention to enhancing, in conformity with EU strategies, entrepreneurial skills of the population so that all people, including basic school leavers, had certain entrepreneurial knowledge. The opportunities for continuing training in this field must also be expanded and improved.

If the Czech economy is to converge with, at least, the EU average, great emphasis must be placed on both the development of entrepreneurship and investment in knowledge and innovation. This is the key to economic growth and development.

STATISTICAL ANNEX

A.1 Real GDP growth rate (constant prices 1995), in %

country	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
EU15	2,8	2,4	1,6	2,5	2,9	2,8	3,5	1,6	1,0	1,2
B	3,2	2,4	1,2	3,6	2,0	3,2	3,7	0,8	0,7	1,2
DK	5,5	2,8	2,5	3,0	2,5	2,6	2,9	1,4	1,6	1,5
D	2,3	1,7	0,8	1,4	2,0	2,0	2,9	0,6	0,2	0,4
EL	2,0	2,1	2,4	3,6	3,4	3,6	4,2	4,1	4,0	3,6
E	2,4	2,8	2,4	4,0	4,3	4,2	4,2	2,7	2,0	2,0
F	2,1	1,7	1,1	1,9	3,4	3,2	3,8	2,1	1,2	1,1
IRL	5,8	9,9	8,1	10,9	8,8	11,1	10,0	5,7	6,0	3,3
I	2,2	2,9	1,1	2,0	1,8	1,7	3,1	1,8	0,4	1,0
L	3,8	1,3	3,7	7,7	7,5	6,0	8,9	1,0	0,4	1,1
NL	2,6	3,0	3,0	3,8	4,3	4,0	3,3	1,3	0,3	0,5
A	2,6	1,6	2,0	1,6	3,9	2,7	3,5	0,7	1,0	1,2
P	1,0	4,3	3,5	4,0	4,6	3,8	3,7	1,6	0,5	0,5
FIN	4,0	4,1	3,9	6,4	4,9	3,4	5,5	0,6	1,6	2,2
S	4,2	4,0	1,3	2,4	3,6	4,6	4,4	1,1	1,9	1,4
UK	4,7	2,9	2,6	3,4	2,9	2,4	3,1	2,1	1,8	2,2
CY	5,9	6,2	1,9	2,5	5,0	4,8	5,2	4,2	2,2	3,5
CZ	2,2	5,9	4,3	-0,8	-1,0	0,5	3,3	3,1	2,0	3,2
EE	-2,0	4,3	3,9	9,8	4,6	-0,6	7,1	5,0	5,8	4,7
HU	..	1,5	1,3	4,6	4,9	4,2	5,2	3,6	3,6	4,5
LT	-9,8	6,2	4,7	7,0	7,3	-1,8	4,0	6,5	6,7	3,5
LV	0,7	-1,7	3,7	8,4	4,8	2,8	6,8	7,9	6,1	5,5
MT	5,7	6,2	4,0	4,9	3,4	4,1	6,4	-1,2	1,0	3,4
PL	..	7,0	6,0	6,8	4,8	4,1	..	1,0	0,8	3,2
SI	5,3	4,1	3,5	4,6	3,8	5,2	4,6	2,9	3,2	3,6
SK	5,2	6,5	5,8	5,6	4,0	1,3	2,2	3,3	4,4	3,9

Source: EUROSTAT, Structural Indicators, last update 15 May 2003

A.2 GDP per capita, EU-15=100 (in PPS)

country	1995	1996	1997	1998	1999	2000	2001	2002
EU15	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
B	112,6	111,4	111,4	110,7	106,5	107,5	108,7	108,6
DK	117,9	120,7	119,9	118,1	118,8	117,3	114,8	113,6
D	110,3	108,0	108,0	106,3	106,5	106,6	103,3	102,7
EL	65,0	65,3	64,3	65,0	66,2	65,6	64,7	66,6
E	78,4	79,5	80,1	79,4	82,2	82,4	84	84,4
F	103,8	101,2	99,0	98,9	99,7	101,4	103,4	103,3
IRL	93,3	93,6	103,7	106,2	112,3	115,2	117,6	121,9
I	103,7	104,7	102,2	103,6	103,4	102,4	103	102,5
L	172,6	170,2	175,0	180,2	188,8	196,8	191,1	188,0
NL	109,6	109,3	112,7	115,5	114,6	111,4	114,8	112,7
A	110,6	111,9	111,2	110,1	111,3	114,5	110,8	110,4
P	70,0	70,2	73,5	72,3	72,3	68,5	69,1	69,2
FIN	97,5	97,3	99,7	101,8	100,7	103,5	104,0	102,0
S	106,4	106,2	106,1	105,3	105,2	106,8	102,3	101,7

A.2 Completion

country	1995	1996	1997	1998	1999	2000	2001	2002
UK	96,5	100,4	102,5	103,4	100,6	100,4	101,5	103,2
CY	82,8	81,9	81,0	81,9	82,9	76,2	74,0	..
CZ	62,3	64,2	62,4	60,2	59,2	56,6	59,5	59,2
EE	34,0	35,4	38,4	39,6	38,7	40,4	39,9	40,3
HU	45,6	45,7	46,9	48,0	49,0	50,1	52,7	55,1
LT	33,0	33,4	35,6	37,0	34,5	35,6	38,2	39,6
LV	24,7	25,6	27,4	28,3	28,6	31,1	33,8	34,9
MT	52,6	53,6	54,6	54,7	55,3	..	..	..
PL	34,4	36,0	37,6	38,4	39,0	40,7	40,5	41,1
SI	62,9	64,2	65,8	66,7	68,6	70,8	72,5	72,6
SK	46,0	47,9	49,5	50,1	49,5	46,2	47,3	47,8

Source: EUROSTAT, Structural Indicators, last update 14 May 2003

A.3 Employment growth rate (%)

country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
EU-15	0,6	0,6	0,9	1,8	1,7	1,9	1,2	0,4	0,02	0,6
B	0,7	0,4	0,8	1,2	1,4	1,6	1,2	-0,1	-0,1	0,7
DK	1,3	1,0	1,2	1,6	1,2	0,9	-0,3	-0,7	-0,3	0,4
D	0,1	-0,3	-0,2	1,1	1,2	1,8	0,4	-0,6	-0,8	0,2
EL	0,9	-0,4	-0,6	4,1	0,0	-0,2	-0,3	-0,2	0,3	0,4
E	2,1	1,2	2,9	3,9	3,5	3,3	2,4	1,3	1,0	1,7
F	0,5	0,4	0,3	1,5	1,9	2,4	2,1	0,6	0,1	0,5
IRL	5,1	3,6	5,6	8,6	6,0	4,7	3,0	1,4	0,4	1,4
I	-0,5	1,0	0,3	0,9	1,2	1,8	1,7	1,3	0,4	1,0
L	0,7	0,8	1,0	2,2	2,4	3,0	2,5	1,8	0,4	1,0
NL	2,3	2,3	3,2	2,7	2,6	2,2	1,9	0,7	-0,6	0,1
A	0,0	-0,6	0,5	1,0	1,4	0,8	0,7	-0,4	0,0	0,4
P	-0,7	1,6	1,6	2,7	2,2	1,7	1,4	0,2	-0,3	0,3
FIN	2,4	1,4	3,2	1,9	2,5	2,3	1,2	0,3	-0,2	0,3
S	1,5	-0,9	-1,3	1,5	2,2	2,5	1,9	0,2	-0,3	0,2
UK	0,9	1,0	1,9	1,5	1,2	1,1	0,6	0,7	0,5	0,5
CY	4,5	0,9	-0,3	1,0	1,3	2,8	1,9	0,3	0,4	1,0
CZ	0,7	0,2	-0,7	-1,4	-2,1	-0,7	0,4	1,0	0,5	0,9
EE	-6,2	-2,4	0,1	-2,0	-4,3	-1,3	0,8	1,4	0,5	0,5
HU	-3,4	-0,5	0,1	1,8	3,2	1,0	0,4	0,1	0,0	0,3
LV	-3,5	-2,7	1,9	0,6	-0,5	0,0	-0,1	2,7	2,0	1,5
LT	-1,9	0,9	0,6	-0,8	-0,5	-3,7	-4,0	0,0	0,5	0,7
MT	..	..	..	0,5	-0,4	2,3	0,3	0,1	0,4	0,8
PL	0,9	1,2	1,4	1,2	-3,9	-1,6	-2,2	-2,9	-0,5	1,3
SK	2,1	3,3	-1,1	1,5	-3,2	-2,5	1,0	0,2	0,5	1,0
SI	1,0	-1,0	-0,5	0,0	1,2	1,1	0,6	0,0	0,6	0,8

Note: estimations for 2003, 2004

Source: AMECO database, 8 April 2003

A.4 Population by age group (in %)

country	1990			2000			2004		
	0 - 14	15 - 64	65+	0 - 14	15 - 64	65+	0 - 14	15 - 64	65+
EU-15	..	..	..	..	66,8	..	..	66,7	..
B	18,1	67,0	14,9	17,6	65,6	16,8	..	65,6	..
DK	17,1	67,4	15,6	18,5	66,7	14,8	..	66,2	..
D	..	..	..	15,6	67,9	16,4	..	67,9	..
EL	19,0	67,0	14,0	..	67,5	..	..	67,4	..
E	19,9	66,5	13,6	14,8	68,4	16,9	..	68,2	..
F	20,1	65,9	14,0	18,8	65,1	16,1	..	65,1	..
IRL	27,3	61,3	11,4	21,8	67,0	11,2	..	68,2	..
I	16,6	68,6	14,9	14,4	67,5	18,1	..	66,4	..
L	17,4	69,2	13,4	18,9	67	14,1	..	67,2	..
NL	18,2	68,9	12,8	18,6	67,8	13,6	..	67,5	..
A	17,4	67,6	14,9	16,7	67,8	15,5	..	67,7	..
P	20,4	66,2	13,4	16,0	67,7	16,3	..	68,3	..
FIN	19,3	67,3	13,4	18,2	66,9	14,9	..	66,8	..
S	17,9	64,3	17,8	18,4	64,3	17,3	..	65,0	..
UK	19,0	65,2	15,8	19,1	65,1	15,9	..	65,7	..
CY	..	..	..	23,0	65,7	11,4	..	..	..
CZ	21,5	66,0	12,5	16,4	69,8	13,8	..	70,2	..
EE	22,3	66,1	11,6	18,0	66,9	15,1	..	67,9	..
HU	20,2	66,4	13,3	16,8	68,2	15,1	..	68,4	..
LV	..	..	..	17,6	67,3	15,1	..	68,3	..
LT	22,6	66,5	10,9	19,7	66,6	13,7	..	66,6	..
MT	..	..	..	20,1	67,7	12,2	..	67,6	..
PL	25,1	64,8	10,1	19,2	68,6	12,2	..	71,2	..
SK	25,2	64,5	10,3	19,5	69,1	11,4	..	68,8	..
SI	20,8	68,5	10,7	15,9	70,1	14,0	..	70,2	..

Note: estimation for 2004

Source: calculations based on AMECO database, (8 April 2003)

A.5 Unemployment rate (%)

country	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
EU-15	..	10,1	10,2	10,0	9,4	8,7	7,8	7,3	7,6	8,0	8,0
B	6,6	9,7	9,5	9,2	9,3	8,6	6,9	6,7	7,3	7,8	7,8
DK	7,2	6,7	6,3	5,2	4,9	4,8	4,4	4,3	4,5	5,0	4,8
D	..	8,0	8,7	9,7	9,1	8,4	7,8	7,7	8,2	8,9	8,9
EL	6,4	9,2	9,6	9,8	10,9	11,8	11,0	10,4	9,9	9,5	9,2
E	13,1	18,8	18,1	17,0	15,2	12,8	11,3	10,6	11,4	11,6	11,4
F	8,6	11,3	11,9	11,8	11,4	10,7	9,3	8,5	8,7	9,2	9,1
IRL	13,4	12,3	11,7	9,9	7,5	5,6	4,3	3,9	4,4	5,6	5,6
I	8,9	11,5	11,5	11,6	11,7	11,3	10,4	9,4	9,0	9,1	8,8
L	1,7	2,9	2,9	2,7	2,7	2,4	2,3	2,0	2,4	3,3	3,7
NL	5,8	6,6	6,0	4,9	3,8	3,2	2,8	2,4	2,7	4,2	5,1
A	3,1	3,9	4,4	4,4	4,5	3,9	3,7	3,6	4,3	4,5	4,4
P	4,8	7,3	7,3	6,8	5,1	4,5	4,1	4,1	5,1	6,5	7,3
FIN	3,2	15,4	14,6	12,7	11,4	10,2	9,8	9,1	9,1	9,4	9,3

A.5 Completion

country	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
S	1,7	8,8	9,6	9,9	8,2	6,7	5,6	4,9	4,9	5,3	5,3
UK	6,9	8,5	8	6,9	6,2	5,9	5,4	5,0	5,1	5,1	5,1
CY	..	..	..	..	..	..	5,2	4,4	3,8	..	..
CZ	0,8	4,1	3,9	4,8	6,5	8,8	8,8	8,2	7,3	7,0	6,3
EE	..	..	..	9,6	9,2	11,3	12,5	11,7	9,1	..	..
HU	..	10,0	9,6	9,0	8,4	6,9	6,3	5,6	5,6	6,0	5,8
LV	..	..	..	..	14,3	14,0	13,7	12,8	12,8	..	..
LT	..	..	..	..	11,8	11,2	15,7	16,1	13,1	..	..
MT	..	..	..	..	..	..	7,0	6,7	7,4	..	..
PL	..	13,2	12,1	10,9	10,2	13,4	16,4	18,5	19,9	20,5	19,9
SK	..	..	..	..	..	16,7	18,7	19,4	18,6	..	..
SI	..	..	6,9	6,9	7,4	7,2	6,6	5,8	6,0	..	..

Note: estimation for 2003, 2004

Source: AMECO database (8 April 2003)

A.6 Unemployment rate by age group (%)

country	Age group, 2001			
	15-24	25-54	55-64	15-64
EU 15	40,4	77,0	38,2	63,9
B	28,5	76,6	25,2	59,7
DK	61,7	84,5	56,5	75,9
D	46,5	79,4	37,7	65,7
EL	26,0	70,4	38,0	55,6
E(1)	33,2	69,3	39,1	57,5
F	29,3	79,4	30,7	62,7
IRL	47,0	76,4	46,7	65,1
I	26,2	69,1	26,9	54,5
L	32,3	78,7	24,8	63,0
NL	70,4	82,8	39,3	74,1
A	51,4	82,2	27,4	67,8
P	43,4	82,3	50,7	68,8
FIN	46,2	81,8	45,5	69,1
S (2)	36,9	82,5	64,3	71,1
UK	55,6	80,7	52,2	71,6
CC-11	27,0	73,8	34,6	57,8
CY	38,0	81,1	49,8	67,9
CZ	34,4	82,0	36,9	65,0
EE	27,1	75,8	48,6	61,1
HU	31,4	73,1	23,7	56,3
LT(3)	22,9	75,5	39,1	58,6
LV	29,0	75,9	36,4	58,9
PL(3)	21,4	69,5	30,5	53,8
SI	30,3	83,8	23,4	63,6
SK	27,7	74,6	22,5	56,7

A.7 Employment by sector (%)

country	Sector, 2001		
	Agriculture	Manufacturing	Services
EU 15	4,2	28,7	67,1
B	1,4	25,5	73,1
DK	3,5	25,4	71,1
D	2,6	32,8	64,6
EL	16,0	22,8	61,2
E(1)	6,5	31,6	61,9
F	4,1	26,0	69,9
IRL	7,0	29,1	63,9
I	5,2	31,7	63,1
L	1,5	21,4	77,0
NL	3,1	21,6	75,3
A	5,8	29,4	64,8
P	12,9	34,0	53,0
FIN	5,8	27,1	67,1
S (2)	2,9	24,4	72,7
UK	1,4	24,9	73,7
CC-11	20,9	31,3	47,8
CY	4,9	24,0	71,1
CZ	4,9	40,5	54,6
EE	7,1	34,2	58,7
HU	6,1	34,5	59,4
LT(3)	16,5	27,2	56,3
LV	15,1	25,3	59,6
PL(3)	19,2	30,7	50,1
SI	9,9	38,6	51,4
SK	6,3	37,1	56,7

Source: EUROSTAT, Labour Force Survey - Principal Results. Statistics in Focus 3-19, 3-20/2002, p. 4-5

A.8 Unemployment by duration, 2001, (%)

country	less than 6 month	6 to 11 month	12 month and more	seeking a first job	seeking a part time job
EU 15	39,4	16,6	44,0	19,9	14,1
B	33,5	14,8	51,7	25,3	12,8
DK	61,5	16,3	22,2	13,2	14,5
D	33,8	15,8	50,4	5,1	11,7
EL	31,0	16,2	52,8	46,7	4,1
E(1)	43,1	19,9	36,9	17,6	6,4
F	45,1	18,0	36,8	9,9	15,9
IRL	..	..	..	46,5	17,7
I	22,6	14,0	63,4	51,2	16,2
L	55,1	16,4	28,4	25,0	16,5
NL	50,7	16,2	33,1	24,5	58,1
A	58,2	15,8	26,1	7,0	20,3
P	42,0	19,9	38,1	15,3	..
FIN	60,4	16,0	23,6	13,1	14,1
S (2)	52,6	16,7	30,7	7,9	11,3
UK	56,4	15,9	27,7	15,6	22,0
CC-11	26,3	21,3	52,4	21,3	4,8
CY	53,1	25,0	21,9	17,5	18,9
CZ	27,6	19,4	52,9	14,1	9,5
EE	31,1	22,3	46,6	12,4	4,6
HU	31,9	23,4	44,8	11,5	6,0
LT(3)	26,8	17,0	56,2	13,9	6,0
LV	24,1	16,8	59,1	11,5	..
PL(3)	25,8	24,2	50,1	21,5	6,1
SI	23,0	13,7	63,3	24,9	..
SK	22,1	19,6	58,3	20,2	2,4

Source: EUROSTAT, Labour Force Survey - Principal Results, Statistics in Focus 3-19, 3-20/2002, p. 4-5



B.1 Public expenditure on education (% of GDP)

country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
EU-15	..	..	5,18	5,17	5,06	5,02	4,96	4,94	..	..
CC-10	..	..	5,3	4,97	5,04	5,06	4,99	..	..	..
B	..	..	..	..	..	5,2	5,53	5,22	..	..
DK	..	..	7,7	8,09	7,94	8,22	8,14	8,38	..	..
D	..	..	4,71	4,8	4,73	4,66	4,58	4,51	..	..
EL	2,66	3,04	2,87	3,07	3,44	3,48	3,63	3,8	3,52	..
E	4,89	4,71	4,66	4,68	4,54	4,49	4,5	4,43	4,43	..
F	5,93	5,93	5,97	5,95	5,97	5,89	5,87	5,78	5,75	..
IRL	5,86	5,9	5,49	5,33	5,16	4,89	4,56	4,49	..	..
I	5,43	5,04	4,87	4,86	4,57	4,55	4,55	4,65	4,53	..
L	..	..	4,26	4,0	4,1	..	..	..	..	..
NL	5,17	5,07	5,01	4,96	4,79	4,87	4,78	4,83	4,96	..
A	..	..	6,17	6,04	5,9	5,84	5,9	5,74	..	..
P	..	..	5,37	5,53	5,59	5,6	5,74	5,74	..	..
FIN	6,86	6,71	6,86	6,96	6,47	6,24	6,22	5,98	..	..
S	7,61	7,47	7,46	7,62	7,89	7,98	7,46	7,39	8,1	..
UK	5,21	5,16	5,04	4,84	4,66	4,58	4,41	4,41	..	..
CY	4,56	4,78	4,79	5,02	5,67	5,79	5,66	5,61	5,86	6,08
CZ	5,34	5,41	4,91	4,96	4,71	4,2	4,34	4,38	4,31	4,44
EE	7,05	6,64	7,02	7,27	7,08	6,77	7,37	6,67	6,83	7,31
HU	6,28	6,13	5,04	4,48	4,61	4,56	4,66	4,55	4,53	..
LT	4,58	5,6	5,6	5,43	5,75	6,07	6,28	5,86	5,97	..
LV	6,07	6,12	6,95	5,79	5,66	6,83	6,18	5,98	5,85	..
MT	5,01	4,95	4,99	5,3	5,48	5,21	5,1	4,92	5,01	6,46
PL	5,4	4,9	5,5	5,05	5,17	5,42	5,18	..	..	..
SK	4,78	3,97	5,04	4,57	4,83	4,55	4,45	4,26	4,17	4,06

Source: EUROSTAT, Structural Indicators (data from 15.4.2003).

B.2 GDP growth, GDP per capita/per employed worker

country	GDP growth (aver. annual real)		Economic level (GDP per capita)			Productivity level (GDP per employed worker)		
	1997-2002	2003-2004	1997	2001	2002	1997	2001	2002
EU-15	2,4	1,8	100,0	100,0	100,0	100,0	100,0	100,0
IRL	8,7	3,9	103,7	117,8	122,3	113,7	115,3	119,9
L	5,2	1,9	174,7	191,1	188,1	182,4	199,7	194,5
EL	3,8	3,7	64,2	64,7	66,6	76,9	79,9	82,6
FIN	3,7	2,5	99,5	104,0	102,0	100,0	102,7	100,7
E	3,6	2,5	79,9	84,0	84,5	93,5	93,1	93,1
P	3,0	1,3	73,4	69,1	69,2	67,3	63,0	63,3
S	3,0	2,0	105,9	102,3	101,7	98,4	92,9	92,5
NL	2,8	1,1	112,4	114,8	112,7	98,0	98,7	97,0
UK	2,6	2,4	102,5	101,5	103,1	90,2	91,5	92,6
F	2,5	1,7	99,0	102,8	102,4	109,7	113,0	112,5
B	2,3	1,7	111,4	108,7	108,9	125,3	123,3	124,2
DK	2,3	1,8	119,9	114,8	113,6	99,1	97,8	97,9

B.2 Completion

country	GDP growth (aver. annual real)		Economic level (GDP per capita)			Productivity level (GDP per employed worker)		
	1997-2002	2003-2004	1997	2001	2002	1997	2001	2002
A	2,2	1,6	111,0	110,8	110,4	96,0	97,9	98,2
I	1,8	1,5	102,0	103,0	102,5	113,2	114,7	112,9
D	1,5	1,2	107,8	103,3	102,7	100,2	97,0	97,2
CC-10	3,4	3,5	42,8	46,2	..	44,3	52,1	53,7
LV	6,1	5,7	26,2	33,7	35,5	25,9	33,9	34,7
EE	5,2	5,0	37,8	39,8	41,2	35,9	41,5	42,2
HU	4,3	3,9	47,3	52,7	55,0	56,7	61,9	63,8
SI	4,0	3,6	67,9	72,4	73,8	69,8	76,4	77,9
LT	3,9	4,7	31,2	38,6	41,4	28,1	39,1	41,8
CY	3,8	2,9	76,8	73,8	73,8	75,5	74,5	75,0
PL	3,7	3,1	35,5	40,5	40,7	38,0	48,8	50,5
SK	3,5	4,1	49,2	47,2	49,2	50,7	53,0	55,2
MT	3,4	3,4	54,8	54,9	54,9	67,4	71,0	71,4
CZ	1,1	3,3	63,3	59,5	61,1	55,5	56,9	57,9

Note: 2003-2004 forecast, GDP in PPS

Source: ECFIN, Economic Forecasts for the Candidate Countries Spring 2003. Brussels,

Directorate General for Economic and Financial Affairs 2003, p. 6; own calculations from AMECO

B. 3 Population in education (in %), 2001

Age		M+F	M	F		M+F	M	F		M+F	M	F		M+F	M	F
15-19	A	75,8	75,2	76,5	D	88,5	87,6	89,3	NL	80,4	78,2	82,7	EU15	82,8	81,1	84,5
20-24		27,4	24,3	30,5		35,0	32,9	37,2		36,6	37,8	35,4		40,8	37,9	43,6
25-29		8,7	10,4	7,1		13,5	16,1	10,7		5,5	6,4	4,5		14,7	14,9	14,5
15-19	B	89,7	88,2	91,1	EL	85,7	85,8	85,6	P	72,0	69,5	74,5	CZ	87,0	86,3	87,7
20-24		44,2	43,3	45,1		36,5	34,2	38,5		35,6	30,2	41,0		23,1	21,6	24,6
25-29		15,0	17,2	12,9		6,7	7,2	6,3		11,0	11,5	10,6		3,0	3,3	2,6
15-19	DK	86,8	87,4	86,3	IRL	80,3	75,4	85,6	E	75,8	70,2	81,8	HU	85,1	84,3	85,9
20-24		55,3	50,5	59,9		28,3	24,8	31,8		45,0	40,9	49,3		34,8	32,7	37,0
25-29		32,4	32,8	32,0		3,3	3,2	3,4		17,0	15,8	18,4		9,1	8,1	10,2
15-19	FIN	86,3	82,7	90,2	I	78,2	76,7	79,8	S	85,8	85,4	86,1	PL	91,8	90,9	92,8
20-24		53,9	48,5	59,2		38,6	34,9	42,3		41,6	37,2	46,3		45,2	43,0	47,4
25-29		29,8	29,3	30,3		18,4	17,9	19,0		22,9	20,8	25,0		11,4	11,0	11,9
15-19	F	94,9	94,5	95,3	L	91,2	91,3	91,1	UK	70,0	68,6	71,5	SK	67,3	68,0	66,5
20-24		53,6	50,5	56,6		46,7	46,1	47,3		33,5	33,1	33,9		19,4	16,5	22,4
25-29		11,4	10,5	12,3		11,6	14,1	9,2		13,3	10,9	15,8		2,3	2,4	2,2

Note: The rest to 100 % is the population not in education.

Source: Education at a Glance. Paris, OECD 2002, Tab. C5.1

Note: M males, F females

B.4 Science and engineering graduates (in % of population 20-29)

country	Share of graduates						country	Female in % of male graduates	
	M+F		Male		Female			1999	2001
	1998-1999	2000-2001	1998-1999	2000-2001	1998-1999	2000-2001			
IRL	22,4	23,2	29,2	28,6	15,5	17,8	LV	58,2	71,6
F	19,0	19,6	26,4	27,1	11,6	12,1	P	..	62,8
UK	15,6	19,5	21,5	25,6	9,5	13,1	IRL	53,1	62,2
FIN	17,8	16,0	26,1	22,7	9,1	8,9	I	61,2	59,2
LT	10,8	13,1	13,2	16,7	8,3	9,4	PL	..	56,4
S	9,7	12,4	13,6	16,1	5,6	8,4	LT	62,9	56,3
E	9,5	11,3	12,7	15,1	6,3	7,2	S	41,2	52,2
DK	8,2	11,1	11,0	15,7	5,3	6,5	UK	44,2	51,2
B	..	10,1	..	15,2	..	4,9	EE	54,8	51,0
SI	8,4	8,2	12,7	12,0	3,9	4,1	SK	41,1	50,0
D	8,6	8,0	13,2	12,2	3,7	3,6	E	49,6	47,7
LV	6,3	7,6	7,9	8,8	4,6	6,3	F	43,9	44,6
PL	5,5	7,4	..	9,4	..	5,3	CY	65,1	44,4
SK	5,1	7,4	7,3	9,8	3,0	4,9	HU	33,3	43,1
EE	5,7	7,3	7,3	9,6	4,0	4,9	DK	48,2	41,4
A	6,8	7,2	10,9	11,3	2,6	3,0	FIN	34,9	39,2
P	..	6,3	..	7,8	..	4,9	CZ	34,5	37,5
NL	5,8	6,1	9,5	10,0	2,0	2,1	SI	30,7	34,2
I	5,4	5,7	6,7	7,1	4,1	4,2	B	..	32,2
CZ	4,0	5,6	5,8	8,0	2,0	3,0	D	28,0	29,5
MT	1,3	3,8	2,0	5,8	0,4	1,6	MT	20,0	27,6
HU	4,5	3,7	7,5	5,1	2,5	2,2	A	23,9	26,5
CY	4,0	3,3	4,3	4,5	2,8	2,0	NL	21,1	21,0

Source: EUROSTAT, Structural Indicators (data from 15.4.2003)

Note: M males, F females

B.5 Results of literacy test in PISA survey

Reading literacy		Mathematics literacy		Science literacy	
FIN	546	FIN	536	FIN	538
IRL	527	UK	529	UK	532
UK	523	B	520	A	519
S	516	F	517	IRL	513
A	507	A	515	S	512
B	507	DK	514	CZ	511
F	505	S	510	F	500
OECD	500	IRL	503	OECD	500
DK	497	OECD	500	B	496
E	493	CZ	498	HU	496
CZ	492	D	490	E	491
I	487	HU	488	D	487
D	484	E	476	PL	483
HU	480	PL	470	DK	481
PL	479	LV	463	I	478
EL	474	I	457	EL	461
P	470	P	454	LV	460
LV	458	EL	447	P	459

Source: Knowledge and Skills for Life. First Results from PISA 2000. Paris, OECD 2001

B.6 Value added of knowledge-based industries (in %)

country	Share in value added of business sector								Real value added (aver. real annual growth)		
	Period	Knowl. based industries	Technology intensive manufacturing			Knowledge based services					
		Total	Total	High tech	Med high	Total	Telecom., post	Finan., business	Period	Bus sector	Knowl. based
EU-15	1998	26,0	8,5	1,8	5,8	17,5	2,3	15,2	1990-98	1,46	2,07
IRL	1998	39,2	16,6	7,7	8,9	22,6	2,6	19,9	1991-98	6,64	10,55
B	2000	37,9	8,0	2,2	5,8	29,9	1,6	28,3	1985-00	2,28	3,5
D	1999	32,4	11,7	..	..	20,7	2,5	18,2	1991-00	1,48	1,67
UK	1999	28,3	7,8	2,9	4,9	20,5	3,0	17,5	1990-00	1,87	2,76
F	1999	27,2	11,0	6,1	4,9	19,6	2,2	17,4	1985-99	2,1	2,5
NL	1999	26,7	6,0	..	..	20,7	2,5	18,2	1985-99	2,78	4,48
HU	1999	26,2	10,5	3,5	7,0	15,7	3,9	11,8	1995-99	3,62	6,67
CZ	1999	25,0	9,3	1,5	7,8	15,7	3,3	12,4	1990-99	-0,53	1,96
I	2000	24,9	7,4	1,7	5,7	17,6	2,2	15,4	1990-00	1,23	2,2
S	1998	24,8	10,0	3,4	6,6	14,8	2,8	12,0	1985-98	1,63	2,88
P	1999	24,8	4,3	1,2	3,1	20,5	2,9	17,6	1995-99	3,42	4,22
FIN	2000	24,3	7,6	2,5	5,1	13,3	3,1	10,2	1985-00	2,45	5,15
A	2000	23,5	7,7	2,1	5,6	15,8	2,0	13,8	1985-00	2,68	4,01
DK	2000	20,9	6,6	2,3	4,2	14,3	2,3	12,0	1985-00	1,96	3,12
E	1999	19,6	6,2	1,3	4,9	13,4	2,7	10,7	1985-99	2,62	3,47
EL	1999	11,9	1,7	0,5	1,2	10,2	2,3	7,8	1995-99	2,44	1,75

Source: OECD Science, Technology and Industry Outlook. Paris, OECD 2002, p. 286.

B.7 Educational attainment (in %)

ISCED	Population (age group 25-64)					Labour force (age group 25-64)				
	1,2	3,4	5B	5A,6	5,6	1,2	3,4	5B	5A,6	5,6
EU-15	38,0	39,2	10,6	12,9	22,8	32,2	41,3	12,0	15,3	26,4
NL	35,0	41,0	3,0	21,0	24,0	28,0	45,0	3,0	24,0	27,0
E	59,7	16,2	6,7	16,9	23,6	52,2	18,1	8,3	20,9	29,2
UK	17,0	56,9	8,3	17,8	26,1	12,4	58,4	9,2	20,0	29,2
S	19,4	49,0	14,7	16,9	31,6	16,8	49,9	15,2	18,2	33,4
HU	29,8	56,1	..	14,1	14,1	18,4	63,8	..	17,7	17,7
IRL	42,4	22,0	21,6	14,0	35,6	35,1	23,2	24,7	17,1	41,8
FIN	26,2	41,5	17,5	14,8	32,3	21,5	42,7	19,1	16,7	35,8
EL	48,6	33,6	5,4	12,4	17,8	42,4	35,4	6,5	15,7	22,2
D	17,4	59,4	9,7	13,5	23,2	13,7	59,8	10,9	15,6	26,5
B	41,5	31,4	15,0	12,1	27,1	32,3	34,7	17,9	15,1	33,0
PL	19,4	68,7	..	11,9	11,9	14,1	71,7	..	14,2	14,2
L	47,3	34,6	6,7	11,4	18,1	40,8	37,0	8,2	14,0	22,2
F	36,1	40,6	11,2	11,9	23,0	30,5	43,1	12,7	13,5	26,1
I	54,9	35,1	..	10,0	10,0	45,2	41,5	..	13,3	13,3
CZ	13,8	75,1	..	11,1	11,1	10,1	77,2	..	12,7	12,7
SK	14,9	74,2	0,6	10,3	10,9	9,2	77,9	0,7	11,9	12,6
DK	19,8	53,7	18,9	7,5	26,5	15,8	54,9	20,7	8,6	29,3
A	24,3	61,8	7,3	6,6	13,9	18,9	64,4	8,5	8,2	16,6
P	80,1	10,8	2,4	6,6	9,0	77,5	11,8	2,8	8,0	10,7

Note: Data for EU-15 are unweighted averages.

Source: OECD Education at a Glance. Paris, OECD 2002, Tab. A3.1a, A3.1b, own calculations.

B.8 Contributions to the growth of GDP per capita, 1980-1997 (average annual growth rate)

country	% change of GDP p. c. growth	Contributions (in p.p.)					
		investment	human capital	population growth	inflation variability	government size	trade openness
E	0,46	0,33	0,9	0,46	0,25	-0,12	0,67
I	-0,06	0,05	0,84	0,36	0,18	-0,01	0,49
EL	-0,06	..	0,57	0,09	-0,12	-0,05	0,54
IRL	1,21	-0,17	0,54	-0,75	0,35	0,13	0,46
B	0,37	0,37	0,45	0,17	0,26	0,06	0,24
FIN	-0,9	-0,91	0,44	-0,03	0,05	-0,13	0,33
UK	0,01	0,08	0,44	0,05	..	0,03	0,25
NL	0,97	-0,04	0,43	0,32	0,07	0,1	0,25
S	-0,64	-0,19	0,42	-0,05	-0,2	0,02	0,33
F	0,04	0,01	0,35	0,27	0,23	-0,02	0,42
P	-0,15	0,25	0,32	0,02	0,42	-0,2	0,53
A	-0,23	0,37	0,31	-0,07	0,12	-0,02	0,37
NO	0,61	-0,21	0,27	0,15	0,14	-0,41	0,3
CH	-0,58	0,02	0,26	0,09	-0,09	-0,07	0,14
DK	0,34	0,1	0,2	0,03	0,07	0,01	0,22
USA	-0,19	0,19	0,07	-0,06	0,13	0,07	0,65

Note: Countries in descending order according to human capital contribution.

Source: Economic Outlook No. 68. Paris, OECD 2000

B.9 Trade with EU in acceding countries (share in total trade)

country	1997		2002	
	Export	Import	Export	Import
CZ	60,3	52,3	68,9	72,1
HU	71,3	62,8	75,2	58,1
PL	64,6	64,4	67,4	67,9
SK	47,1	44,1	58,5	52,5
SI	63,6	67,7	62,5	72,1
EE	48,6	59,4	61,6	55,4
LV	48,9	53,3	62,7	52,6
LT	32,5	44,5	46,6	51,8
MT	54,3	72,0	44,2	59,4
CY	27,3	48,2	50,0	54,8
AC-10	60,4	58,2	66,9	63,8

Source: DG ECFIN, Spring 2003 Economic Forecasts. Brussels, Directorate General for Economic and Financial Affairs 2003, p. 11

B. 10 The share of technology and skill intensive exports (in %, change in p.p.)

country	Technology intensity			country	Skill intensity		
	1996	2000	Change		1996	2000	Change
EU-15	59,1	63,0	3,9	EU-15	52,4	56,7	4,3
IRL	65,8	81,0	15,2	IRL	74,6	86,4	11,9
UK	67,4	71,8	4,4	FIN	70,6	75,5	4,9
HU	41,2	71,0	29,7	UK	62,7	67,5	4,8
D	68,8	70,9	2,1	S	59,8	67,5	7,7

B. 10 Completion

country	Technology intensity			country	Skill intensity		
	1996	2000	Change		1996	2000	Change
F	60,4	64,5	4,1	NL	57,9	65,7	7,8
S	58,6	63,4	4,8	D	54,9	56,4	1,5
NL	53,3	59,5	6,2	F	52,5	55,7	3,2
E	55,8	56,9	1,1	HU	39,1	53,5	14,3
B	51,9	55,0	3,1	DK	47,2	49,5	2,4
CZ	46,0	54,5	8,5	B	41,1	47,8	6,8
A	52,8	53,5	0,7	I	44,3	46,5	2,2
FIN	42,5	50,9	8,3	EE	30,6	45,8	15,3
SI	47,8	50,6	2,7	A	46,1	45,7	-0,5
I	49,0	50,4	1,3	LT	33,5	44,7	11,1
SK	45,4	49,8	4,5	SI	40,6	43,2	2,6
DK	43,1	48,7	5,6	CZ	39,4	41,7	2,3
EE	32,9	47,4	14,5	SK	42,8	39,1	-3,7
P	37,8	42,4	4,6	E	34,6	37,6	3,0
PL	30,3	40,3	10,0	PL	32,7	34,9	2,2
EL	16,9	20,9	4,1	EL	26,6	32,6	6,0

Source: Own calculations from PC-COMTRADE 2002

B.II Structure of employment, Czech Republic, 2002, EU-15, 2001 (in %)

NACE	CZ	EU15	B	DK	D	EL	E	F	IRL	I	NL	A	P	FIN	S	UK
A-B	4,8	4,2	1,4	3,5	2,6	16,0	6,5	4,1	7,0	5,2	3,0	5,8	12,9	5,8	2,9	1,4
C	1,3	0,3	0,1	0,1	0,4	0,5	0,4	0,2	0,4	0,3	0,1	0,2	0,3	0,2	0,2	0,4
D	27,6	19,7	18,3	18,1	23,6	14,2	18,9	18,5	17,3	22,8	13,6	19,9	21,5	19,9	18	16,4
E	1,8	0,7	0,6	0,5	0,8	0,9	0,6	0,9	0,7	0,8	0,4	0,8	0,7	1,0	0,8	0,7
F	8,9	7,9	6,5	6,6	8,0	7,3	11,7	6,4	10,5	7,9	6,2	8,4	11,5	6,0	5,4	7,3
G	13,0	14,7	14,4	14,0	14,3	17,2	15,9	13,1	14,4	15,7	15,1	16	15,2	12	12,1	15,1
H	3,6	4,0	3,2	2,4	3,3	6,5	6,2	3,4	6,1	4,0	3,6	5,4	5,1	3,4	2,8	4,2
I	7,7	6,2	8,0	6,8	5,7	6,4	6,1	6,8	6,4	5,4	5,9	6,8	3,9	7,4	6,8	7,1
J	2,0	3,4	3,8	3,2	3,7	2,8	2,5	3,0	4,0	3,1	3,5	3,6	1,8	2,2	1,9	4,3
K	5,7	8,9	8,7	9,8	8,2	5,4	7,7	9,7	8,7	7,3	11,7	7,8	4,4	10,3	12,0	11,4
L	6,8	7,6	9,7	5,5	8,1	7,4	6,2	9,1	4,7	9,0	6,8	6,4	6,1	4,7	5,2	6,7
M-Q	16,7	22,1	25,3	29,3	21,4	15,5	17,4	24,7	19,2	18,7	24,5	18,9	16,6	26,9	31,7	24,8
A-B	4,8	4,2	1,4	3,5	2,6	16,0	6,5	4,1	7,0	5,2	3,0	5,8	12,9	5,8	2,9	1,4
C-F	39,6	28,6	25,5	25,3	32,8	22,8	31,6	26,0	29,0	31,7	20,4	29,3	34,0	27,0	24,4	24,9
G-Q	55,5	66,9	73,1	70,9	64,6	61,2	61,9	69,9	63,5	63,1	71,2	64,8	53	66,9	72,7	73,5
G-K	32,0	37,2	38,2	36,2	35,1	38,3	38,3	36,0	39,7	35,4	39,8	39,6	30,3	35,3	35,7	42,0
L-Q	23,6	29,7	35,0	34,8	29,5	22,9	23,6	33,9	23,9	27,6	31,3	25,2	22,7	31,6	36,9	31,4

Source: Own calculations from LFS (CSO); EUROSTAT, European Social Statistics: Labour Force Survey Results 2001. Luxembourg, EUROSTAT 2003, pp. 90-91, own calculations.

B.12 Employment in knowledge-based industries, 1995-2000 (%)

country	Manufacturing					Services				
	Average annual growth	High and medium-high technology				Average annual growth	Knowledge based services			
		2000	High tech.	1995	Annual growth		2000	High tech.	1995	Annual growth
EU-15	0,3	7,6	1,4	7,7	1,1	2,0	32,3	3,4	29,9	2,9
B	0,2	6,9	0,8	7,8	-0,7	2,6	36,8	3,6	32,9	4,0
DK	-1,2	6,4	1,0	7,4	-1,8	1,6	42,1	5,0	39,0	2,5
D	-0,7	11,2	1,8	11,0	0,7	1,3	30,4	3,0	26,9	2,8
EL	-0,7	2,2	0,2	2,2	0,5	2,1	22,2	1,6	20,1	2,6
E	3,0	5,4	0,6	5,3	4,1	4,4	24,5	2,2	22,0	6,0
F	1,1	7,2	1,4	7,2	1,3	1,6	34,6	3,9	33,4	1,9
IRL	4,4	7,0	3,4	6,6	6,9	6,7	31,7	4,0	29,2	7,5
I	1,1	7,6	1,0	7,5	1,4	1,8	26,7	2,9	24,0	3,1
L	-1,3	2,0	0,3	2,1	1,9	4,0	35,5	2,7	30,5	5,4
NL	0,2	4,4	0,9	5,0	0,5	2,9	39,1	4,1	36,7	4,3
A	-1,3	6,8	2,1	6,7	0,3	1,1	28,1	2,8	25,6	1,9
P	-3,3	3,7	0,5	3,6	2,9	3,5	18,9	1,2	17,8	4,5
FIN	3,1	7,2	2,0	6,7	4,9	3,6	37,9	4,4	37,3	3,6
S	-0,4	7,9	1,5	7,6	1,2	0,8	45,7	5,1	44,2	1,0
UK	-0,7	7,4	1,6	7,6	0,6	2,1	39,6	4,3	36,8	2,8

Source: EUROSTAT, National and Regional Employment in High-tech and Knowledge Intensive Sectors in the EU 1995-2000. Statistics in Focus 9-3/2002, pp. 2-3

B.13 Competitiveness characteristics (WEF), 2001

Scientists and engineers		Brain drain		IT skills market		Education for IT		Publ. schools quality		Employee education		Manag. school quality	
FIN	6,4	FIN	6,1	NL	6,7	FIN	6,3	A	6,6	DK	6,1	F	6,3
SK	6,4	NL	5,5	FIN	6,6	NL	6,3	FIN	6,6	NL	6,1	E	5,9
HU	6,2	B	5,4	D	6,5	S	6,2	F	6,6	S	6,0	UK	5,9
F	6,0	D	5,4	IRL	6,4	IRL	5,6	SK	6,6	FIN	5,8	NL	5,8
S	6,0	F	5,3	UK	6,3	UK	5,5	B	6,4	F	5,8	S	5,8
A	5,8	A	5,2	A	6,2	DK	5,4	NL	6,4	D	5,8	FIN	5,7
CZ	5,8(17)	CZ	5,1(16)	B	6,1	F	5,4	IRL	6,3	B	5,5	IRL	5,7
IRL	5,8	DK	5,1	DK	6,1	A	5,3	D	6,1	UK	5,4	B	5,5
DK	5,7	E	4,8	S	6,1	B	5,1	DK	5,8	A	5,3	D	5,3
EL	5,7	S	4,8	E	6,0	EE	5,1	HU	5,8	IRL	5,2	DK	5,2
LT	5,7	UK	4,8	I	5,9	D	5,1	CZ	5,7(19)	E	4,7	A	5,1
NL	5,6	IRL	4,6	F	5,7	HU	5,0	SI	5,5	EE	4,5	HU	5,0
E	5,6	EL	4,5	P	5,4	E	5,0	EE	5,4	HU	4,3	EE	4,9
EE	5,5	EE	4,4	PL	5,3	CZ	4,8(27)	S	5,4	I	4,2	I	4,8
D	5,5	P	4,4	CZ	5,2(29)	SI	4,5	E	5,1	CZ	4,1(35)	SI	4,8
I	5,4	SI	4,2	EE	5,2	I	4,4	I	5,0	LV	4,1	PL	4,7
PL	5,3	I	4,1	EL	5,2	P	4,3	UK	4,9	SI	4,1	P	4,7
UK	5,3	HU	4,0	SI	4,9	LV	4,2	PL	4,7	EL	3,8	CZ	4,5(42)
SI	5,2	PL	3,9	HU	4,8	EL	4,1	LV	4,4	PL	3,8	LV	4,2
B	4,9	SK	3,4	SK	4,8	SK	4,0	LT	4,3	P	3,8	LT	4,0
P	4,8	LV	3,3	LV	4,1	PL	3,9	P	4,3	LT	3,4	SK	3,8
LV	4,6	LT	3,3	LT	3,6	LT	3,5	EL	3,6	SK	3,2	EL	3,4
EU	5,7	EU	5,0	EU	6,1	EU	5,3	EU	5,6	EU	5,3	EU	5,4

Source: WEF Global Competitiveness Report 2001-2002. Oxford, Oxford University Press 2002. Database Executive Opinion Survey 2001

B.14 Competitiveness characteristics (IMD), 2001

The role of education	Skilled labour availability	Brain drain	Financial skills availability	ICT skills availability	Manager availability	International experience
FIN 7,89	A 8,23	A 7,81	NL 7,97	FIN 8,88	S 7,63	NL 7,5
DK 7,72	SK 7,94	NL 7,63	FIN 7,87	S 8,77	NL 7,47	S 7,38
S 7,61	FIN 7,77	FIN 7,45	DK 7,62	IRL 7,93	FIN 7,25	L 7,07
A 7,27	DK 7,72	IRL 7,33	S 7,6	DK 7,77	IRL 7,18	IRL 6,6
NL 7,27	B 7,46	L 6,98	B 7,51	B 7,72	A 7,08	B 6,38
D 7,14	F 7,38	DK 6,73	IRL 7,47	A 7,69	DK 7,05	FIN 6,23
L 6,56	NL 7,34	D 6,42	A 7,38	NL 7,69	F 7,04	HU 5,78
B 6,34	CZ 7,33(18)	E 6,34	F 6,73	EE 7,33	B 6,9	D 5,42
IRL 6,0	S 7,25	UK 6,22	UK 6,67	HU 7,26	D 6,51	A 5,38
EE 5,92	HU 7,11	B 6,09	HU 6,52	F 7,09	HU 6,37	DK 5,36
F 5,9	IRL 7,05	CZ 6,06(20)	D 6,51	UK 6,97	E 6,36	UK 5,0
HU 5,78	D 6,79	HU 5,93	L 6,47	SK 6,72	UK 6,14	EE 4,82
CZ 5,61(29)	PL 6,38	EL 5,81	SK 6,09	CZ 6,72(32)	L 6,05	E 4,71
SI 5,53	E 6,33	EE 5,65	EE 6,04	PL 6,59	I 5,71	EL 4,67
UK 5,11	UK 6,22	S 5,6	E 6,0	D 6,47	EL 5,65	F 4,62
SK 4,72	EL 6,03	P 5,53	EL 5,97	EL 6,16	P 5,39	SK 4,43
E 4,7	I 5,81	F 5,51	P 5,44	P 6,11	PL 5,21	I 4,35
I 4,52	SI 5,31	I 5,14	PL 5,26	L 6,09	EE 4,98	CZ 4,17(40)
EL 4,44	P 5,07	SI 4,88	I 5,22	E 6,06	CZ 4,92(44)	SI 4,16
P 3,97	L 4,68	SK 4,78	SI 4,82	I 5,67	SK 4,78	P 4,14
PL 3,74	EE 4,16	PL 4,54	CZ 4,78(45)	SI 4,98	SI 3,78	PL 4,0

Source: IMD World Competitiveness Yearbook 2002. Lausanne, IMD 2002.
Database Executive Opinion Survey 2001

C.I eEUROPE + benchmarks

		1999	2000	2001	2002
OBJECTIVE 0 ACCELERATE THE PUTTING IN PLACE OF THE BASIC BUILDING BLOCKS FOR IS					
a) Accelerate the provision of affordable communication services for all	0.A1. Percentage of households that have fixed telephone services	72,51 CTU	71,86 CTU	68,73 CTU	66,78 CTU
	0.A2. Percentage of households that have some form of telecommunications that is capable of providing access to the Internet	72,51 CTU	71,86 CTU	68,73 CTU	66,78 CTU
		10,9 CSO	41,7 CSO	74,4 * RadioMobil, Cesky mobil	64,6 CSO, Households Survey
		21,1 CSO	25,4 CSO	27 CSO	25 CSO Households Survey
		17,5 CSO	21,4 CSO	25,2 CSO	27,7 ** CSO Households Survey
	0.A3. Interconnection prices				
	Source: CTU, ceiling price in EURO, 5% VAT excluded.				
	Exchange rate (11-31-2001): 1 EURO = 33,30 CZK				
	Interconnection price - ISP:				
	I. time zone II. time zone III. time zone			ceiling price 0,0102 0,0048 0,0024	ceiling price 0,0141 0,0051
	Interconnection price - all networks				
	local rate - peak			0,0198	0,0180
	local rate - off-peak			0,0099	0,0090
	1 transit rate - peak			0,0320	0,0240
	1 transit rate - off-peak			0,0162	0,0120
	2 transit rate - peak			0,0477	0,0291
	2 transit rate - off-peak			0,0237	0,0144
b) Transpose and implement the acquis relevant to the IS	0.A4. Check list of issues as portability/licensing agreement, etc				
	0.B5. Czech list will contained the list of the decree relevant to IS				

		1999		2000		2001		2002	
OBJECTIVE 1 A CHEAPER, FASTER, SECURE INTERNET									
a) Cheaper and faster Internet access	1. Percentage of population regularly used the Internet		10 age of respondents 15+	GFK	19 age of respondents 12+	GFK	23 age of respondents 12+	GFK	21,7 CSO Households Survey, age of respondents 15+
	2. Percentage of households with Internet access at home		2 STEM-MARK		8 STEM-MARK		11 TNSF		16,4 CSO Households Survey
	3. Internet access costs Exchange rate (2000): 1 USD = 1,125 EUR. Exchange rate (2001): 1 USD = 1,160 EUR. Price includes VAT. Prices for periodicity of using 20 hours/week.	PSNT fixed rate in EUR			5,591 OECD		5,017 OECD		
		PSNT fee for using - strong operation			34,916 OECD		31,331 OECD		
b) Faster Internet for researchers and students		PSNT fee for using - weak operation			15,776 OECD		8,696 OECD		
		ISP fee - strong operation			14,326 OECD		0 OECD		
		ISP fee - weak operation			5,533 OECD		0 OECD		
		national					2,5 GB/s Cesnet		2,5 GB/s Cesnet
c) Secure networks and smart cards		Europe					2,5 GB/s physical connection, we use only 1,2 GB/s Cesnet		2,5 GB/s physical connection, we use only 1,2 GB/s Cesnet
		USA					622 MB/s Cesnet		622 MB/s Cesnet
	5. Number of secure servers per million inhabitants		10,51 Netcraft		10,51 Netcraft		26,51 Netcraft		34,35 www.securityspace.com
	6. Percentage of Internet-using public that have experienced security problems								7,5 CSO Households Survey



OBJECTIVE 2 INVESTING IN PEOPLE AND SKILLS		1999	2000	2001	2002
a) European youth into the digital age	7. Number of computers per 100 pupils in primary/secondary/tertiary levels (ISCED 1 basic school (primary level), ISCED 2 basic schools (secondary level, lower grades of 6-8 year secondary schools), ISCED 3/4 secondary schools, ISCED 5, 6 public and private tertiary schools)	basic schools (1-5 grade)			7,6 IIE
		basic schools (6-9 grade+lower grades of 6-8year secondary schools)	3,9 IIE		10,1 IIE
		secondary schools	5,9 IIE		9,5 IIE
		tertiary schools (public, enrolment study)			16 CSO
		tertiary schools (private)			14,8 CSO
		basic schools (1-5 grade)			5 IIE
	8. Number of computers connected to the Internet per 100 pupils in primary/secondary/tertiary levels (ISCED 1 basic schools (first grade), ISCED 2 basic schools (second grade, lower grades of 6-8 year secondary schools, ISCED 3/4 secondary schools, ISCED 5,6 public and private tertiary schools)	basic schools (6-9 grade+lower grades of 6-8year secondary schools)	1,9 IIE		7,8 IIE
		secondary schools	3,2 IIE		7,6 IIE
		tertiary schools (public, enrolment study)			15,8 CSO
		tertiary schools (private)			14,3 CSO
		basic schools (1-5 grade)			2,8 IIE
		basic schools (6-9 grade+lower grades of 6-8year secondary schools)			5,3 IIE
	9. Number of computers with high speed connections to the Internet per 100 pupils in primary/secondary/tertiary levels (Number of computers includes all used PC (i.e. used by pupils, teachers, administrative staff) ISCED 1 basic schools (first grade), ISCED 2 basic schools (second grade, lower grades of 6-8 year secondary schools, ISCED 3/4 secondary schools, ISCED 5/6 public and private tertiary schools)	secondary schools			6,7 IIE
		tertiary schools (public)			25,4 *** CSO
		tertiary schools (private)			10,4 CSO

		1999	2000	2001	2002
OBJECTIVE 2 INVESTING IN PEOPLE AND SKILLS					
	10. Percentage of teachers using the Internet for "non-computing teaching" on a regular basis ISCED 1 basic schools (first grade), ISCED 2 basic schools (second grade, lower grades of 6-8 year secondary schools, ISCED 3,4 secondary schools, ISCED 5,6 public and private tertiary schools	basic schools (1-5 grades)			38,30 IIE
		basic schools (6-9 grades+lower grades of 6-8-year secondary schools)			32,20 IIE
		secondary schools			20,60 IIE
		tertiary schools			n/a
b) Working in the knowledge-based economy	11. Percentage of workforce with (at least) basic IT training		2,9 CSO Companies Survey	3,57 CSO Companies Survey	
	12. Number of places and graduates in ICT related third level education				n/a
	13. Percentage of working using telework		0,49 CSO Companies Survey	0,65 CSO Companies Survey	
c) Participation for all in the knowledge-based economy	14. Number of Public Internet Points (PIAP) per 1000 inhabitants		0,107 Ministry of culture(IPOS)	0,107 Ministry of culture(IPOS)	
	15. Percentage of central government websites that conform to the WAI accessibility guidelines at level A				63,6 CSO



		1999	2000	2001	2002
OBJECTIVE 3 STIMULATE THE USE OF THE INTERNET					
a) Accelerating e-commerce	16. Percentage of companies that buy and sell over the Internet	shopping via Internet (purchase)	13,11 Companies Survey	21,6 CSO Companies Survey	
		shopping via Internet (sale)	4,41 CSO Companies Survey	7,89 CSO Companies Survey	
b) Government on-line: electronic access to public services	17. Percentage of basic public services available on-line				n/a
	18. Public use of government on-line services for information/for submission of forms	information obtaining			24,9 CSO Households Survey
		blank forms to download			9,6 CSO Households Survey
		forms for sending			10,5 CSO Households Survey
c) Health on-line	19. Percentage of public procurement which can be carried out on-line				n/a
	20. Percentage of health professionals with Internet access				20,42 Ministry of Health
		information on practical medicine (in the office)			12,73 Ministry of Health
		information on practical medicine (at home)			24,7 Ministry of Health
		information on theoretical medicine (in the office)			11,48 Ministry of Health
		information on theoretical medicine (at home)			22,5 Ministry of Health
		pharmaceutical information (in the office)			10,78 Ministry of Health
		pharmaceutical information (at home)			19,94 Ministry of Health
	21. Use of different categories of web by health professionals	other information (in the office)			13,14 Ministry of Health
		other information (at home)			27,54 Ministry of Health

		1999	2000	2001	2002
d) European digital content for global networks	22. Percentage of EU website into the national top 50 visited				
e) Intelligent transport systems	23. of the motorway network (vs. total length of network) equipped with congestion information and management systems		0,027 Ministry of Transport	0,027 Ministry of Transport	
f) Environment on-line	24. Degree of implementation of EEA work programme in the country		EEA		
	25. Degree of completeness of environmental data collected following EEA requirements by country		EEA		
	26. Number of institutions connected to EIONET in the country		EEA		

List of sources:

Cesnet - association founded by universities and Academy of Science of Czech Republic
CSO - Czech Statistical Office
CTU - Czech Telecommunications Office
EEA - European Environment Agency
GfK - Institute for sales and market research - private agency
IP06 - Informatory and counselling centre for local culture (Ministry of Culture)
Ministry of Transport
Ministry of Health
Netcraft - company dealing with Internet services, seated in Bath, UK
OECD - Organization for Economic Co-operation and Development
Radio Mobil, Czech mobil
STEM-MARK - Centre for Empirical Research - private agency
TNSF - Taylor Nelson Sofres Factum - Research Agency
UIV - Institute for information on education (Ministry of Education, Youth and PT)

Notice:

Data Households Survey (CSO) for year 2002 were getting from pilot survey.
Data Companies Survey (CSO) for year 2000 and 2001 were getting from pilot survey.

* Percentage of population

**palmtopes excluded

*** all used computers included (i.e. used by pupils, teachers, administrative staff)



C.2 Number and share (in per cent) of the enterprises with the Internet connection according to the enterprise activity and size class (end of the year 2000 and 2001)

Internet usage by enterprises	Enterprise size class (employed persons)											
	Small (10-49 employees)			Medium (50 - 249 employees)			Large (250 and more employees)			Total (10 and more employees)		
	Year 2000		Year 2001		Year 2000		Year 2001		Year 2000		Year 2001	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Manufacturing - D DA+DB+DC DD+DE DF-DH DI-DJ DK-DN	2 907	54,84	3 857	72,75	3 037	87,20	3 289	94,42	874	96,94	893	98,97
	271	30,65	474	53,61	628	77,14	679	83,39	196	98,02	200	100,00
	519	64,42	627	77,77	191	77,43	230	93,24	47	100,00	47	100,00
	344	67,43	417	81,92	242	89,49	270	100,00	70	100,00	70	100,00
	592	41,06	1 008	69,94	716	86,67	809	97,97	183	98,56	186	100,00
	1 182	71,16	1 331	80,12	1 260	95,05	1 300	98,07	378	94,73	389	97,67
	4 142	76,87	4 751	88,17	787	86,72	871	95,96	117	89,23	125	96,07
	567	71,85	726	92,02	129	92,03	140	100,00	6	100,00	6	100,00
	2 274	81,99	2 549	91,90	451	90,78	492	98,98	30	100,00	30	100,00
	1 301	71,25	1 476	80,85	207	76,49	239	88,33	81	85,18	90	94,59
Hotels and restaurants- H Transport and communications - I I(60-63) I(64)	164	52,67	252	80,86	71	81,75	79	91,13	8	100,00	8	100,00
	533	60,86	696	79,46	228	88,60	258	100,00	92	89,32	103	100,00
	497	59,19	660	78,58	205	87,45	234	100,00	79	87,74	90	100,00
	36	100,00	36	100,00	24	100,00	24	100,00	13	100,00	13	100,00
Business services - K K(70+71+73+74) K(72)	2 504	80,95	2 780	89,87	674	83,96	740	92,12	78	85,25	85	92,91
	2 017	78,68	2 263	88,27	545	81,39	607	90,56	64	82,56	71	91,62
	488	91,96	518	97,61	129	96,90	133	100,00	14	100,00	14	100,00
Total (sector D, G, H, I, K)	10 251	68,47	12 336	82,40	4 797	86,63	5 236	94,55	1 169	94,64	1 214	98,31

Source: CSO

Comments:

DA+DB+DC = manufacture of food products, beverage and tobacco + manufacture of textiles and wearing apparel; dressing and dyeing of fur
DD+DE = manufacture of wood and wood products + manufacture of pulp, paper and paper products + publishing and printing
DF-DH = manufacture of coke, refined petroleum products and nuclear fuel + manufacture of chemicals and pharmaceuticals manufacture of rubber and plastic products
DI-DJ = manufacture of glass and pottery + manufacture of building materials + manufacture of basic metals and fabricated metal products
DK-DN = manufacture of machinery and equipment + manufacture of electrical apparatus and optical instruments + manufacture of motor vehicles
G(50) - sale, maintenance and repair of motor vehicles, motorcycles; retail sale of automotive fuel
G(51) - wholesale trade and commission trade, except of motor vehicles and motorcycles
G(52) - retail trade + repair of personal and household goods, except of motor vehicles and motorcycles
I(60-63) - land transport, transport via pipelines + water transport+ air transport + supporting and auxiliary transport activities; activities of travel agencies
I(64) - communications
K(70+71+73+74) - real estate, renting and business activities + renting of machinery and equipment without operator and of personal household goods + research and development + other business activities
K(72) - computer and related activities

C.3 Number and share of the enterprises with the Internet web site (homepage) according to the enterprise activity and size class, 2000 and 2001

Enterprises with the web presentation	Enterprise size class (employed persons)																		
	Small (10-49 employees)			Medium (50 - 249 employees)			Large (250 and more employees)			Total (10 and more employees)									
	Year 2000	Year 2001		Year 2000	Year 2001		Year 2000	Year 2001		Year 2000	Year 2001								
	Number	%		Number	%		Number	%		Number	%								
Sectors (by CZ-NACE)	Manufacturing - D	1 468	27,69	2 344	44,21	1 596	45,83	2 116	60,75	610	67,64	712	78,95	3 674	37,93	5 172	53,39	1,408	
	DA+DB+DC	0	0,00	20	2,22	206	25,26	359	44,14	139	69,34	155	77,62	344	18,14	534	28,15	1,552	
	DD+DE	268	33,26	389	48,28	123	49,59	162	65,73	37	77,43	44	94,07	427	38,83	596	54,17	1,395	
	DF+DH	256	50,24	310	60,76	160	59,13	168	62,22	55	78,26	59	84,40	470	55,37	537	63,17	1,141	
	DI-DJ	173	12,03	595	41,25	350	42,40	502	60,78	111	59,41	154	82,57	634	25,84	1 250	50,95	1,972	
	DK-DN	771	46,40	1 031	62,08	758	57,19	924	69,71	270	67,60	300	75,18	1 798	53,12	2 255	66,61	1,254	
	Wholesale and retail trade - G	1 945	36,09	3 132	58,13	460	50,63	590	64,95	70	53,34	97	74,32	2 474	38,49	3 819	59,42	1,544	
	G(50)	271	34,40	469	59,46	91	65,34	118	84,12	3	59,09	5	81,83	366	39,18	591	63,28	1,615	
	G(51)	1 282	46,21	1 827	65,86	280	56,37	350	70,32	23	76,82	27	88,22	1 585	48,02	2 203	66,74	1,390	
	G(52)	392	21,45	836	45,81	88	32,48	122	45,17	43	45,52	66	69,46	523	23,86	1 025	46,75	1,960	
	Hotels and restaurants- H	123	39,58	167	53,82	65	75,27	77	88,96	8	100,00	8	100,00	196	48,41	253	62,24	1,286	
	Transport and communications - I	112	12,76	347	39,62	134	51,96	191	74,22	76	73,28	86	83,30	321	25,97	624	50,47	1,943	
I(60-63)	83	9,93	319	37,93	110	47,11	168	71,62	62	69,33	73	80,83	256	21,99	559	48,02	2,184		
I(64)	28	79,01	28	79,01	24	100,00	24	100,00	24	100,00	13	100,00	65	89,64	65	89,64	1,000		
Business services - K	1 543	49,87	1 835	59,31	474	59,07	564	70,20	564	70,20	52	57,15	64	70,20	2 069	51,89	2 462	61,75	1,190
K(70+71+73+74)	1 110	43,31	1 380	53,85	357	53,23	442	65,91	442	65,91	40	51,95	50	64,76	1 507	45,52	1 872	56,54	1,242
K(72)	433	81,61	455	85,75	118	88,48	122	91,76	122	91,76	12	85,65	14	100,00	562	83,04	591	87,22	1,050
Total (sector D, G, H, I, K)	5 191	34,67	7 826	52,27	2 729	49,28	3 537	63,87	816	66,04	967	78,32	8 735	40,17	12 330	56,71	1,412		

Source: CSO

Comments:

DA+DB+DC = manufacture of food products, beverage and tobacco + manufacture of textiles and wearing apparel; dressing and dyeing of fur

DD+DE = manufacture of wood and wood products + manufacture of pulp, paper and paper products + publishing and printing

DF-DH = manufacture of coke, refined petroleum products and nuclear fuel + manufacture of chemicals and pharmaceuticals manufacture of rubber and plastic products

DI-DJ = manufacture of glass and pottery + manufacture of building materials + manufacture of basic metals and fabricated metal products

DK-DN = manufacture of machinery and equipment + manufacture of electrical apparatus and optical instruments + manufacture of motor vehicles

CG(50) - sale, maintenance and repair of motor vehicles, motorcycles; retail sale of automotive fuel

G(51) -wholesale trade and commission trade, except of motor vehicles and motorcycles

G(52) - retail trade + repair of personal and household goods, except of motor vehicles and motorcycles

(60-63) - land transport, transport via pipelines + water transport+ air transport + supporting and auxiliary transport activities; activities of travel agencies

I(64) - communications

K(70+71+73+74) - real estate, renting and business activities + renting of machinery and equipment without operator and of personal household goods + research and development + other business activities

K(72) - computer and related activities



C.4 Number and share (%) of persons employed using the personal computers according to the enterprise activity and size class (end of the year 2000 and 2001)

Employees using PCs	Enterprise size class (employed persons)											
	Small (10-49 employees)			Medium (50 - 249 employees)			Large (250 and more employees)			Total (10 and more employees)		
	Year 2000		%	Year 2001		%	Year 2000		%	Year 2001		Index 2000/2001
	Persons			Persons			Persons			Persons		
Manufacturing - D DA+DB+DC DD+DE DF-DH DI-DJ DK-DN Wholesale and retail trade - G G(50) G(51) G(52) Hotels and restaurants - H Transport and communications - I I(60-63) I(64) Business services - K K(70+71+73+74) K(72)	24 476	19,29		27 982	22,06		143 658	23,52		162 013	26,67	1,142
	2 492	10,48		2 936	12,53		20 324	18,05		22 182	19,76	1,120
	5 856	25,58		6 137	29,87		5 195	22,37		6 054	24,87	1,095
	3 596	28,42		4 229	32,94		17 164	31,16		18 180	33,60	1,105
	4 854	14,89		5 805	16,93		29 123	20,11		33 358	23,31	1,158
	7 678	21,96		8 874	24,81		71 852	26,11		82 240	30,05	1,159
	52 666	44,40		57 054	52,63		18 408	23,74		21 989	27,42	1,121
	7 409	41,03		8 281	45,01		804	28,75		1 048	33,17	1,153
	32 539	57,59		35 432	60,93		4 701	37,89		5 516	41,44	1,107
	12 719	28,87		13 341	41,88		12 902	20,70		15 424	24,20	1,131
Sectors (by CZ-NACE)	1 708	25,50		2 040	28,35		1 722	46,56		1 862	49,96	1,164
	5 180	35,14		5 842	36,37		66 834	30,24		71 479	32,93	1,083
	4 794	33,97		5 300	34,51		33 823	21,99		36 448	23,84	1,094
	386	61,13		542	76,59		33 010	49,10		35 031	54,59	1,069
	42 391	61,60		44 858	66,81		8 739	21,22		11 029	24,15	1,110
	32 430	55,81		33 671	60,75		4 718	13,66		5 877	15,20	1,094
	9 960	93,09		11 187	95,47		4 021	60,58		5 152	73,55	1,153
	126 421	37,65		137 776	42,31		239 360	25,08		268 372	28,13	1,123

Source: CSO

Comments:

DA+DB+DC = manufacture of food products, beverage and tobacco + manufacture of textiles and wearing apparel; dressing and dyeing of fur
DD+DE = manufacture of wood and wood products + manufacture of pulp, paper and paper products + publishing and printing
DF-DH = manufacture of coke, refined petroleum products and nuclear fuel + manufacture of chemicals and pharmaceuticals manufacture of rubber and plastic products
DI-DJ = manufacture of glass and pottery + manufacture of building materials + manufacture of basic metals and fabricated metal products
DK-DN = manufacture of machinery and equipment + manufacture of electrical apparatus and optical instruments + manufacture of motor vehicles
G(50) - sale, maintenance and repair of motor vehicles, motorcycles; retail sale of automotive fuel
G(51) - wholesale trade and commission trade, except of motor vehicles and motorcycles
G(52) - retail trade + repair of personal and household goods, except of motor vehicles and motorcycles
I(60-63) - land transport, transport via pipelines + water transport + air transport + supporting and auxiliary transport activities; activities of travel agencies
I(64) - communications
K(70+71+73+74) - real estate, renting and business activities + renting of machinery and equipment without operator and of personal household goods + research and development + other business activities
K(72) - computer and related activities

C.5 Number and share (%) of persons employed using the personal computers according to the enterprise activity and size class (end of the year 2000 and 2001)

Sectors (by CZ-NACE)	Employees with web sites access	Enterprise size class (employed persons)															
		Small (10-49 employees)			Medium (50 - 249 employees)			Large (250 and more employees)			Total (10 and more employees)						
		Year 2000		Year 2001	Year 2000		Year 2001	Year 2000		Year 2001	Year 2000		Year 2001				
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%				
Manufacturing - D DA+DB+DC DD+DE DF-DH DI-DJ DK-DN Wholesale and retail trade - G G(50) G(51) G(52) Hotels and restaurants- H Transport and communications - I I(60-63) I(64) Business services - K K(70+71+73+74) K(72)	10 999	8,67	15 795	12,45	33 846	10,10	46 571	13,21	51 583	8,44	66 828	11,00	96 429	8,99	129 194	11,89	1,340
	1 035	4,35	1 427	6,09	5 684	6,64	7 206	8,02	6 152	5,46	7 991	7,12	12 872	5,80	16 625	7,37	1,292
	3 577	15,62	4 202	20,45	3 114	12,30	3 803	15,28	2 383	10,26	2 728	11,21	9 074	12,70	10 733	15,38	1,183
	1 800	14,23	2 493	19,42	4 465	15,79	5 817	19,75	6 110	11,09	7 751	14,33	12 376	12,89	16 061	16,66	1,298
	1 349	4,14	2 403	7,01	7 263	8,73	10 822	12,37	11 629	8,03	14 916	10,42	20 241	7,77	28 141	10,62	1,390
	3 238	9,26	5 270	14,74	13 320	11,82	18 923	15,67	25 308	9,20	33 442	12,22	41 866	9,90	57 635	13,40	1,377
	26 677	22,49	34 608	31,93	18 854	24,79	24 172	28,90	5 830	7,52	8 088	10,08	51 361	18,87	66 868	24,56	1,302
	3 032	16,79	4 584	24,92	2 566	22,12	4 058	34,26	282	10,09	347	11,00	5 881	18,12	8 989	26,91	1,529
	18 472	32,70	23 210	39,91	12 410	30,91	15 247	32,57	1 493	12,04	2 151	16,16	32 376	29,69	40 607	34,33	1,254
	5 172	11,74	6 815	21,39	3 878	15,95	4 868	19,49	4 054	6,50	5 590	8,77	13 104	10,03	17 272	14,33	1,318
	700	10,45	958	13,31	959	11,24	1 420	16,25	472	12,76	651	17,46	2 132	11,26	3 028	15,40	1,421
	2 009	13,63	2 588	16,11	5 078	22,82	6 825	26,85	29 959	13,55	31 853	14,68	37 047	14,36	41 265	15,96	1,114
1 632	11,57	2 055	13,38	2 777	14,07	4 137	18,25	11 411	7,42	14 354	9,39	15 820	8,43	20 546	10,76	1,299	
377	59,73	533	75,34	2 301	91,41	2 688	98,01	18 547	27,59	17 499	27,27	21 226	30,16	20 720	30,64	0,976	
30 829	44,80	35 393	52,71	24 984	32,80	29 424	36,29	5 534	13,44	7 704	16,87	61 347	32,96	72 521	37,40	1,182	
21 924	37,73	25 057	45,21	16 284	25,10	19 447	28,15	3 435	9,94	4 602	11,90	41 642	26,43	49 106	30,09	1,179	
8 905	83,23	10 336	88,21	8 700	77,12	9 977	83,15	2 099	31,62	3 102	44,28	19 705	68,85	23 415	76,22	1,188	
Total (sector D, G, H, I, K)	71 215	21,21	89 342	27,43	83 722	16,16	108 411	19,66	93 378	9,78	115 124	12,07	248 315	13,73	312 877	17,09	1,260

Source: CSO

Comments:

DA+DB+DC = manufacture of food products, beverage and tobacco + manufacture of textiles and wearing apparel; dressing and dyeing of fur

DD+DE = manufacture of wood and wood products + manufacture of pulp, paper and paper products + publishing and printing

DD+DE = manufacture of wood and wood products + manufacture of pulp, paper and paper products + publishing and printing

DF-DH = manufacture of coke, refined petroleum products and nuclear fuel + manufacture of chemicals and pharmaceuticals manufacture of rubber and plastic products

DI-DJ = manufacture of glass and pottery + manufacture of building materials + manufacture of basic metals and fabricated metal products

DK-DN = manufacture of machinery and equipment + manufacture of electrical apparatus and optical instruments + manufacture of motor vehicles

G(50) - sale, maintenance and repair of motor vehicles, motorcycles; retail sale of automotive fuel

SS(50) - Sale, maintenance and repair of motor vehicles, motorcycles, retail sale of automobiles and motorcycles

CG(52) - retail trade + repair of personal and household goods, except of motor vehicles and motorcycles

[(60-63) - land transport, transport via pipelines + water transport+ air transport + supporting and auxiliary transport activities; activities of travel agencies

I(64) - communications

(04) - communications
K(70+71+73+74) - real estate, renting and business activities + renting of machinery and equipment without operator and of personal household goods + research and development + other business activities

K(72) - computer and related activities



C.6 Number of computers and availability of ICT in the house of 15-year-old students

Country	Number of computers (%)			Links to Internet (%)		Educational software (%)	
	none	one	two or more	yes	no	yes	no
Australia	9	54	37	67	33	82	18
Austria	12	58	30	39	61	60	40
Belgium	17	52	31	43	57	69	31
Canada	13	54	33	70	30	78	22
Czech Republic	45	46	10	15	85	44	56
Denmark	9	44	46	66	34	59	41
Finland	18	55	26	55	45	52	48
France	34	52	14	27	73	51	49
Germany	13	52	35	40	60	65	35
Greece	55	38	7	26	74	36	64
Hungary	49	42	9	13	87	39	61
Iceland	5	50	45	80	20	75	25
Ireland	33	56	12	43	57	69	31
Italy	30	56	14	33	67	48	52
Japan	33	43	24	41	59	19	81
Korea	14	74	11	62	38	67	33
Luxembourg	17	48	34	50	50	65	35
Mexico	74	20	6	14	86	21	79
New Zealand	21	54	25	61	39	76	24
Norway	7	46	46	71	29	52	48
Poland	54	38	8	20	80	41	59
Portugal	43	44	13	25	75	44	56
Spain	33	55	13	24	76	54	46
Sweden	6	48	46	82	17	76	24
Switzerland	12	53	35	52	48	60	40
United Kingdom	10	44	46	58	42	81	19
United States	18	48	34	69	31	78	22
OECD average	27	48	25	45	55	56	44
Brazil	74	22	4	18	82	21	79
Latvia	73	23	4	10	90	20	80
Liechtenstein	12	51	37	49	51	58	42
Russian Federation	79	17	3	9	91	17	83
Netherlands	5	44	51	61	39	84	15

Mean percentage of 15-year-old students who reported having no computers, one and two or more computers in the home, having access to educational software and the Internet in the home

Source: OECD PISA Database, 2001.

C.7 Availability and use of computers at school by 15-year-old students (%)

Country	Availability of computers at school					Use of computers at school (%)				
	almost every day	a few times each week	between once a week and once a month	less than once a month	never	almost every day	a few times each week	between once a week and once a month	less than once a month	never
Australia	52	30	10	5	2	15	35	24	17	8
Belgium	13	29	26	12	20	5	26	32	12	25
Canada	52	24	12	7	5	18	21	23	22	16
Czech Republic	10	29	30	10	21	4	24	34	11	26
Denmark	49	29	15	6	2	23	36	26	11	4
Finland	19	40	24	12	4	6	41	30	16	7
Germany	6	16	27	21	30	4	14	25	20	37
Hungary	13	58	17	4	7	7	58	19	5	10
Ireland	16	25	20	13	25	4	22	25	14	35
Luxembourg	16	29	32	10	13	10	26	34	12	17
Mexico	22	25	8	9	37	8	26	8	8	50
New Zealand	48	22	13	11	5	18	16	21	27	17
Norway	n/a	n/a	n/a	n/a	n/a	6	22	33	28	11
Scotland	43	36	11	5	5	18	39	18	14	12
Sweden	37	31	17	10	5	16	29	27	17	11
Switzerland	22	23	28	14	12	5	17	37	20	21
United States	46	21	12	11	10	18	19	23	23	17
OECD average	27	29	20	10	14	10	28	26	16	19
Brazil	8	13	10	13	55	5	7	14	15	59
Latvia	14	35	22	11	18	6	35	26	12	21
Liechtenstein	20	29	41	5	5	5	24	50	11	10
Russian Federation	5	24	24	10	38	4	22	24	11	39

Mean percentage of 15-year old students who reported availability and use of computers at school almost every day, a few times each week, between once a week and once a month, less than once a month and never
Source: OECD PISA database, 2001. www.pisa.oecd.org.



C.8a Ratio of students to computers (2000)

Country	Ratio of students to computers			Ratio of students to computers, by type of institution					
				Government-independent private school		Government-dependent private schools		Public schools	
	25th percentile	50th percentile (median)	75th percentile	50th percentile (median)	% students represented in the sample	50th percentile (median)	% students represented in the sample	50th percentile (median)	% students represented in the sample
Australia	4	5	7	m	m	m	m	m	m
Austria	5	7	15	11	7	9	6	7	87
Belgium	7	11	18	10	1	12	75	9	25
Canada	4	6	8	5		8		6	
Czech Republic	9	15	28	9	n	10	6	17	94
Denmark	6	8	11	a	a	7	24	8	76
Finland	6	8	12	a	a	20	3	8	97
France	6	11	15	11	8	8	13	11	79
Germany	14	22	31	a	a	19	3	22	97
Greece	14	28	83	10	3	a	a	32	97
Hungary	5	9	15	8	1	11	4	9	95
Iceland	7	10	13	10	1	a	a	10	99
Ireland	10	14	19	9	3	15	60	13	37
Italy	7	12	19	8	4	a	a	13	96
Japan	7	12	18	12	29	15	1	11	70
Korea	4	9	13	10	33	7	16	9	51
Luxembourg	8	9	11	a	a	7	11	10	89
Mexico	12	23	59	9	16	a	a	26	84
New Zealand	5	6	8	2	4	4	n	6	96
Norway	4	6	9	a	a	1	1	6	99
Poland	8	26	45	10	3	a	a	27	97
Portugal	20	36	100	32	2	124	5	36	93
Spain	14	21	29	21	9	25	31	18	60
Sweden	7	8	10	a	a	9	3	8	97
Switzerland	6	9	16	16	4	7	2	9	94
United Kingdom	6	8	9	6	5	a	a	8	95
United States	4	5	7	6	4	4	1	5	95
OECD average	8	13	24	11	8	16	15	13	84
Brazil	15	26	39	a	a	15	1	27	99
Latvia	4	5	12	3	4	a	a	6	96
Liechtenstein	31	57	88	a	a	a	a	57	100
Russian Federation	6	10	14	a	a	10	76	8	24
Netherlands	6	10	14	2	4	4	n	6	96

Total number of students enrolled in the school divided by the total number of computers for the school in which 15-year-olds are enrolled, by quartile, type of institution and location of school, weighted by student enrolment

1 - Response rate is too low to ensure comparability.

1. Response rate is too low to ensure comparability.

Source: OECD PISA database, 2001. www.pisa.oecd.org.

C.8b Ratio of students to computers (2000)

Country	Ratio of students to computers, by school location							
	Fewer than 3 000 people (village)		From 15 000 to 100 000 people (town)		Over 1 000 000 people (close to the centre of a city)		Over 1 000 000 people (elsewhere in a city)	
	50 th percentile (median)	% students represented in the sample	50 th percentile (median)	% students represented in the sample	50 th percentile (median)	% students represented in the sample	50 th percentile (median)	% students represented in the sample
Australia	6	5	6	23	5	15	5	20
Austria	10	6	6	28	4	5	15	11
Belgium	20	4	10	51	8	1	a	a
Canada	5		6		6		6	
Czech Republic	19	6	15	40	13	2	16	10
Denmark	6	29	9	25	9	8	11	3
Finland	7	17	9	34	10	15	8	6
France	9	7	9	52	57	1	8	3
Germany	18	6	23	43	15	2	22	4
Greece	18	8	32	38	33	9	17	6
Hungary	12	1	8	39	10	10	7	9
Iceland	m	m	m	m	m	m	m	m
Ireland	14	28	16	13	12	12	9	8
Italy	9	2	13	54	a	a	12	12
Japan	a	a	13	28	18	9	15	4
Korea	7	3	5	10	11	15	11	29
Luxembourg	a	a	8	19	a	a	a	a
Mexico	11	7	23	26	33	6	22	9
New Zealand	6	14	6	33	7	12	6	13
Norway	5	38	8	20	a	a	a	a
Poland	7	3	27	41	39	7	4	2
Portugal	20	4	27	39	101	7	26	1
Spain	12	2	21	32	22	4	29	5
Sweden	8	23	8	34	10	4	4	1
Switzerland	9	12	9	25	a	a	a	a
United Kingdom	8	10	7	35	8	4	8	4
United States	4	6	6	33	6	5	6	7
OECD average	10	10	13	33	20	7	12	8
Brazil	91	4	140	26	108	15	223	9
Latvia	19	18	29	27	23	6	a	a
Liechtenstein	4	21	a	a	a	a	a	a
Russian Federation	50	26	54	22	57	9	62	6
Netherlands	a	a	10	63	a	a	a	a

Total number of students enrolled in the school divided by the total number of computers for the school in which 15-year-olds are enrolled, by quartile, type of institution and location of school, weighted by student enrolment

1 - Response rate is too low to ensure comparability.

1. Response rate is too low to ensure comparability.

Source: OECD PISA database, 2001. www.pisa.oecd.org.



C.9 Availability of computers and computer networks in schools in which 15-year-olds are enrolled (2000)

Country	Percentage of computers available to			Percentage of computers connected	
	15-year olds	only to teachers	only to administrative staff	to the Internet /World Wide Web	to a local area network (LAN)
Australia	70	16	8	80	75
Austria	75	9	7	69	56
Belgium	62	9	16	45	33
Canada	62	13	7	80	70
Czech Republic	63	20	15	40	46
Denmark	63	8	10	65	50
Finland	77	11	8	84	57
France	59	9	13	26	19
Germany	68	10	13	37	25
Greece	51	24	33	26	23
Hungary	72	11	10	58	65
Iceland	51	15	8	83	62
Ireland	69	10	8	47	28
Italy	61	10	13	24	21
Japan	66	20	4	35	40
Korea	56	34	5	61	70
Luxembourg	70	9	7	88	86
Mexico	62	16	17	14	17
New Zealand	72	14	8	62	65
Norway	51	18	14	50	30
Poland	67	14	13	35	25
Portugal	61	28	34	35	31
Spain	58	18	9	41	37
Sweden	55	14	10	74	62
Switzerland	70	14	9	47	37
United Kingdom	78	10	7	51	53
United States	73	22	6	39	61
<i>Country mean</i>	65	15	12	52	46
Brazil	53	19	34	27	27
Latvia	78	24	19	42	57
Liechtenstein	77	19	8	79	67
Russian Federation	74	10	13	6	18
Netherlands ¹	62	12	10	45	55

Percentage of computers available to students, teachers and administrative staff and computers connected to the Internet/WWW and local area networks, as reported by school principals, weighted by student enrolment

¹ Response rate is too low to ensure comparability.

Source: OECD PISA database, 2001. www.pisa.oecd.org.

C.10 15-year-olds who use computers to help them learn school material (2000)

Country	almost every day %	a few times each week %	between once a week and once a month %	less than once a month %	never %
Australia	12	30	29	17	12
Belgium	8	16	21	21	35
Canada	10	21	28	21	20
Czech Republic	6	14	21	21	37
Denmark	15	38	28	12	7
Finland	6	18	32	27	17
Germany	11	23	28	21	18
Hungary	9	19	23	20	28
Ireland	7	20	25	22	26
Luxembourg	14	23	25	17	20
Mexico	17	34	17	14	18
New Zealand	13	25	28	21	13
Norway	8	21	28	25	19
Scotland	17	39	25	11	8
Sweden	13	26	29	19	12
Switzerland	6	17	27	24	26
United States	19	26	25	17	12
<i>Country mean</i>	11	24	26	19	19
Brazil	14	25	21	20	20
Latvia	11	23	22	19	25
Liechtenstein	6	16	33	24	21
Russian Federation	12	27	25	17	18

Mean percentage of 15-year-olds who reported using computers to help them learn school material almost every day, a few times each week, between once a week and once a month, less than once a month and never

Source: OECD PISA database, 2001



C.II *The extent to which learning is hindered by a lack of computers for instruction or lack of multi-media resources for instruction in schools in which 15-year-olds are enrolled (2000)*

Country	Learning is hindered by a lack of computers for instruction				Learning is hindered by a lack of multi-media resources for instruction			
	Not at all	Very little	To some extent	A lot	Not at all	Very little	To some extent	A lot
Australia	32	38	27	3	29	39	31	1
Austria	30	32	23	15	22	35	32	11
Belgium	49	32	15	3	42	34	17	7
Canada	33	36	26	4	30	46	22	3
Czech Republic	37	25	28	10	34	27	31	9
Denmark	32	40	21	6	48	39	10	3
Finland	16	41	35	7	15	40	37	9
France	39	33	23	5	40	26	29	5
Germany	20	30	35	15	15	33	33	20
Greece	15	17	40	28	11	21	45	24
Hungary	69	18	9	4	41	34	23	2
Iceland	26	29	41	4	16	36	42	5
Ireland	34	24	30	12	21	26	41	13
Italy	42	26	26	6	29	25	34	12
Japan	32	37	26	5	20	38	33	9
Korea	30	46	18	6	21	39	32	8
Luxembourg	24	53	23	n	19	58	23	n
Mexico	16	16	27	42	17	18	23	42
New Zealand	25	35	35	5	25	44	29	2
Norway	12	28	52	9	9	29	51	10
Poland	33	29	27	12	38	32	24	6
Portugal	27	35	31	8	25	41	27	7
Spain	43	27	23	7	29	28	32	11
Sweden	21	29	40	11	18	28	46	8
Switzerland	40	37	19	4	37	38	19	6
United Kingdom	18	26	37	19	13	30	42	16
United States	35	33	24	7	33	39	22	6
<i>Country mean</i>	31	31	26	11	26	34	28	12
Brazil	20	17	27	36	53	22	13	12
Latvia	25	35	24	16	13	30	34	22
Liechtenstein	26	33	41	n	59	20	20	n
Russian Federation	11	3	31	55	18	11	36	35
Netherlands ¹⁾	27	34	25	14	26	37	26	11

Mean percentage of 15-year-olds enrolled in schools where principals reported that learning is hindered a lot, to some extent, very little or not at all by insufficient numbers of computers for instruction and multi-media resources for instruction

1) - Response rate is too low to ensure comparability

¹. Response rate is too low to ensure comparability.

Source: OECD PISA database, 2001. www.pisa.oecd.org.

C.12 Frequency of use of computers and the Internet at school, by gender (2000)

Country	Use of computers at school				Use of the Internet at school			
	Several times a month, several times a week or about once a month		A few times per year or never or hardly ever		Several times a month, several times a week or about once a month		A few times per year or never or hardly ever	
	Females	Males	Females	Males	Females	Males	Females	Males
Australia	72	80	28	20	64	72	36	28
Austria	77	75	23	25	67	65	33	35
Belgium	56	59	44	41	24	30	76	70
Canada	61	70	39	30	56	66	44	34
Czech Republic	50	59	50	41	24	31	76	69
Denmark	88	95	12	5	85	94	15	6
Finland	72	85	28	15	68	84	32	16
France	35	46	65	54	18	29	82	71
Germany	36	47	64	53	19	26	81	74
Greece	43	57	57	43	21	36	79	64
Hungary	75	82	25	18	48	58	52	42
Iceland	75	80	25	20	65	73	35	27
Ireland	49	49	51	51	18	22	82	78
Italy	60	64	40	36	15	19	85	81
Japan	29	26	71	74	13	14	87	86
Korea	68	58	32	42	53	48	47	52
Luxembourg	61	65	39	35	51	58	49	42
Mexico	40	35	60	65	13	13	87	87
New Zealand	62	56	38	44	40	40	60	60
Norway	60	73	40	27	56	69	44	31
Poland	63	66	37	34	19	31	81	69
Portugal	40	55	60	45	29	46	71	54
Spain	43	45	57	55	17	23	83	77
Sweden	72	82	28	18	71	81	29	19
Switzerland	53	64	47	36	37	46	63	54
United Kingdom	74	82	26	18	39	56	61	44
United States	65	66	35	34	57	61	43	39
<i>OECD average</i>	59	64	41	36	40	48	60	52
Brazil	21	22	79	78	11	11	89	89
Latvia	53	59	47	41	14	23	86	77
Liechtenstein	64	77	36	23	60	77	40	23
Russian Federation	39	39	61	61	3	7	97	93
Netherlands	55	57	45	43	43	43	57	57

Mean percentage of 15-year-old males and females who reported using computers and the Internet at school several times a month, several times a week or about once a month, and a few times per year or never or hardly ever

Source: OECD PISA Database, 2001.



C.13 Students' use of computer software at home, by gender (2000)

Country	Use of games (%)				Use of word processing (%)			
	Almost every day, a few times each week or between once a week and once a month		Less than once a month or never		Almost every day, a few times each week or between once a week and once a month		Less than once a month or never	
	Females	Males	Females	Males	Females	Males	Females	Males
Australia	67	83	16	17	90	88	10	12
Belgium	61	84	39	16	80	81	20	19
Canada	57	83	43	17	83	81	17	19
Czech Republic	67	86	33	14	62	66	38	34
Denmark	55	91	45	9	85	92	15	8
Finland	56	93	44	7	70	76	30	24
Germany	64	90	36	10	76	84	24	16
Hungary	78	90	22	10	79	78	21	22
Ireland	68	88	32	12	77	68	23	32
Luxembourg	56	84	44	16	71	82	29	18
Mexico	60	70	40	30	63	63	37	37
New Zealand	62	84	38	16	86	79	14	21
Norway	61	92	39	8	69	81	31	19
Scotland	72	93	28	7	91	86	9	14
Sweden	59	93	41	7	77	86	23	14
Switzerland	45	81	55	19	71	79	29	22
United States	74	88	26	12	89	86	11	14
OECD average	62	87	36	13	78	80	22	20
Brazil	66	73	34	27	68	69	32	31
Latvia	66	83	34	17	63	66	37	34
Liechtenstein	47	78	53	22	70	79	30	21
Russian Federation	58	77	42	23	45	45	55	55

Mean percentage of 15-year old males and females who reported using games, word processing, spreadsheets, drawing, painting or graphics software or educational software almost every day, a few times each week or between once a week and once a month; or less than once a month or never
Source: OECD PISA Database, 2001.

C.13 Completion

Country	Use of spreadsheets (%)				Use of drawing, painting or graphics software (%)				Use of educational software (%)			
	Almost every day, a few times each week or between once a week and once a month		Less than once a month or never		Almost every day, a few times each week or between once a week and once a month		Less than once a month or never		Almost every day, a few times each week or between once a week and once a month		Less than once a month or never	
	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males
Australia	53	63	47	37	50	59	51	41	54	50	46	50
Belgium	45	54	55	46	38	51	62	49	36	41	64	59
Canada	41	48	59	52	47	55	53	45	42	42	58	58
Czech Republic	37	49	63	51	55	59	45	41	46	44	54	56
Denmark	31	54	69	46	29	55	71	45	21	37	79	63
Finland	25	45	75	55	37	61	63	39	29	32	71	68
Germany	40	59	60	41	53	63	47	37	46	47	54	53
Hungary	52	60	48	40	64	63	36	37	42	45	58	55
Ireland	52	51	48	49	64	61	36	39	56	49	44	51
Luxembourg	49	67	51	33	49	65	51	35	39	50	61	50
Mexico	53	52	47	48	63	63	37	37	60	58	40	43
New Zealand	56	53	44	47	53	54	47	46	56	48	44	52
Norway	26	47	74	54	43	64	57	36	18	28	82	72
Scotland	54	58	46	42	60	69	40	31	64	58	36	42
Sweden	26	47	74	53	36	59	64	41	23	36	77	64
Switzerland	38	54	62	46	37	51	63	49	27	34	73	66
United States	49	57	51	43	62	66	38	34	56	54	44	46
OECD average	43	54	57	46	49	60	51	40	42	44	58	56
Brazil	48	47	52	53	64	60	36	40	57	46	43	54
Latvia	49	53	51	47	55	60	45	40	42	50	58	50
Liechtenstein	39	57	61	43	42	51	58	49	31	35	69	65
Russian Federation	25	29	75	71	38	44	62	56	58	53	42	47

Mean percentage of 15-year-old males and females who reported using games, word processing, spreadsheets, drawing, painting or graphics software or educational software almost every day, a few times each week or between once a week and once a month; or less than once a month or never
Source: OECD PISA Database, 2001.



C.14 15-year-old students' interest in using computers, by gender (2000)

Country	It is important work with a computer		Playing or working with a computer is really fun		Student uses computer because it interests them		Student forgets to the time when working with a computer	
	Females %	Males %	Females %	Males %	Females %	Males %	Females %	Males %
Australia	64	72	74	87	52	71	52	58
Belgium	60	73	87	94	62	78	58	72
Canada	58	70	82	90	58	76	65	68
Czech Republic	61	69	85	93	68	81	57	70
Denmark	49	75	74	94	37	77	47	70
Finland	47	66	78	92	68	85	50	63
Germany	69	84	89	96	70	87	73	83
Hungary	58	69	84	90	64	81	61	71
Ireland	55	58	92	94	72	75	75	74
Luxembourg	70	83	88	93	74	88	77	86
Mexico	88	89	87	88	84	84	87	85
New Zealand	55	63	78	87	54	69	55	56
Scotland	69	76	87	95	69	83	72	73
Sweden	59	81	79	95	74	88	59	67
Switzerland	60	76	83	91	65	82	70	78
United States	89	84	94	89	78	83	73	73
<i>Country mean</i>	63	74	84	92	66	80	64	72
Brazil	93	93	95	95	91	94	69	70
Latvia	79	77	93	92	90	91	74	81
Liechtenstein	69	81	84	92	68	89	69	78
Russian Federation	77	75	92	92	90	90	80	85

Mean percentage of 15-year-old males and females who agree that working with computers is important to them, playing or working with computers is really fun, they use computers because they are interested in this, and they forget the time when working on computers

Source: OECD PISA Database, 2001.

C.15 ICT training costs in Czech enterprises by economic activities and size (in observed year)

ICT training costs				Sectors (by CZ-NACE)					
				Manu- facturing D	Wholesale and retail trade-G	Hotels and restaurants H	Transport and commu- nications-I	Business services K	Total (sector D, G, H, I, K)
Enterprise size class (employed persons)	Small (10-49 employees)	Year	CZK m. ¹	5 940	18 720	520	810	59 200	85 190
		2000	% ²	0,50	0,59	0,86	0,02	2,42	0,70
		Year	CZK m. ¹	8 760	23 380	1 030	1 360	86 440	120 970
		2001	% ²	0,64	0,65	1,44	0,04	2,98	1,04
		Index 2001/2000		1,475	1,249	1,981	1,679	1,460	1,420
	Medium (50 - 249 employees)	Year	CZK m. ¹	19 130	27 410	1 030	8 640	77 300	133 520
		2000	% ²	0,75	0,72	0,82	0,64	1,98	1,14
		Year	CZK m. ¹	29 100	41 340	1 400	15 620	104 040	191 510
		2001	% ²	0,77	0,79	0,99	1,49	2,39	1,32
		Index 2001/2000		1,521	1,508	1,359	1,808	1,346	1,434
	Large (250 and more employees)	Year	CZK m. ¹	97 030	8 280	280	75 700	20 600	201 880
		2000	% ²	1,08	0,61	0,58	0,59	2,53	0,84
		Rok	CZK m. ¹	111 720	14 730	290	80 870	20 840	228 450
		2001	% ²	1,08	0,90	0,59	0,61	2,43	0,88
		Index 2001/2000		1,151	1,779	1,036	1,068	1,012	1,132
	Total (10 and more employees)	Year	CZK m. ¹	122 100	54 420	1 830	85 150	157 100	420 590
		2000	% ²	96,00	0,65	0,78	0,44	2,19	0,88
		Year	CZK m. ¹	149 580	79 450	2 730	97 850	211 320	540 930
		2001	% ²	0,96	0,76	1,03	0,54	2,60	1,03
		Index 2001/2000		1,225	1,460	1,492	1,149	1,345	1,286

¹ ICT training costs in thousands of CZK during observed year in observed sample of enterprises (combined economic activity and size)

² Percentual share of ICT training costs considering total ICT costs during observed year in observed sample of enterprises (combined economic activity and size)

Source: CSO



C.16 Employees in Czech enterprises under ICT* training - by economic activities and size of enterprise (in observed year)

ICT training of employees				Sectors (by CZ-NACE)					
				Manufacturing D	Wholesale and retail trade-G	Hotels and restaurants H	Transport and communications I	Business services K	Total (sector D, G, H, I, K)
Enterprise size class (employed persons)	Small (10-49 employees)	Year 2000	Persons ¹	999	3 604	110	318	6 451	11 482
			% ²	0,79	3,04	1,64	2,15	9,38	3,42
			% ³	4,08	6,84	6,45	6,13	15,22	9,08
		Year 2001	Persons ¹	1 670	3 811	257	494	7 839	14 072
			% ²	1,32	3,52	3,58	3,08	11,68	4,32
			% ³	5,97	6,68	12,62	8,46	17,48	10,21
		Index 2001/2000		1,672	1,057	2,338	1,556	1,215	1,226
	Medium(50 - 249 employees)	Year 2000	Persons ¹	5 272	2 447	140	885	4 942	13 686
			% ²	1,57	3,22	1,64	3,98	6,49	2,64
			% ³	7,71	7,85	5,99	10,38	14,29	9,44
		Year 2001	Persons ¹	8 177	3 400	200	1 216	5 757	18 749
			% ²	2,32	4,07	2,29	4,78	7,10	3,40
			% ³	10,21	9,56	7,09	12,32	14,66	11,18
		Index 2001/2000		1,551	1,389	1,426	1,374	1,165	1,370
	Large (250 and more employees)	Year 2000	Persons ¹	11 112	1 107	158	13 005	1 817	27 200
			% ²	1,82	1,43	4,27	5,88	4,41	2,85
			% ³	7,74	6,02	9,18	19,46	20,79	11,36
		Year 2001	Persons ¹	16 977	1 461	161	11 912	1 977	32 490
			% ²	2,79	1,82	4,32	5,49	4,33	3,41
			% ³	10,48	6,65	8,66	16,67	17,93	12,11
		Index 2001/2000		1,528	1,320	1,020	0,916	1,088	1,194
	Total (10 and more employees)	Year 2000	Persons ¹	17 383	7 158	408	14 208	13 211	52 368
			% ²	1,62	2,63	2,16	5,51	7,10	2,90
			% ³	7,35	7,00	7,08	17,64	15,41	10,25
		Year 2001	Persons ¹	26 824	8 672	618	13 622	15 574	65 311
			% ²	2,47	3,19	3,15	5,27	8,03	3,57
			% ³	9,93	7,57	9,21	15,62	16,37	11,38
		Index 2001/2000		1,543	1,211	1,515	0,959	1,179	1,247

* Including all PC courses - both beginners courses (MS Office- Word, Excel, Power Point, Access; Internet etc.) and specialized, highly professional ICT courses

¹ Number of employees under ICT training during observed year in observed sample of enterprises (combined economic activity and size)

² Percentual share of employees under ICT training compared with total number of employees - during observed year in observed sample of enterprises (combined economic activity and size)

³ Percentual share of employees under ICT training of all employees using PC - during observed year in observed sample of enterprises (combined economic activity and size)

Source: CSO

C.17 Human resources in ICT by job classification and gender - average values (2002)

Job classification	ISCO-88	Number of employees in ICT		
		Total	Males	Females
AL - EMPLOYEES IN ICT	213+312+313+724	194,0	160,5	33,5
TOTAL - HIGH SKILLED EMPLOYEES IN ICT	213+312+313	101,0	78,0	23,0
of all: - PC professionals	213+312	92,0	71,8	20,2
Total: scientists and experts in ICT	213	38,8	32,7	6,2
Designers and analysts of ICT systems	2131	7,0	5,6	1,4
Programmers	2132	22,7	19,5	3,3
Other experts in ICT	2139	9,1	7,5	1,5
Totals - technicians in ICT	312	53,2	39,1	14,2
Counselling and guidance in ICT	3121	6,6	5,1	1,5
Operating and ICT service staff	3122	26,2	17,0	9,2
Operating staff of industrial robots and NC machines	3123	5,5	3,3	2,2
Other technicians in ICT	3129	14,9	13,6	1,3
Total - optical apparatus and electronic instruments service	313	9,0	6,2	2,8
TOTAL - LOW SKILLED EMPLOYEES IN ICT*	724	93,0	82,5	10,5

* Mechanics, setters and repairmen of electric and electronic arrangement and apparatus

Source: CSO, „Labour Force Survey“; average (2002)



D.1 Graduates from three-year upper secondary education and tertiary education in the CR

year	education								
	general (gymna- sium)	Secondary technical schools		Secondary vocational schools			higher (Higher	tertiary (Universities)	
		with “maturita”	without “maturita”	vocati- onal	with “maturita”	follow up courses	professional schools)	full time study	other forms
1993	24 603	37 360	1 253	77 757	8 909	797	15	14 896	2 617
1994	24 640	35 395	2 865	70 030	7 249	1 895	17	16 588	2 541
1995	19 150	37 927	2 795	76 069	6 297	2 985	336	16 603	2 198
1996	20 435	42 953	1 617	74 955	7 451	9 781	1 004	18 317	1 862
1997	23 862	48 118	1 572	62 257	7 816	16 085	1 648	20 804	2 447
1998	22 882	52 185	1 004	56 463	7 425	21 176	2 994	23 043	2 917
1999	21 156	49 613	1 035	9 501	6 439	13 814	6 159	23 281	3 306
2000	11 884	11 267	1 170	42 261	2 192	9 732	7 460	23 859	3 584
2001	22 900	45 537	1 169	43 870	3 885	799	7 547	25 800	4 919
2002	18 527	42 428	890	44 483	6 792	6 316	6 572	26 875	5 500

* two-year education for leavers from three-year secondary vocational schools (in the table sign as „vocational“)

Source: Institute for information on education

D.2 Graduates from secondary and higher level schools as a percentage of relevant population ¹⁾ in 2000 (in %)

ISCED	OECD												
	CZ	aver.	D	IRL	FIN	F	UK	DK	E	PL	HU	NL	SK
3A	(47)	55,0	3,0	74,0	87,0	49,0	m	52,0	46,0	70,0	58,0	63,0	72,0
3B	n	8,0	58,0	a	a	10,0	m	a	n	a	1,0	a	n
3C ²⁾	31,0	27,0	a	5,0	a	39,0	m	54,0	22,0	29,0	37,0	32,0	25,0
ISCED 3	78,0	77,0	91,0	74,0	87,0	84,0	m	(90)	61,0	90,0	97,0	(92)	90,0
4	9,0	9,4	14,8	28,9	1,5	1,2	m	1,7	9,8	12,6	31,2	1	2,2
5A ³⁾	13,6	25,9	19,3	31,2	36,3	24,6	37,5	9,2	m (30,3)	34,4	(30)	m (34,7)	m
5B	4,8	11,2	10,7	15,2	14,3	18,3	m (11,4)	24,5	7,8	(0,8)	m	(0,9)	2,2

Notes:

1) Leavers as a percentage of population in typical graduation ages

2) Sum of data indicated for short and long programmes of category 3C.

3) Sum of data indicated for different length of programmes.

m ... missing data; n ... neglectable or zero value; a ... not relevant

Source for the date in the parenthesis: OECD(2001), data for 1999.

Source: Education at a Glance, OECD, 2002

D.3 Educational attainment of population in 2001

Country	Population with at least upper-secondary education					Population with tertiary education (ISCED 5A+B)				
	age					age				
	25-64	25-34	35-44	45-54	55-64	25-64	25-34	35-44	45-54	55-6
Austria	76	83	80	72	63	14	15	16	13	9
Czech Republic	86	92	90	84	76	11	11	13	11	9
Denmark	80	86	80	80	72	27	29	28	27	20
Finland	74	87	84	70	51	32	38	37	29	23
France	64	78	67	58	46	23	35	23	19	14
Germany	83	85	86	83	76	23	22	26	25	20
Hungary	70	81	79	72	44	14	15	15	14	12
Ireland	58	73	62	48	35	36	48	37	29	21
Netherlands	65	74	69	60	51	24	26	25	23	17
Poland	46	52	48	44	36	12	15	11	11	10
Slovakia	85	94	90	83	66	11	12	12	11	8
Spain	40	57	45	29	17	24	36	25	16	10
United Kingdom	63	68	65	61	55	26	30	27	26	19
OECD average	64	74	68	60	49	23	28	25	21	16

Note: Short ISCED 3C programmes are excluded.

Source: Education at a Glance, OECD, 2002

D.4 Reading literacy of 15-year-old pupils in 2001

Country	15-year old pupils by the level of reading literacy					
	less than 1	1	2	3	4	5
Finland	2%	5%	14%	29%	32%	18%
Ireland	3%	8%	18%	30%	27%	14%
United Kingdom	4%	9%	20%	27%	24%	16%
Austria	4%	10%	22%	30%	25%	9%
France	4%	11%	22%	31%	24%	8%
Denmark	6%	12%	23%	29%	22%	8%
Czech Republic	6%	11%	25%	31%	20%	7%
Spain	4%	12%	26%	33%	21%	4%
Germany	10%	13%	22%	27%	19%	9%
Poland	9%	15%	24%	28%	19%	6%
Hungary	7%	16%	25%	29%	18%	5%

Notes

Level

Less than 1

1

2

3

4

5

What can students at each proficiency level do*

Students ...are not able to show routinely the most basic type of knowledge and skills that PISA seeks to measure. These students may have serious difficulties in using reading literacy as an effective tool to advance and extend their knowledge and skills in other areas.

Students ...are capable of completing only the least complex reading tasks developed for PISA, such as locating a single piece of information, identifying the main theme of a text or making a simple connection with everyday knowledge.

Students ... are capable of basic reading tasks, such as locating straightforward information, making low-level inferences of various types, deciding what a well-defined part of the text means, and using some outside knowledge to understand it.

Students ... are capable of reading tasks of moderate complexity, such as locating multiple pieces of information, drawing links between different parts of the text, and relating it to familiar everyday knowledge.

Students ... are capable of difficult reading tasks, such as locating embedded information, construing meaning from nuances of language and critically evaluating a text.

Students ... are capable of completing sophisticated reading tasks, such as managing information that is difficult to find in unfamiliar texts; showing detailed understanding of such texts and inferring which information in the text is relevant to the task; and being able to evaluate critically and build hypotheses, draw on specialised knowledge, and accommodate concepts that may be contrary to expectations.

* Education at a Glance, OECD 2002, p.65

Source: Straková et al. (2002)

D.5 Graduates from secondary vocational schools by field of study - without "maturita" (initial study)

Subject group	2002		2001	
	number	share	number	share
Technology	24 007	54,0%	23 959	54,6%
21 Mining and related geology, metallurgy	74	0,2%	90	0,2%
23 Mechanical engineering and related manufacture	7 636	17,2%	8 040	18,3%
26 Electrical engineering	4 132	9,3%	3 943	9,0%
28 Industrial chemistry	445	1,0%	541	1,2%
29 Food industry	2 288	5,1%	2 017	4,6%
31 Manufacture of textile and clothing industry	1 650	3,7%	1 739	4,0%
32 Manufacture of leather and footwear, processing of plastics	66	0,1%	54	0,1%
33 Wood-working and manufacture of musical instruments	3 364	7,6%	3 222	7,3%
34 Printing, paper, film processing, photography	497	1,1%	481	1,1%
36 Construction, geodesy and cartography	3 783	8,5%	3 728	8,5%
37 Transport and communications	72	0,2%	104	0,2%
Agriculture, forestry and veterinary sciences	3 317	7,5%	3 087	7,0%
41 Agriculture and forestry	3 317	7,5%	3 087	7,0%
Social science and services	16 832	37,8%	16 524	37,7%
63 Economics and administration	717	1,6%	1 119	2,6%
65 Gastronomy, hotel services and tourism	9 122	20,5%	8 489	19,4%
66 Trade	3 622	8,1%	3 698	8,4%
69 Personal and operation services	3 371	7,6%	3 218	7,3%
Culture and art	327	0,7%	300	0,7%
82 Arts and applied arts	327	0,7%	300	0,7%
Total	44 483	100,0%	43 870	100,0%

Source: Institute for information on education

D.6 Graduates from secondary vocational schools by field of study - with "maturita" (initial study)

Subject group	2002		2001	
	number	share	number	share
Technology	3 987	58,7%	3 249	83,6%
21 Mining and related geology, metallurgy	32	0,5%	19	0,5%
23 Mechanical engineering and related manufacture	880	13,0%	546	14,1%
26 Electrical engineering	2 475	36,4%	2 122	54,6%
28 Industrial chemistry	90	1,3%	108	2,8%
31 Manufacture of textile and clothing industry	141	2,1%	158	4,1%
33 Wood-working and manufacture of musical instruments	54	0,8%	20	0,5%
37 Transport and communications	315	4,6%	276	7,1%
Agriculture, forestry and veterinary sciences	69	1,0%	35	0,9%
41 Agriculture and forestry	69	1,0%	35	0,9%
Social science and services	2 524	37,2%	445	11,5%
63 Economics and administration	93	1,4%	107	2,8%
64 Entrepreneurship in branches, sectors	37	0,5%	33	0,8%
65 Gastronomy, hotel services and tourism	251	3,7%	271	7,0%
66 Trade	2 143	31,6%	34	0,9%
Culture and art	212	3,1%	156	4,0%
82 Arts and applied arts	212	3,1%	156	4,0%
Total	6 792	100,0%	3 885	100,0%

Source: Institute for information on education

D.7 Graduates from secondary professional schools by field of study (initial study)

Subject groups	2002		2001	
	number	share	number	share
Natural sciences	409	1,0%	263	0,6%
16 Ecology and environmental protection	409	1,0%	263	0,6%
Technology	13 410	31,6%	11 689	25,7%
21 Mining and related geology, metallurgy	115	0,3%	68	0,1%
23 Mechanical engineering and related manufacture	3 069	7,2%	2 519	5,5%
26 Electrical engineering	4 250	10,0%	3 923	8,6%
28 Industrial chemistry	692	1,6%	475	1,0%
29 Food industry	329	0,8%	222	0,5%
31 Manufacture of textile and clothing industry	561	1,3%	482	1,1%
32 Manufacture of leather and footwear, processing of plastics	49	0,1%	80	0,2%
33 Wood-working and manufacture of musical instruments	270	0,6%	228	0,5%
34 Printing, paper, film processing, photography	173	0,4%	130	0,3%
36 Construction, geodesy and cartography	3 119	7,4%	2 746	6,0%
37 Transport and communications	561	1,3%	612	1,3%
39 Special and interdisciplinary technical subjects	222	0,5%	204	0,4%
Agriculture, forestry and veterinary sciences	2 315	5,5%	2 164	4,8%
41 Agriculture and forestry	2 115	5,0%	2 011	4,4%
43 Veterinary surgery and prevention	200	0,5%	153	0,3%
Health services, medicine and pharmacy	4 022	9,5%	3 695	8,1%
53 Health services	4 022	9,5%	3 695	8,1%
Social science and services	21 152	49,9%	26 666	58,6%
63 Economics and administration	10 538	24,8%	14 042	30,8%
64 Entrepreneurship in branches, sectors	4 494	10,6%	7 466	16,4%
65 Gastronomy, hotel services and tourism	2 327	5,5%	1 860	4,1%
66 Trade	76	0,2%	73	0,2%
68 Law, public and legal activities	1 619	3,8%	1 332	2,9%
69 Personal and operation services	12	0,0%	9	0,0%
72 Journalism, librarianship and informatics	48	0,1%	40	0,1%
75 Pedagogy, tutorship and social care	1 710	4,0%	1 299	2,9%
78 General professional preparation	328	0,8%	545	1,2%
Culture and art	1 120	2,6%	1 060	2,3%
82 Arts and applied arts	1 120	2,6%	1 060	2,3%
Total	42 428	100,0%	45 537	100,0%

Source: Institute for information on education



D.8 Graduates (with "maturita") from follow up courses by field of study (initial study)

Subject groups	2002		2001	
	number	share	number	share
Natural sciences	1 876	29,7%	209	26,2%
23 Mechanical engineering and related manufacture	504	8,0%	28	3,5%
26 Electrical engineering, telecom. and computer technology	487	7,7%	54	6,8%
28 Industrial chemistry and chemistry of silicates	16	0,3%	0	0,0%
29 Food industry and food chemistry	65	1,0%	12	1,5%
31 Manufacture of textile and clothing industry	136	2,2%	0	0,0%
33 Wood-working and manufacture of musical instruments	294	4,7%	82	10,3%
34 Printing, paper, film processing, photography	89	1,4%	15	1,9%
36 Construction, geodesy and cartography	209	3,3%	5	0,6%
37 Transport and communication	76	1,2%	13	1,6%
Agriculture, forestry and veterinary science	149	2,4%	0	0,0%
41 Agriculture and forestry	149	2,4%	0	0,0%
Social science and services	4 227	66,9%	568	71,1%
63 Economics and administration	711	11,3%	154	19,3%
64 Entrepreneurship in branches, sectors	2 653	42,0%	235	29,4%
65 Gastronomy, hotel services and tourism	493	7,8%	61	7,6%
66 Trade	303	4,8%	118	14,8%
68 Law, public and legal activities	16	0,3%	0	0,0%
69 Personal and operation services	51	0,8%	0	0,0%
Culture and art	64	1,0%	22	2,8%
82 Arts and applied arts	64	1,0%	22	2,8%
Total	6 316	100,0%	799	100,0%

Source: Institute for information on education

D.9 *Graduates from higher professional schools by field of study (initial study)*

Subject groups	2002		2001	
	number	share	number	share
Natural sciences	79	1,2%	78	1,0%
16 Ecology and environmental protection	79	1,2%	78	1,0%
Technology	698	10,6%	763	10,1%
23 Mechanical engineering and related manufacture	94	1,4%	164	2,2%
26 Electrical engineering	331	5,0%	358	4,7%
28 Industrial chemistry	13	0,2%	10	0,1%
29 Food industry	32	0,5%	50	0,7%
Manufacture of textile and clothing industry	18	0,3%	0	0,0%
32 Manufacture of leather and footwear, processing of plastics	0	0,0%	16	0,2%
33 Wood-working and manufacture of musical instruments	29	0,4%	31	0,4%
36 Construction, geodesy and cartography	90	1,4%	83	1,1%
37 Transport and communications	27	0,4%	14	0,2%
39 Special and interdisciplinary technical subjects	64	1,0%	37	0,5%
Agriculture, forestry and veterinary sciences	243	3,7%	263	3,5%
41 Agriculture and forestry	243	3,7%	263	3,5%
Health services, medicine and pharmacy	1 514	23,0%	1 814	24,0%
53 Health services	1 514	23,0%	1 814	24,0%
Social science and services	3 827	58,2%	4 402	58,3%
61 Philosophy, theology	22	0,3%	29	0,4%
63 Economics and administration	1 319	20,1%	1 713	22,7%
64 Entrepreneurship in branches, sectors	268	4,1%	395	5,2%
65 Gastronomy, hotel industry, tourism	581	8,8%	548	7,3%
66 Trade	59	0,9%	86	1,1%
68 Law, public and legal activities	593	9,0%	573	7,6%
72 Journalism, librarianship and informatics	149	2,3%	204	2,7%
75 Pedagogy, tutorship and social care	836	12,7%	854	11,3%
Culture and art	211	3,2%	227	3,0%
82 Arts and applied arts	211	3,2%	227	3,0%
Total	6 572	100,0%	7 547	100,0%

Source: Institute for information on education



D.10 Graduates from Universities by field of study and study programme (initial study)

Field of study	2002						2001										
	Total			Study programme			Total			Study programme							
				Bachelor		Master				Doctoral		Bachelor		Master	Doctoral		
	number	share		number	share		number	share		number	share		number	share			
Natural sciences	1 809	6,7%		529	8,4%		1 212	6,0%		68	25,8%		1 709	6,6%		67	30,6%
11 Mathematics	221	0,8%		52	0,8%		164	0,8%		5	1,9%		179	0,7%		8	3,7%
12 Geology	76	0,3%		27	0,4%		48	0,2%		1	0,4%		53	0,2%		2	0,9%
13 Geography	164	0,6%		73	1,2%		91	0,4%		0	0,0%		176	0,7%		4	1,8%
14 Chemistry	225	0,8%		39	0,6%		169	0,8%		17	6,4%		226	0,9%		17	7,8%
15 Biology	412	1,5%		82	1,3%		309	1,5%		21	8,0%		328	1,3%		19	8,7%
16 Ecology and environmental protection	119	0,4%		10	0,2%		103	0,5%		6	2,3%		132	0,5%		5	2,3%
17 Physics	139	0,5%		22	0,4%		102	0,5%		15	5,7%		121	0,5%		10	4,6%
18 Information technology	453	1,7%		224	3,6%		226	1,1%		3	1,1%		494	1,9%		2	0,9%
Technology	6 708	25,0%		842	13,4%		5 790	28,5%		76	28,8%		6 290	24,4%		70	32,0%
21 Mining and related geology, metallurgy	285	1,1%		60	1,0%		225	1,1%		0	0,0%		245	0,9%		2	0,9%
23 Mechanical engineering and related manufacture	1 437	5,3%		285	4,5%		1 141	5,6%		11	4,2%		1 462	5,7%		6	2,7%
26 Electrical engineering, telecom., comp.tech.	1 573	5,9%		148	2,4%		1 389	6,8%		36	13,6%		1 509	5,8%		21	9,6%
28 Industrial chemistry and chemistry of silicates	576	2,1%		35	0,6%		536	2,6%		5	1,9%		609	2,4%		9	4,1%
29 Food industry and food chemistry	225	0,8%		22	0,4%		203	1,0%		0	0,0%		191	0,7%		4	1,8%
31 Manufacture of textile and clothing industry	249	0,9%		129	2,1%		119	0,6%		1	0,4%		214	0,8%		0	0,0%
33 Wood working and manufacture of music.instr.	92	0,3%		0	0,0%		92	0,5%		0	0,0%		71	0,3%		0	0,0%
34 Printing, paper and film proces., photography	0	0,0%		0	0,0%		0	0,0%		0	0,0%		12	0,0%		0	0,0%
35 Architecture	244	0,9%		62	1,0%		181	0,9%		1	0,4%		262	1,0%		0	0,0%
36 Construction, geodesy and cartography	1 248	4,6%		24	0,4%		1 216	6,0%		8	3,0%		1 093	4,2%		13	5,9%
37 Transport and communications	316	1,2%		21	0,3%		293	1,4%		2	0,8%		270	1,0%		2	0,9%
39 Spec. and interdisciplinary technical subjects	463	1,7%		56	0,9%		395	1,9%		12	4,5%		352	1,4%		13	5,9%
Agriculture, forestry and veterinary sciences	1 019	3,8%		72	1,1%		891	4,4%		56	21,2%		1 054	4,1%		29	13,2%
41 Agriculture and forestry	923	3,4%		72	1,1%		800	3,9%		51	19,3%		957	3,7%		26	11,9%
43 Veterinary surgery and prevention	96	0,4%		0	0,0%		91	0,4%		5	1,9%		97	0,4%		3	1,4%

D.10 Completion

Field of study	2002						2001					
	Total			Study programme			Total			Study programme		
	number	share		Bachelor	Master	Doctoral	number	share		Bachelor	Master	Doctoral
				number	share	number	number	share		number	share	number
Health services, medicine and pharmacy	1 804	6,7%		364	5,8%	4	1 842	7,1%		344	5,8%	6
51 Medicine	1 000	3,7%		0	0,0%	4	1 031	4,0%		0	0,0%	4
52 Pharmacy	277	1,0%		0	0,0%	0	259	1,0%		0	0,0%	2
53 Health services	527	2,0%		364	5,8%	0	552	2,1%		344	5,8%	0
Social science and services	14 547	54,1%		4 048	64,5%	49	13 992	54,2%		3 668	61,8%	42
61 Philosophy, theology	919	3,4%		383	6,1%	6	750	2,9%		267	4,5%	3
62 Economics	6 797	25,3%		2 413	38,4%	14	6 729	26,1%		2 238	37,7%	15
67 Social science	654	2,4%		354	5,6%	5	545	2,1%		325	5,5%	0
68 Law, legal and public administration activities	1 473	5,5%		210	3,3%	2	1 377	5,3%		208	3,5%	4
71 History	246	0,9%		72	1,1%	7	199	0,8%		59	1,0%	6
72 Journalism, librarianship and IT	191	0,7%		116	1,8%	1	154	0,6%		81	1,4%	0
73 Philology	630	2,3%		245	3,9%	6	539	2,1%		194	3,3%	6
74 Physical culture and training, sports	260	1,0%		15	0,2%	2	214	0,8%		20	0,3%	4
75 Pedagogy, tutorship and social care	3 210	11,9%		220	3,5%	4	3 341	12,9%		265	4,5%	2
77 Psychology	167	0,6%		20	0,3%	2	144	0,6%		11	0,2%	2
Culture and art	919	3,4%		388	6,2%	11	846	3,3%		355	6,0%	5
81 Theory and history of art	135	0,5%		44	0,7%	8	148	0,6%		56	0,9%	4
82 Arts and applied arts	784	2,9%		344	5,5%	3	698	2,7%		299	5,0%	1
Military science	69	0,3%		36	0,6%	0	67	0,3%		39	0,7%	0
91 Theory of generalship	64	0,2%		31	0,5%	0	65	0,3%		37	0,6%	0
95 Military health services	5	0,0%		5	0,1%	0	2	0,0%		0	0,0%	0
Total	26 875	100,0%		6 279	100,0%	264	25 800	100,0%		5 938	100,0%	219

Source: Institute for information on education

D.II Graduates from tertiary education by field of study

country	Education	Humanities and arts	Social sciences, business and law	Services	Engineering, manufacturing and construction	Agriculture	Health and welfare	Life sciences	Physical sciences	Mathematics and statistics	Computing	Not known or unspecified
level A												
Austria	10,7	9,6	39,1	2,2	17,3	2,9	8,1	3,2	3,1	0,8	2,8	0,2
Czech Republic	13,1	7,1	32,9	2,3	15,5	3,8	12,5	2,2	2,2	1,0	7,3	a
Denmark	1,0	23,6	44,7	0,3	8,9	3,2	5,5	4,2	4,3	1,0	1,8	n
Finland	8,2	12,4	23,5	2,6	24,0	2,3	19,3	1,9	2,7	1,0	2,2	n
France	8,3	19,0	36,6	2,8	11,2	0,8	2,9	6,7	5,8	2,8	2,7	0,3
Germany	8,1	15,0	25,9	1,6	19,0	1,9	15,0	3,0	5,8	1,9	2,8	n
Hungary	24,4	7,1	39,5	6,0	9,8	3,6	7,3	0,5	0,7	0,1	1,0	a
Ireland	9,0	20,2	30,8	1,4	9,3	1,7	7,8	6,9	3,3	1,1	8,4	0,2
Netherlands	16,8	7,3	34,8	2,6	10,4	2,3	20,9	1,1	1,9	0,3	1,5	n
Poland	15,1	9,7	48,5	4,8	12,0	2,4	2,8	1,6	1,1	1,0	0,9	a
Slovakia	21,0	5,5	30,1	8,3	15,4	4,4	8,5	1,0	1,2	0,6	4,1	a
Spain	13,6	9,3	36,0	3,2	12,9	3,0	11,9	2,5	3,3	1,4	2,9	n
United Kingdom	10,0	15,7	28,8	n	9,9	1,1	8,3	6,0	5,0	1,3	4,2	9,8
OECD average	13,2	12,6	33,5	2,5	13,2	2,3	11,5	3,1	3,0	1,1	3,1	0,9
level B												
Austria	32,8	1,8	2,9	7,9	33,9	5,6	12,9	n	1,4	0,3	0,6	a
Czech Republic	a	8,1	35,4	8,0	6,1	2,6	35,1	a	a	a	4,7	a
Denmark	19,2	2,2	7,9	5,4	12,4	1,1	49,2	n	n	n	2,7	0,1
Finland	0,3	4,2	22,1	16,9	19,5	1,5	31,5	a	a	a	4,0	a
France	a	1,5	39,5	5,6	25,2	n	20,2	1,8	2,4	0,4	3,3	a
Germany	10,9	1,2	9,6	9,6	13,7	3,4	50,3	a	n	a	0,3	1,0
Hungary	n	n	38,9	53,5	4,2	n	n	n	n	3,4	n	a
Ireland	0,9	6,9	31,5	6,0	19,6	0,7	8,9	2,7	4,5	n	17,8	0,5
Netherlands	a	a	39,7	11,1	2,3	a	37,7	a	a	a	9,2	a
Poland	100,0	a	a	a	a	a	a	a	a	a	a	a
Slovakia	3,2	12,5	5,0	7,1	6,9	1,5	63,7	n	n	n	n	a
Spain	4,4	6,7	30,9	12,8	23,6	0,5	10,6	n	n	n	10,3	0,1
United Kingdom	6,1	7,6	22,6	n	9,2	1,6	28,4	1,6	1,5	0,3	7,1	13,9
OECD average	13,0	7,6	25,8	9,0	14,7	2,4	18,8	n	n	n	6,8	0,9

Note:

n...neglectable or zero value; a...not relevant

Source: Education at a Glance, OECD, 2002

D.12 Work status of the youth population (ages 20-24)

country	Work status			% of unemployed in education
	employed	unemployed	not in the labour force	
Netherlands	77,5%	3,5%	18,9%	50,1%
Denmark	73,8%	5,1%	21,0%	66,4%
Ireland	69,8%	3,6%	26,6%	9,7%
UK	68,0%	7,0%	25,0%	20,0%
Austria	66,0%	4,2%	29,8%	11,1%
Germany	66,0%	6,1%	27,9%	4,8%
Czech Republic	60,4%	10,2%	29,4%	1,2%
Hungary	50,4%	6,6%	42,9%	7,6%
Finland	49,9%	13,2%	37,0%	42,9%
Slovakia	49,1%	20,2%	30,6%	0,4%
Spain	46,0%	15,2%	38,7%	29,0%
France	40,7%	10,5%	48,8%	10,1%
Poland	38,2%	23,0%	38,8%	10,4%
OECD average	58,4%	8,7%	32,9%	17,8%

Source: Education at a Glance, OECD, 2002

D.13 Ratios of young adults^{a)} to prime-age adults^{b)} unemployment rates in selected OECD countries

country	young adults unemployment rate/ prime adults unemployment rate					
	1983	1989	1990	1993	1999	2000
Netherlands	1,8	1,4	1,3	1,7	1,4	1,4
Denmark	2,2	1,8	1,7	1,8	2,5	1,6
Ireland	1,3	1,2	1,1	1,6	1,4	1,2
UK	..	1,6	1,6	1,9	2	2,1
Austria	..	..	..	..	1,2	1,4
Germany	1,7	1	0,9	1,1	1,1	1,1
Czech Republic	..	..	..	1,8	1,8	1,8
Hungary	..	..	..	1,6	1,7	1,8
Finland	2,1	2,7	3,1	2,1	2	2,1
Slovakia	..	..	..	..	1,9	1,8
Spain	2,8	2,3	2,3	2	1,9	1,9
France	3	2,3	2,4	2,5	2,5	2,2
Poland	..	..	..	2,3	2,7	2,5
OECD average	2,3	2,3	2,2	2	2,1	2,1

Note: a) young adults refer to persons aged 20 to 24

b) prime age adults refer to persons aged 25 to 54

.. Data not available

Source: Employment Outlook, OECD, 2002



D.14 Graduates from secondary vocational schools (without "maturita") - unemployed and the rate of unemployment

Subject group	April 2002		April 2001	
	number	rate	number	rate
Technology	11 540	24,5%	9 826	34,9%
21 Mining and related geology, metallurgy	34	19,4%	34	37,0%
23 Mechanical engineering and related manufacture	3 840	24,0%	3 157	33,9%
26 Electrical engineering	1 451	20,1%	1 189	30,7%
28 Industrial chemistry	243	25,2%	265	47,4%
29 Food industry	733	19,2%	544	26,4%
31 Manufacture of textile and clothing industry	872	24,4%	766	32,9%
32 Manufacture of leather and footwear, processing of plastics	52	42,6%	83	81,4%
33 Wood-working and manufacture of musical instruments	1 521	23,9%	1 115	30,4%
34 Printing, paper, film processing, photography	135	15,3%	105	19,9%
36 Construction, geodesy and cartography	2 615	34,0%	2 522	46,2%
37 Transport and communications	44	21,3%	46	35,9%
Agriculture, forestry and veterinary sciences	1 541	26,1%	1 197	34,1%
41 Agriculture and forestry	1 541	26,1%	1 197	34,1%
Social science and services	7 181	22,0%	5 837	29,4%
63 Economics and administration	597	21,6%	595	31,6%
65 Gastronomy, hotel services and tourism	3 821	23,3%	2 939	28,7%
66 Trade	1 393	18,9%	1 294	29,6%
69 Personal and operation services	1 367	22,4%	985	29,2%
Culture and art	78	13,9%	39	13,0%
82 Arts and applied arts	78	13,9%	39	13,0%
Total	20 470	23,8%	16 936	32,7%

Source: Festová, Vojtěch (2002)

D.15 Graduates from secondary vocational schools (with "maturita") - number of unemployed and unemployment rate

Subject group	April 2002		April 2001	
	number	rate	number	rate
Technology	1 853	27,6%	2 308	20,9%
21 Mining and related geology, metallurgy	4	21,1%	1	5,3%
23 Mechanical engineering and related manufacture	379	30,9%	563	25,5%
26 Electrical engineering	868	28,6%	830	22,6%
28 Industrial chemistry	45	36,6%	41	23,7%
29 Food industry	31	21,7%	42	13,7%
31 Manufacture of textile and clothing industry	99	19,0%	144	11,8%
33 Wood-working and manufacture of musical instruments	146	22,6%	259	18,5%
34 Printing, paper, film processing, photography	14	10,4%	13	5,9%
36 Construction, geodesy and cartography	135	40,1%	292	31,1%
37 Transport and communications	129	24,1%	115	13,2%
Agriculture, forestry and veterinary sciences	88	36,8%	154	27,2%
41 Agriculture and forestry	88	36,8%	154	27,2%
Social science and services	2 203	23,5%	3 613	17,8%
63 Economics and administration	319	22,1%	549	20,0%
64 Entrepreneurship in branches, sectors	1 032	23,9%	1 754	17,0%
65 Gastronomy, hotel services and tourism	308	24,8%	389	17,9%
66 Trade	488	20,9%	867	17,7%
68 Law, public and legal activities	16	64,0%	15	28,8%
69 Personal and operation services	38	118,8%	29	21,0%
Culture and art	54	20,8%	30	10,6%
82 Arts and applied arts	54	20,8%	30	10,6%
Total	4 234	25,5%	6 108	19,0%

Source: Festová, Vojtěch (2002)

D.16 Graduates from secondary professional schools (with "maturita") - number of unemployed and the unemployment rate

Subject group	April 2002		April 2001	
	number	rate	number	rate
Natural sciences	79	27,1%	45	20,9%
16 Ecology and environmental protection	79	27,1%	45	20,9%
Technology	3 207	23,1%	2 763	20,7%
21 Mining and related geology, metallurgy	29	39,2%	51	33,1%
23 Mechanical engineering and related manufacture	690	24,7%	556	21,9%
26 Electrical engineering	940	21,9%	784	21,4%
28 Industrial chemistry	137	27,7%	127	21,9%
29 Food industry	52	22,0%	63	21,9%
31 Manufacture of textile and clothing industry	139	20,4%	155	16,2%
32 Manufacture of leather and footwear, processing of plastics	21	22,1%	18	22,2%
33 Wood-working and manufacture of musical instruments	75	30,6%	82	25,9%
34 Printing, paper, film processing, photography	37	22,3%	26	21,7%
36 Construction, geodesy and cartography	848	22,1%	697	18,4%
37 Transport and communications	168	24,1%	182	33,3%
39 Special and interdisciplinary technical subjects	71	25,3%	22	6,6%
Agriculture, forestry and veterinary sciences	678	26,6%	570	18,9%
41 Agriculture and forestry	637	26,8%	527	18,7%
43 Veterinary surgery and prevention	41	23,7%	43	22,5%
Health services, medicine and pharmacy	230	5,2%	245	5,2%
53 Health services	230	5,2%	245	5,2%
Social science and services	7 195	21,2%	5 812	15,3%
63 Economics and administration	2 977	16,0%	2 627	14,2%
64 Entrepreneurship in branches, sectors	2 306	28,1%	1 376	14,6%
65 Gastronomy, hotel services and tourism	668	29,3%	464	14,3%
68 Law, public and legal activities	416	29,3%	200	24,2%
72 Journalism, librarianship and informatics	11	18,6%	22	13,4%
75 Pedagogy, tutorship and social care	266	18,7%	160	14,9%
78 General professional preparation	499	60,4%	875	18,7%
Culture and art	352	22,0%	231	14,6%
82 Arts and applied arts	352	22,0%	231	14,6%
Total	11 810	20,8%	9 666	15,9%

Source: Festová, Vojtěch (2002)



D.17 *Graduates from higher professional schools - number of unemployed and the unemployment rate*

Subject group	April 2002		April 2001	
	number	rate	number	rate
Natural sciences	27	15,9%	21	12,8%
16 Ecology and environmental protection	27	15,9%	21	12,8%
Technology	317	21,0%	226	16,2%
23 Mechanical engineering and related manufacture	73	27,5%	44	21,3%
26 Electrical engineering	143	19,1%	102	14,8%
29 Food industry	22	19,8%	17	16,8%
33 Wood-working and manufacture of musical instruments	6	9,7%	6	10,3%
36 Construction, geodesy and cartography	41	23,7%	37	23,3%
37 Transport and communications	6	24,0%	9	10,3%
39 Special and interdisciplinary technical subjects	10	14,1%	3	4,3%
Agriculture, forestry and veterinary sciences	101	20,7%	69	17,2%
41 Agriculture and forestry	101	20,7%	69	17,2%
Health services, medicine and pharmacy	104	2,8%	71	2,2%
53 Health services	104	2,8%	71	2,2%
Social science and services	920	10,5%	703	8,7%
63 Economics and administration	458	12,4%	342	9,0%
64 Entrepreneurship in branches, sectors	68	9,3%	63	11,1%
65 Gastronomy, hotel industry, tourism	101	9,1%	53	5,7%
66 Trade	28	15,8%	25	14,4%
68 Law, public and legal activities	123	13,1%	77	11,1%
72 Journalism, librarianship and informatics	25	7,3%	25	10,6%
75 Pedagogy, tutorship and social care	108	6,2%	112	6,7%
Culture and art	84	7,0%	63	5,0%
82 Arts and applied arts	84	7,0%	63	5,0%
Total	1 561	9,9%	1 153	8,0%

Source: Festová, Vojtěch (2002)

D.18 Graduates from universities - number of unemployed and unemployment rate

Subject group	April 2002		April 2001	
	number	rate	number	rate
Natural sciences	202	6,1%	135	4,6%
11 Mathematics	37	10,4%	21	6,9%
12 Geology	10	9,9%	8	8,0%
13 Geography	25	7,5%	18	6,3%
14 Chemistry	13	3,1%	21	5,8%
15 Biology	39	5,4%	25	6,4%
16 Ecology and environmental protection	20	8,0%	36	14,3%
17 Physics	8	3,7%	6	3,4%
18 Information technology	50	5,5%	?	?
Technology	1 041	8,7%	809	7,0%
21 Mining and related geology, metallurgy	83	16,5%	59	11,6%
23 Mechanical engineering and related manufacture	252	8,8%	188	6,6%
26 Electrical engineering, telecom., comp.tech.	262	9,4%	183	7,0%
28 Industrial chemistry and chemistry of silicates	59	5,4%	31	3,4%
29 Food industry and food chemistry	26	6,8%	22	6,6%
31 Manufacture of textile and clothing industry	40	10,7%	31	8,4%
33 Wood working and manufacture of music.instr.	28	19,0%	18	14,0%
34 Printing, paper and film proces., photography	1	5,9%	1	11,1%
35 Architecture	25	5,1%	23	4,9%
36 Construction, geodesy and cartography	154	7,1%	141	6,2%
37 Transport and communications	71	16,2%	53	10,8%
39 Spec. and interdisciplinary technical subjects	40	6,0%	59	9,0%
Agriculture, forestry and veterinary sciences	252	12,2%	217	11,0%
41 Agriculture and forestry	235	12,5%	205	11,7%
43 Veterinary surgery and prevention	17	8,7%	12	5,5%
Health services, medicine and pharmacy	96	2,9%	85	2,6%
51 Medicine	58	3,2%	55	2,9%
52 Pharmacy	4	0,8%	1	0,2%
53 Health services	34	3,4%	29	3,5%
Social science and services	1 451	5,3%	1 125	4,2%
61 Philosophy, theology	87	6,2%	64	5,1%
62 Economics	774	5,8%	579	4,4%
67 Social science	47	4,6%	25	2,7%
68 Law, legal and public administration activities	68	2,5%	69	2,6%
71 History	43	11,8%	36	10,3%
72 Journalism, librarianship and IT	10	3,4%	11	3,8%
73 Philology	47	4,8%	31	3,2%
74 Physical culture and training, sports	41	10,2%	21	5,5%
75 Pedagogy, tutorship and social care	317	4,7%	263	3,9%
77 Psychology	17	5,8%	26	11,6%
Culture and art	56	4,1%	50	4,4%
81 Theory and history of art	8	3,3%	13	6,1%
82 Arts and applied arts	48	4,3%	37	4,0%
Total	3 212	6,3%	2 435	5,1%

Note: ? = not available data
Source: Festová, Vojtěch (2002)



D.19 Public expenditure and participant inflows in labour market programmes in several OECD countries

Programme categories	NL, 2001		DK, 2000		UK, 1999-2000		A, 2001		D, 2001		CZ, 2001		HU, 2001		FIN, 2001		S, 2001		E, 2000		PL, 2001	
	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
1. Public employment services and administration	0,26		0,12		0,13		0,14		0,23		0,08		0,11		0,12		0,09		0,18		na	
2. Labour market training	0,31	3,80	0,85	15,9	0,05	0,51	0,20	3,29	0,34	1,22	0,02	0,68	0,07	1,62	0,29	2,76	0,14	14,57	0,25	2,41	0,01	0,27
a) Training for unemployed adults and those at risk	0,24	1,37	0,67	5,76	0,04	0,45	0,18	-	0,34	1,22	0,02	0,68	0,07	1,56	0,26	2,58	0,01	1,55	0,22	1,86	0,01	0,27
3. Youth measures	0,04	0,64	0,10	1,83	0,15	1,02	0,03	0,12	0,09	na	0,02	0,19	-	-	0,16	1,52	0,06	0,08	0,42	2,82	0,08	na
a) Measures for unemployed and disadvantaged youth	-	-	0,10	1,83	-	-	0,01	-	0,08	0,66	0,02	0,19	-	-	0,06	0,74	0,04	0,08	0,24	0,56	0,03	na
4. Subsidised employment	0,38	1,78	0,17	0,82	0,01	-	0,11	0,79	0,25	1,04	0,09	0,80	0,29	5,09	0,29	1,99	0,40	1,58	0,37	3,11	0,05	0,41
a) Subsidies to regular employment in the private sector	0,05	1,40	0,02	0,2	0,01	-	0,06	-	0,03	0,12	0,04	0,33	0,09	1,15	0,15	0,85	0,25	-	0,18	1,66	0,02	0,23
b) Support of unemployed persons starting enterprises	-	-	-	-	-	-	0,02	-	0,04	0,24	0,01	0,09	0,01	0,24	0,03	0,19	0,05	0,18	-	0,16	0,01	-
c) Direct job creation (public or non-profit)	0,33	0,38	0,15	0,62	-	-	0,03	-	0,19	0,68	0,04	0,39	0,19	3,71	0,12	0,95	0,06	1,40	0,18	1,24	0,02	0,17
5. Measures for the disabled	0,58	0,99	0,33	2,58	0,02	0,18	0,06	x	0,29	0,3	0,01	-	-	-	0,09	0,88	0,03	0,24	0,09	0,45	na	na
6. Unemployment compensation	1,92	4,03	1,35	19,61	0,56	10,22	1,01	18,98	1,90	-	0,24	na	0,37	7,14	1,52	na	1,33	1,46	1,38	6,38	1,00	5,28
7. Early retirement for labour market reasons	-	-	1,65	0,98	-	-	0,06	1,00	0,02	-	-	-	0,01	-	0,5	na	x	na	0,27	0,25	-	-
Total	3,44	11,23	4,56	41,72	0,92	11,96	1,60	24,18	3,13	na	0,46	na	0,85	13,85	2,96	na	2,06	17,93	2,96	15,42	na	na
Active measures (1-5)	1,58	7,20	1,56	21,13	0,36	1,74	0,53	4,21	1,20	na	0,21	1,69	0,47	6,71	0,95	7,16	0,73	16,47	1,31	8,78	na	na
Passive measures (6 - 7)	1,86	4,03	3,00	20,59	0,56	10,22	1,07	19,98	1,92	-	0,24	na	0,38	7,14	2,02	na	1,33	1,46	1,65	6,64	1,00	5,28

Note: E = public expenditure as a percentage of GDP; P = participant inflows as a percentage of the labour force
Source: Employment Outlook, OECD, 2002

E.1 Proportion of training enterprises, 1999 (%)

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	B	DK	D	E	F	IRL	I	NL	A	P	FIN	S	EU-15
10 – 49	62	58	32	37	49	36	35	66	95	71	31	70	75	20	85	68	17	78	88	56
50 – 249	84	85	51	60	70	52	72	93	98	87	58	93	98	48	96	91	46	97	99	81
250 +	96	96	79	80	91	63	96	100	100	98	86	98	100	81	98	96	78	99	99	96
Average	69	63	37	43	53	39	48	70	96	75	36	76	79	24	88	72	22	82	91	62

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p. 49, 58

E.2 Training enterprises with/without "new technologies" as a proportion of all enterprises with/without "new technologies", 1999 (%)

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	B	DK	D	E	F	IRL	I	NL	P	FIN	S	EU-15
Enterprises with new technologies																			
10 – 49	80	75	47	72	63	56	53	83	97	85	42	78	92	36	96	36	94	94	
50 – 249	91	89	65	84	73	60	85	96	100	95	67	97	99	57	98	65	98	100	
250 +	98	98	85	94	92	72	99	100	100	99	90	100	100	88	99	86	99	100	
Average	84	79	54	76	69	58	69	86	98	88	47	85	93	41	97	45	95	96	
Enterprises without new technologies																			
10 – 49	54	52	28	41	31	29	29	60	95	62	21	68	52	15	81	11	66	86	
50 – 249	78	82	44	60	52	46	61	91	97	77	45	91	98	39	94	34	94	99	
250 +	93	92	74	83	62	51	91	100	100	97	76	97	98	71	96	66	96	99	
Average	60	56	32	44	35	31	38	64	95	100	24	73	57	17	84	14	70	88	

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p. 49, 58, 62

E.3 Types of training undertaken, 1999 (% of enterprises agreeing)

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	B	DK	D	E	IRL	I	NL	P	FIN	S	EU-15
Continued vocational training in work situation																		
10 – 49	43	39	52	36	58	57	42	80	50	72	52	95	64	70	67	48	60	68
50 – 249	54	54	54	38	67	46	62	91	67	84	61	94	72	74	72	68	75	78
250 +	76	70	70	62	85	69	71	96	95	81	72	100	84	84	77	87	83	82
Average	49	43	54	38	61	56	53	83	55	75	55	95	67	72	69	55	64	71
Continued training at conferences, workshops, lectures and seminars																		
10 – 49	81	85	69	78	74	66	92	42	75	83	48	96	68	67	58	78	67	65
50 – 249	89	87	78	90	81	89	94	64	89	89	61	83	79	81	68	90	81	76
250 +	94	91	86	94	89	100	92	85	99	95	72	96	90	86	80	99	94	88
Average	84	86	72	83	77	72	93	47	78	85	52	73	72	72	63	82	71	69
Job rotation, exchanges																		
10 – 49	6	18	14	4	6	37	10	42	28	5	33	47	56	16	19	26	40	29
50 – 249	11	22	15	5	12	24	25	40	35	7	36	48	63	23	24	32	55	32
250 +	18	41	25	14	17	27	35	59	73	18	38	66	72	41	30	59	68	46
Average	8	20	15	5	8	34	19	43	32	6	34	48	58	19	21	29	45	30
Learning/quality circles																		
10 – 49	6	14	9	11	12	4	12	25	24	12	32	19	20	19	19	20	15	21
50 – 249	15	27	14	8	18	3	44	36	46	22	37	33	21	26	28	25	23	29
250 +	23	43	25	15	27	11	61	54	68	39	43	42	21	31	33	45	41	38
Average	10	17	12	10	14	4	31	28	30	16	33	22	21	22	23	23	18	23
Self-learning																		
10 – 49	26	25	18	17	26	21	24	19	72	17	29	23	6	40	12	53	33	26
50 – 249	35	29	21	17	32	18	21	27	82	23	28	28	5	53	8	58	43	33
250 +	45	37	30	27	48	23	24	52	93	32	39	61	11	64	18	82	73	48
Average	30	26	20	18	28	20	23	22	75	19	29	25	6	45	11	55	37	29

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p. 59



E.4 Enterprises providing external or internal courses as a percentage of all enterprises providing CVT courses, 1999 (%)

	CZ	EE	LT	LV	SI	PL	HU	A	NL	DK	FIN	B	E	S	D	IRL	P
External	94	97	99	97	94	92	88	97	97	95	95	93	92	91	91	88	81
Internal	37	28	14	19	48	36	36	57	32	55	47	42	33	63	59	58	55

Source: K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3 – 2/2002, Eurostat 2002; K. Nestler, E. Kailis: Continuing vocational training in enterprises in the EU and Norway, Statistics in focus, Theme 3 – 3/2002, Eurostat 2002

E.5 Proportion of enterprises providing internal CVT courses, 1999 (%)

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	B	DK	D	E	F	IRL	I	NL	A	P	FIN	S	EU-15
10 – 49	30	22	30	8	15	33	31	38	47	53	40	42	51	60	26	52	48	41	56	50
50 – 249	44	40	39	16	23	36	57	51	80	74	39	56	79	75	45	68	58	55	79	68
250 +	75	77	71	42	48	63	71	73	99	85	47	87	95	87	72	89	83	92	97	86
Average	37	28	36	14	19	36	48	42	55	59	44	49	58	64	32	57	55	47	63	56

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p. 49, 58

E.6 Hours and rate of participation in CVT courses (only training enterprises), 1999

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	B	DK	D	E	F	IRL	I	NL	A	P	FIN	S	EU-15
Proportion of employees participating in CVT courses (%)																				
10 – 49	42	27	32	23	31	31	50	4	56	39	40	34	47	46	46	35	44	53	61	43
50 – 249	42	25	22	15	22	28	35	46	52	33	39	41	49	41	45	31	41	45	54	42
250 +	53	30	26	22	24	37	50	62	55	37	47	59	59	50	43	38	47	58	67	49
Average	49	28	26	20	25	33	46	54	55	36	44	51	52	47	44	35	45	54	63	47
Average hours spent in CVT courses per participant (hours)																				
10 – 49	26	31	45	48	39	34	43	36	38	23	54	33	48	38	29	28	37	43	30	33
50 – 249	24	26	38	39	33	27	24	32	44	31	41	29	36	33	35	26	38	34	26	32
250 +	25	35	36	41	32	26	23	29	41	27	40	39	39	30	42	31	39	34	32	30
Average	25	31	38	41	34	28	24	31	41	27	42	36	40	32	37	29	38	36	31	31

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p. 49, 58

E.7 Rate of participation in CVT courses by size class, 1999 (%)

Size class ¹	CZ	EE	HU	PL	LV	LT	SI	B	DK	D	E	IRL	NL	A	P	FIN	S
10 – 49	42	27	32	31	31	23	50	45	56	39	40	47	46	35	44	53	61
50 – 249	42	25	22	28	22	15	35	46	52	33	39	49	45	31	41	45	54
250 +	53	30	26	37	24	22	50	60	55	37	47	59	43	38	47	58	6

¹number of employees

Source: K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3 – 2/2002, Eurostat 2002; K. Nestler, E. Kailis: Continuing vocational training in enterprises in the EU and Norway, Statistics in focus, Theme 3 – 3/2002, Eurostat 2002

E.8 Proportion of employees in all enterprises with/without "new technologies" participating in CVT courses, 1999 (%)

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	B	DK	D	E	F	IRL	I	NL	A	P	FIN	S	UK
Enterprises with new technologies																				
10 – 49	32	19	12	15	9	17	23	32	46	36	14	29	33	18	43	40	10	47	60	52
50 – 249	42	21	13	14	9	18	33	43	56	32	25	45	47	24	48	34	18	47	57	53
250 +	55	34	23	22	20	32	56	63	54	36	45	62	58	49	47	40	40	58	71	56
Average	49	27	19	19	16	25	47	53	53	36	32	54	47	37	47	38	29	55	67	55
Enterprises without new technologies																				
10 – 49	20	9	5	5	3	5	9	16	48	18	6	22	18	7	34	25	2	32	46	39
50 – 249	27	17	6	6	4	10	10	36	48	21	12	35	23	16	37	25	7	31	51	43
250 +	45	13	13	10	8	16	24	49	56	20	31	57	50	33	33	29	20	46	61	45
Average	32	12	8	6	4	9	14	29	53	23	14	43	23	15	35	26	7	35	54	41

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p.49, 59

E.9 Hours in CVT courses per participant

CZ	LT	HU	LV	EE	PL	SI	E	DK	IRL	P	NL	FIN	B	S	A	D
25	41	38	34	31	28	24	42	41	40	38	37	36	31	31	29	27

Source: K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3 – 2/2002, Eurostat 2002; K. Nestler, E. Kailis: Continuing vocational training in enterprises in the EU and Norway, Statistics in focus, Theme 3 – 3/2002, Eurostat 2002

E.10 Average hours spent in CVT courses per employee in enterprises with/without "new technologies", 1999 (units)

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	B	DK	D	E	IRL	I	NL	P	FIN	S
Enterprises with new technologies																	
10 – 49	9	7	6	5	4	5	13	12	18	8	8	10	7	19	4	24	22
50 – 249	11	5	6	5	4	5	7	15	26	10	10	14	8	19	7	17	16
250 +	15	12	8	7	8	8	11	20	15	10	18	21	15	21	16	21	24
Average	13	9	7	6	6	6	10	17	16	10	13	18	12	20	11	20	23
Enterprises without new technologies																	
10 – 49	5	2	2	2	1	2	2	5	18	4	3	7	3	9	1	9	12
50 – 249	6	5	2	2	1	2	3	11	21	6	5	10	6	12	3	8	13
250 +	9	4	5	2	4	5	8	12	29	8	11	24	9	11	7	15	17
Average	7	3	3	2	2	3	5	8	25	6	6	16	5	10	3	10	14

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p.52, 61



E.II Hours spent in CVT courses by field of training, 1999 (% of total hours in CVT courses)

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	B	DK	D	E	IRL	I	NL	P	FIN	S	EU-15
Accounting, finance																		
10 – 49	12	16	14	14	16	11	8	4	6	12	4	3	5	7	9	9	7	7
50 – 249	10	8	15	17	13	8	12	4	3	5	3	4	7	7	2	3	6	6
250 +	6	14	9	6	9	3	6	8	3	2	7	3	5	21	2	4	10	5
Average	7	13	11	9	11	6	7	6	4	4	5	4	5	15	3	5	8	5
Computer science/computer use																		
10 – 49	9	5	11	8	12	13	8	23	17	21	17	13	14	18	13	17	32	23
50 – 249	9	7	11	5	6	9	11	20	21	24	17	19	19	20	9	21	27	20
250 +	11	5	14	9	14	5	11	15	12	20	15	19	10	16	10	14	20	15
Average	11	5	13	8	12	8	10	17	15	21	16	17	13	17	10	16	23	17
Engineering and manufacturing																		
10 – 49	6	22	14	20	10	16	33	13	9	13	17	15	15	29	19	10	9	13
50 – 249	10	19	16	21	29	23	23	17	9	10	12	15	12	19	26	18	13	14
250 +	15	17	27	24	24	26	21	14	15	11	14	18	10	13	18	15	17	17
Average	13	19	22	23	22	23	23	16	13	11	14	16	1	17	20	14	15	16
Environment protection, occupational health and safety																		
10 – 49	11	4	5	3	6	1	5	10	4	6	11	34	13	16	3	4	7	10
50 – 249	11	6	5	6	4	3	9	9	4	4	9	20	12	12	7	4	6	9
250 +	5	2	7	7	6	2	7	9	2	3	8	9	8	9	4	5	7	9
Average	7	4	6	6	5	2	7	9	3	4	8	20	10	11	4	4	7	9
Languages																		
10 – 49	12	7	8	3	8	4	10	7	5	8	5	6	7	5	7	9	7	3
50 – 249	16	10	8	8	8	6	12	9	6	10	7	8	6	9	8	8	9	5
250 +	13	6	7	18	12	8	12	12	4	11	7	12	7	9	7	12	11	4
Average	14	7	7	14	10	6	12	11	5	10	6	9	7	8	7	11	10	4
Management and administration																		
10 – 49	6	9	5	16	9	4	4	3	2	2	11	0	4	1	2	3	1	7
50 – 249	7	13	6	8	8	4	5	5	3	6	20	0	8	2	5	5	2	9
250 +	8	6	5	7	9	7	6	4	3	8	13	2	8	2	4	6	4	12
Average	8	8	5	8	9	5	5	4	3	7	14	1	7	2	4	5	3	11
Office work																		
10 – 49	1	1	1	1	2	2	0	2	2	2	1	3	3	1	3	3	1	2
50 – 249	1	2	2	1	3	1	1	3	1	2	1	2	4	1	1	2	1	3
250 +	1	0	2	1	2	1	2	2	3	1	2	1	3	1	1	3	1	2
Average	1	1	2	1	2	1	1	2	2	1	2	2	3	1	1	3	1	2
Personal skills/development																		
10 – 49	7	6	2	2	3	13	12	10	9	7	6	4	14	9	4	16	11	10
50 – 249	7	4	5	5	6	9	10	11	8	7	10	12	13	16	10	18	16	11
250 +	9	18	4	8	7	33	17	12	9	10	10	12	18	13	14	14	13	12
Average	8	12	4	6	6	22	15	12	9	9	9	10	16	13	12	15	14	12
Sales and marketing																		
10 – 49	8	15	14	3	12	10	8	10	7	12	8	15	6	8	14	14	13	10
50 – 249	6	21	11	6	10	11	11	8	11	11	10	4	7	8	12	10	11	8
250 +	7	8	8	3	5	3	5	9	4	11	10	5	9	8	8	1	7	9
Average	7	12	9	4	8	7	6	9	6	11	10	8	8	8	9	12	9	9
Other																		
10 – 49	28	15	26	30	22	26	12	15	39	17	20	7	19	6	26	15	12	15
50 – 249	23	10	21	23	13	26	6	15	34	21	11	16	12	6	20	11	9	15
250 +	25	24	17	17	12	12	13	15	45	23	14	19	22	8	32	16	10	15
Average	24	19	21	21	15	20	14	15	40	22	16	13	20	8	30	15	10	15

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p. 51, 60

E.12 Costs of CVT courses as a percentage in total labour costs in 1999 (%)

Size class (number of employees)	CZ	E	P	EL	EE	HU	LT	LV	PL	SI	EU-15
10-19	1,1	0,5	0,2	0,2	1,7	0,9	0,3	0,9	0,4	1,0	1,5
20-49	1,1	0,7	0,4	0,3	1,5	1,2	0,4	1,5	0,7	0,8	1,4
50-249	1,6	1,1	0,8	1,4	2,3	1,0	0,5	0,8	0,6	0,9	2,4
250-499	2,6	1,9	1,2	1,0	1,3	1,2	0,7	1,3	0,6	1,0	2,3
500-999	1,7	2,1	3,2	0,7	1,5	1,1	0,7	1,1	1,2	2,0	2,7
1000+	2,4	2,1	2,0	1,0	1,8	1,5	1,6	1,4	1,7	1,8	2,5
Total	1,9*	1,5	1,2	0,9	1,8	1,2	0,8	1,1	0,8	1,3	2,3

Note: * CSO reports the value 1,13 % for CZ

Source: EUROSTAT (2002), p. 149

E.13 Non-training enterprises by reason for not providing CVT in 1999 (%)

	CZ	EE	HU	LV	LT	PL	SI	B	DK	D	E	IRL	NL	A	P	FIN	S
Existing skills of employees correspond to needs of enterprise																	
	86	69	83	79	54	82	60	75	77	79	78	89	72	64	68	71	66
Recruited people with the required skills																	
	48	54	70	42	50	27	59	42	74	21	27	77	58	9	43	54	39
CVT cost are too high																	
	14	41	22	16	45	37	22	12	16	28	12	0	8	12	15	16	24
Initial training is sufficient																	
	12	30	39	13	1	36	27	40	58	28	27	36	8	8	2	22	19
Employee workload																	
	6	17	12	9	5	14	16	24	32	28	25	18	14	28	19	27	17
Other reasons																	
	5	5	4	6	4	2	13	7	10	4	10	8	13	22	11	10	8

Source: K. Nestler, E. Kailis: First survey of continuing vocational training in enterprises in candidate countries, Statistics in focus, Theme 3 – 2/2002, Eurostat 2002; K. Nestler, E. Kailis: Continuing vocational training in enterprises in the EU and Norway, Statistics in focus, Theme 3 – 3/2002, Eurostat 2002

E.14 Enterprises assessing their future manpower and training requirements, 1999 (% of all enterprises)

Size class ¹	CZ	EE	HU	LT	LV	PL	SI	DK	D	E	F	IRL	I	NL	P	FIN	S	UK	EU-15
Proportion of enterprises assessing their future manpower and/or skill needs																			
10 – 49	48	55	12	58	41	42	47	72	22	65	27	60	42	23	69	57	55	65	44
50 – 249	58	58	31	63	46	48	65	78	49	71	36	74	53	37	72	71	61	77	58
250 +	72	80	58	81	57	77	62	91	58	85	49	81	68	53	79	89	7	79	68
Average	52	56	20	61	43	45	56	74	30	67	30	63	45	27	71	61	57	68	49
Proportion of enterprises assessing individuals' needs for training, skills and qualifications																			
10 – 49	29	36	18	34	13	33	40	39	27	54	26	59	8	34	39	57	46	69	42
50 – 249	33	31	23	24	10	32	50	59	36	62	39	61	13	47	42	71	60	84	52
250 +	39	47	43	32	9	58	51	84	44	76	51	64	7	64	53	89	74	76	59
Average	30	36	21	31	12	34	45	45	29	57	31	60	9	38	41	61	50	72	45

¹number of employees

Source: Creating an Entrepreneurial Europe. The Activities of the European Union for Small and Medium-sized Enterprises (SMEs). Brussels, EC (2002), p. 50, 60

E.15 Number of trained workers by status in employment¹⁾, branch of activity²⁾ and job classification³⁾ (year average, 2002, thousand persons)

Status in employment, branch of activity and job classification	Total	Male	Female
Total	295,2	153,6	141,6
Status in employment: Employer	13,8	9,4	4,4
Own account workers	32,5	20,5	12,0
Employees	246,8	123,4	123,5
Members of producers cooperatives	0,5	0,4	0,2
Family workers	1,3	-	1,3
Branch: Agriculture, hunting	2,4	1,5	0,8
Forestry, fishing	1,6	1,3	0,2
Mining and quarrying	1,4	1,4	0,0
Manufacturing	46,3	30,4	16,0
Electricity, gas and water supply	7,1	5,1	2,0
Construction	13,4	10,7	2,7
Trade, repairs of motor vehicles and consumer goods	30,7	15,2	15,6
Hotels and restaurants	4,5	1,6	2,9
Transport, storage and communications	19,0	13,5	5,5
Financial intermediation	14,5	6,5	7,9
Real estate, renting and business activities	31,7	17,1	14,5
Public admin. and defence, compulsory social security	34,5	18,5	15,9
Education	45,5	13,6	31,9
Health and social work	26,3	8,9	17,3
Other community, social and personal services	14,6	7,9	6,7
Job classification: Armed forces	1,9	1,9	-
Legislators, senior officials and managers	32,2	22,7	9,5
Professionals	84,5	40,3	44,2
Technicians and associate professionals	88,4	40,7	47,7
Clerks	28,4	6,3	22,1
Service workers and shop and market sales workers	23,4	11,7	11,6
Skilled agricultural and forestry workers	0,8	0,7	0,1
Craft and related trades workers	17,0	15,4	1,6
Plant and machine operators and assemblers	13,6	11,8	1,8
Elementary occupations	4,8	1,9	2,8

Notes: 1) status in employment by CZ-ISCE

2) branch of activity by CZ-NACE

3) job classification by CZ-ISCO-88

Source: CSO – Labour Force Survey

E.16 Specific rate of CVT participation by status in employment ¹⁾, branch of activity ²⁾ and job classification ³⁾ in 2002 (year average, %)

Status in employment, branch of activity and job classification	Total	Male	Female
Total	295,2	153,6	141,6
Status in employment: Employer	6,4	5,9	7,1
Own account workers	7,3	6,4	10,5
Employees	6,3	5,4	8,5
Members of producers cooperatives	6,4	6,0	7,0
Family workers	1,6	1,7	1,4
Branch: Agriculture, hunting	4,9	0,0	5,7
Forestry, fishing	1,4	1,3	1,4
Mining and quarrying	3,7	3,9	3,1
Manufacturing	2,3	2,7	0,2
Electricity, gas and water supply	3,6	3,8	3,3
Construction	8,6	8,2	9,9
Trade, repairs of motor vehicles and consumer goods	3,2	2,8	7,5
Hotels and restaurants	5,1	5,4	4,9
Transport, storage and communications	2,8	2,2	3,2
Financial intermediation	5,2	5,3	5,1
Real estate, renting and business activities	15,5	16,8	14,6
Public admin. and defence, compulsory social security	12,5	12,4	12,7
Education	11,8	11,8	11,8
Health and social work	15,6	19,4	14,5
Other community, social and personal services	9,0	14,6	7,6
Job classification: Armed forces	8,7	9,9	7,5
Legislators, senior officials and managers	14,7	15,8	0,0
Professionals	10,7	10,2	12,2
Technicians and associate professionals	18,2	17,7	18,6
Clerks	9,9	9,4	10,3
Service workers and shop and market sales workers	7,2	7,2	7,2
Skilled agricultural and forestry workers	4,1	5,9	3,1
Craft and related trades workers	0,9	1,4	0,2
Plant and machine operators and assemblers	1,8	1,9	1,2
Elementary occupations	2,2	2,5	1,2

Notes: 1) status in employment by CZ-ISCE

2) branch of activity by CZ-NACE

3) job classification by CZ-ISCO-88

Source: CSO – Labour Force Survey

E.17 Specific rate of CVT participation by branch¹⁾ (CZ-NACE) and job classification (CZ-ISCO-88) in 2002 (year average, %)

Total	Armed forces	Legislators, senior officials and managers	Professionals	Technicians and associate professionals	Clerks	Service workers and market sales	Skilled agricultural and forestry workers	Craft and related trades workers	Plant and machine operators and assemblers	Elementary occupations	
Total	6,4	14,7	10,7	18,1	9,9	7,2	4,1	0,9	1,8	2,2	1,5
Agriculture, hunting											
	1,4	-	6,4	5,7	3,6	2,4	0,0	0,5	0,7	0,6	0,0
Forestry, fishing											
	3,7	-	15,4	-	4,8	-	-	2,1	-	0,8	2,3
Mining and quarrying											
	2,3	-	-	-	2,9	1,0	-	-	2,7	2,7	0,0
Manufacturing											
	3,6	-	9,6	11,7	9,1	5,6	3,8	-	1,3	1,6	1,1
Electricity, gas and water supply											
	8,6	-	13,0	23,6	10,6	11,3	-	-	5,3	5,4	0,5
Construction											
	3,2	-	8,2	9,8	6,1	9,4	-	-	1,5	1,6	0,8
Trade, repairs of motor vehicles and consumer goods											
	5,1	-	7,4	16,8	9,0	5,3	3,2	-	2,7	0,5	1,0
Hotels and restaurants											
	2,8	-	1,9	-	9,4	5,1	2,4	-	-	-	1,4
Transport, storage and communications											
	5,2	-	12,0	3,4	10,2	4,2	5,8	-	4,4	3,6	0,6
Financial intermediation											
	15,5	-	29,6	16,8	12,9	15,5	-	-	-	-	-
Real estate, renting and business activities											
	12,6	-	17,8	15,9	13,5	10,9	2,8	-	4,6	1,8	1,6
Public admin. and defence, compulsory social security											
	11,7	14,7	15,8	17,7	11,3	10,4	11,0	-	6,0	1,9	4,7
Education											
	15,6	-	22,6	22,1	17,3	5,7	0,9	-	-	-	0,8
Health and social work											
	9	-	25,9	27,7	6,0	8,6	3,1	-	2,4	7,4	0,4
Other community, social and personal services											
	8,7	-	6,0	19,7	13,1	5,7	5,7	0,0	7,2	4,8	3,4

Notes: 1) branch of activity by CZ-NACE

2) job classification by CZ-ISCO-88

Source: CSO – Labour Force Survey

E.18 Workers in CVT and their proportion of all workers by age groups, 2002 (year average)

Age group	Workers in CVT (thousand)			Proportion (%)		
	Total	Male	Female	Total	Male	Female
Total	295,2	153,6	141,6	6,4	5,9	7,1
15-19	2,0	0,9	1,1	6,6	5,5	7,6
20-24	34,0	13,5	20,5	7,9	5,7	10,7
25-29	56,4	30,7	25,7	8,4	7,4	10,0
30-34	42,1	27,4	14,7	7,4	8,1	6,4
35-39	39,4	18,9	20,5	6,5	5,7	7,5
40-44	33,8	16,1	17,6	6,0	5,5	6,6
45-49	37,4	17,9	19,4	5,6	5,2	6,0
50-54	29,1	14,6	14,5	4,5	4,4	4,6
55-59	18,0	11,2	6,7	5,0	4,5	5,9
60-64	2,4	1,9	0,5	4,2	3,9	6,3
65+	0,7	0,4	0,3	4,9	4,0	7,0

Source: CSO, Labour Force Survey

F.1 Tax/benefit position of employees* in OECD countries (in %)

Country	Employee with an income on 67%, 100%, 167% of the average wage level			Married couple with 2 children where one partner has average wage and the other has income on 0%, 33%, 67% of the average wage level		
	67%	100%	167%	0%	33%	67%
Austria	37,4	41,5	45,8	28,0	30,2	32,6
Belgium	50,5	56,4	61,6	40,4	45,8	49,4
Denmark	41,3	44,8	52,6	31,1	36,5	39,5
Germany	46,5	51,2	54,9	35,0	41,1	44,8
Greece	34,9	35,8	38,9	35,9	35,6	35,5
Finland	45,3	50,3	56,0	42,0	41,2	43,3
France	44,3	49,7	53,5	40,7	41,3	43,2
Ireland	26,5	36,1	45,7	25,6	26,5	28,7
Italy	48,3	50,8	53,6	43,8	46,3	49,1
Netherlands	39,3	43,8	44,2	33,5	35,9	38,1
Portugal	30,6	33,8	38,9	26,9	27,9	29,4
Spain	34,4	38,7	40,7	33,5	36,3	36,1
Sweden	48,6	50,2	56,2	44,6	45,5	46,2
Great Britain	26,8	32,6	34,6	25,3	22,6	25,9
Czech Republic	41,4	42,6	45,0	31,4	34,5	36,6
Hungary	46,8	52,0	58,3	40,4	40,6	43,0
Poland	43,6	44,7	45,9	39,5	40,8	42,0

Note: * Employee's and employers's contributions and personal income tax less social transfer payments as a percentage of gross labour costs (gross wage earnings plus employers's social security contributions)

Source: The Tax/Benefit Position of Employees 2000.

F.2 Not typical forms of employment in EU and CEE countries in 2000 (%)

Country	Part-time jobs			Fixed-time jobs		
	Total	Males	Females	Total	Males	Females
Austria	16,3	4,1	32,2	6,4	6,1	6,9
Belgium	20,8	5,8	40,8	7,5	5,4	11,4
Denmark	21,3	10,2	34,1	9,1	7,7	10,6
Germany	19,4	5,0	37,9	11,4	10,9	12,1
Greece	4,3	2,4	7,4	7,0	5,8	8,9
Finland	12,3	8,0	17,0	14,4	10,9	18,2
France	16,9	5,4	31,0	13,8	13,0	14,9
Ireland	16,4	6,9	30,1	3,8	2,7	5,5
Italy	8,4	3,7	16,5	7,5	6,1	9,7
Luxembourg	10,5	2,0	25,0	4,9	4,0	6,8
Netherlands	41,1	19,2	70,5	11,9	9,6	15,0
Portugal	10,8	6,2	16,3	14,8	13,4	16,5
Spain	8,0	2,8	16,9	26,7	25,0	29,5
Sweden	22,6	10,6	36,0	13,1	10,6	15,7
Great Britain	25,0	9,1	44,6	6,2	5,2	7,4
EU (average)	17,7	6,2	33,3	11,4	10,3	12,9
Czech Republic	5,4	2,2	9,5	6,9	5,7	8,5
Hungary	3,6	2,1	5,8	5,8	5,9	5,7
Poland	10,6	8,4	13,2	4,2	4,7	3,6
Slovakia	1,9	1,0	2,9	3,7	3,4	4,1
Romania	16,4	14,3	18,6	1,6	1,7	1,5

Source: Employment in Europe 2001.

F.3 Wages/salaries by sectors (% of average)

Year	Total		CZ-NACE								
	CZK	Share	Agriculture, hunting, forestry	Industry	Construction	Trade, repair of motor vehicles and consumer goods	Transport, storage, communications	Financial intermediation	Public administration, defence, social security	Education	Health and social work
1990	3 286	100	109,6	103,8	109,9	85,8	104,6	102,0	100,4	88,1	92,6
1994	7 004	100	82,8	110,6	108,8	90,2	97,2	172,5	130,7	90,3	92,5
1995	8 307	100	82,8	108,8	106,4	86,7	99,2	168,7	127,4	89,4	90,6
1996	9 825	100	79,5	106,4	103,5	86,5	100,3	167,0	126,4	91,5	92,3
1997	10 802	100	78,7	103,5	104,0	97,1	104,7	172,8	117,9	87,2	89,1
1998	11 801	100	78,1	100,6	102,8	100,8	106,9	179,5	112,3	83,5	84,3
1999	12 797	100	74,9	102,8	99,9	100,4	106,6	181,2	115,8	86,7	88,4
2000	13 614	100	75,5	99,9	99,4	104,1	109,0	188,3	110,7	82,9	86,3
2001 ¹⁾	14 793	100	76,0	99,4	99,1	103,8	108,5	197,0	111,2	84,1	90,3
2002 ²⁾	15 857	100	73,4	99,1	99,0	102,9	109,3	199,1	114,0	85,8	94,9

Note: *) since 1993 employees of Ministry of Defence and Ministry of Interior are including

¹⁾ revised data

²⁾ preliminary data

Source: CSO, Indicators of Economic and Social Development, own calculations based on tab.16 - Average monthly gross wages of employees

F.4 Fixed time employees by sectors

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total										
Agriculture	6,8	5,6	5,6	5,3	4,1	3,9	3,3	2,8	3,0	2,2
Fishing	1,5	1,7	1,8	1,2	1,5	1,5	1,1	1,5	1,1	1,0
Mining and quarrying	0,6	0,7	0,7	0,8	0,9	1,1	0,9	0,5	0,4	0,6
Industry (total)	19,1	18,9	21,5	22,1	22,6	23,0	23,7	22,1	24,1	25,1
Electricity, gas and water supply	1,9	1,3	1,2	1,5	1,6	1,4	1,1	1,0	1,0	1,0
Construction	6,1	7,9	7,9	7,7	7,7	6,0	6,1	5,6	5,6	5,6
Trade	11,6	12,0	11,2	11,4	12,4	11,9	11,4	9,6	10,2	9,6
Hotels and restaurants	5,4	5,2	4,3	3,8	4,9	4,3	3,9	3,6	3,4	3,7
Transport and communications	4,8	4,5	4,8	4,7	5,0	4,7	4,3	3,9	3,8	4,3
Financial intermediation	1,0	1,5	1,5	1,2	1,3	1,2	1,2	1,0	0,9	1,5
Research, development, business activities	8,0	6,8	6,3	6,2	6,3	6,2	6,1	5,5	5,1	5,0
Public administration	5,9	7,9	6,7	6,6	6,2	6,9	7,2	17,6	16,6	15,4
Education	10,4	11,4	12,4	13,2	12,6	13,4	12,8	11,5	10,0	11,0
Health and social work	7,2	7,4	7,6	6,8	6,4	7,9	9,3	7,8	9,0	8,0
Other community and social services	9,2	6,7	6,2	6,9	6,3	6,3	6,8	5,6	5,5	5,4
Private households	0,1	0,1	0,2	0,3	0,2	0,3	0,4	0,2	0,1	0,5
Exterritorial organizations	0,4	0,2	..	0,2	0,1	0,1	0,1	0,1	0,1	0,1
Not identified	..	0,1	0,1	0,1	..	0,1	0,1	0,0	0,1	0,2
Males										
Agriculture	6,4	5,2	5,4	5,6	4,3	4,5	3,6	2,9	3,2	2,4
Fishing	1,5	1,7	2,3	1,6	1,7	1,6	1,3	1,8	1,2	1,1
Mining and quarrying	0,9	0,9	1,2	1,3	1,4	1,9	1,6	0,7	0,5	0,9
Industry (total)	21,5	21,2	23,3	23,7	25,2	25,6	26,9	22,1	24,3	24,6
Electricity, gas and water supply	2,5	1,6	1,5	1,9	2,5	2,3	1,6	1,3	1,1	1,3
Construction	10,0	12,8	13,8	12,8	14,2	11,1	11,4	9,6	9,3	9,7
Trade	10,9	10,0	9,4	8,4	8,6	8,0	8,3	5,6	5,1	5,9
Hotels and restaurants	3,0	4,3	3,2	2,6	2,8	2,7	3,0	1,4	2,2	2,1
Transport and communications	4,9	5,0	5,5	5,8	5,9	4,9	5,6	4,4	4,4	5,1
Financial intermediation	1,0	1,2	1,3	0,9	0,9	0,9	0,7	0,5	0,6	1,0
Research, development, business activities	8,1	7,0	6,6	7,0	6,3	6,5	6,3	5,4	5,7	4,9
Public administration	7,0	9,7	7,4	7,4	7,2	8,9	7,8	27,0	24,0	22,8
Education	8,0	8,3	8,6	9,5	8,9	9,2	8,9	7,7	6,8	7,3
Health and social work	4,0	4,7	4,4	4,2	3,7	4,4	5,8	4,6	6,0	4,8
Other community and social services	9,8	5,9	5,9	6,8	6,3	7,1	6,7	4,9	5,4	5,4
Private households	..	..	..	0,1	..	..	..	0,1	0,1	0,0
Exterritorial organizations	0,4	0,2	0,1	0,2	0,1	..	0,1	0,0	0,1	0,3
Not identified	..	0,1	0,2	0,2	0,1	0,1	0,2	0,0	0,1	0,3
Females										
Agriculture	7,2	6,0	5,8	5,0	3,8	3,4	3,1	2,7	2,7	1,9
Fishing	1,4	1,7	1,3	0,8	1,4	1,6	1,0	1,2	0,9	0,8
Mining and quarrying	0,4	0,4	0,2	0,2	0,3	0,3	0,2	0,3	0,2	0,2
Industry (total)	16,7	16,4	19,5	20,4	20,1	20,5	21,0	22,2	24,0	25,5
Electricity, gas and water supply	1,2	1,0	1,0	1,0	0,7	0,5	0,7	0,7	1,0	0,6
Construction	2,1	2,4	1,7	2,6	1,6	1,3	1,5	1,0	1,2	1,2
Trade	12,3	14,3	13,2	14,4	15,9	15,6	14,1	14,2	16,2	13,4
Hotels and restaurants	7,8	6,2	5,4	5,1	6,8	5,7	4,7	6,0	4,8	5,4
Transport and communications	4,6	4,0	4,1	3,5	4,2	4,4	3,1	3,4	3,1	3,5
Financial intermediation	0,9	1,9	1,6	1,6	1,6	1,6	1,7	1,5	1,2	2,1
Research, development, business activities	8,0	6,6	5,9	5,5	6,3	5,8	6,0	5,6	4,4	5,0
Public administration	4,6	6,0	5,9	5,7	5,1	5,0	6,7	6,9	8,0	7,6
Education	12,9	14,7	16,4	16,8	16,1	17,2	16,1	15,8	13,7	14,9
Health and social work	10,4	10,4	11,0	9,5	8,9	11,0	12,4	11,5	12,6	11,4
Other community and social services	8,6	7,6	6,5	7,0	6,3	5,6	6,9	6,3	5,7	5,5
Private households	0,2	0,2	0,3	0,6	0,5	0,6	0,8	0,5	0,2	0,9
Exterritorial organizations	0,4	0,2	0,1	0,1	0,1	0,2	0,2	0,1	0,1	..
Not identified	..	..	..	0,1	0,1	..	..	0,0	0,0	0,0

Source: CSO, Labour Force Survey

F.5 Fixed time employees by sectors as a % of total employees in the sector

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total										
Total	5,4	7,9	8,5	8,3	7,8	6,8	7,6	8,1	7,8	7,5
Agriculture	4,5	6,8	8,1	7,9	6,1	5,2	5,4	5,6	6,1	4,2
Fishing	5,9	11,0	11,5	8,0	9,6	9,2	7,7	11,8	8,2	7,9
Mining and quarrying	1,1	2,4	2,9	3,1	3,4	3,7	3,6	2,8	2,1	3,3
Industry (total)	2,8	4,6	5,8	5,8	5,7	5,0	5,9	6,6	6,8	6,8
Electricity, gas and water supply	4,1	4,6	4,6	5,5	6,1	4,3	4,2	5,0	4,4	4,1
Construction	3,1	6,0	6,7	6,1	5,5	3,7	4,4	4,9	4,8	4,7
Trade	4,8	7,0	7,0	6,6	6,5	5,4	5,7	6,0	6,2	5,6
Hotels and restaurants	7,6	12,0	10,7	9,2	10,1	7,3	8,1	8,7	7,9	7,8
Transport and communications	2,6	4,2	4,8	4,5	4,6	3,6	3,7	4,0	3,9	4,2
Financial intermediation	3,0	6,5	6,2	4,9	4,6	3,6	4,0	3,8	3,1	5,6
Research, development, business activities	7,7	9,7	9,8	9,1	8,7	7,2	7,7	7,9	7,4	6,6
Public administration	20,6	22,5	20,8	20,6	18,4	17,8	18,8	19,6	18,0	16,9
Education	7,0	12,7	15,4	15,7	14,2	13,5	14,4	14,7	12,2	12,6
Health and social work	5,4	9,1	10,4	9,3	8,1	8,6	10,9	10,3	10,9	9,6
Other services	12,0	14,2	14,1	15,5	13,5	10,1	12,5	12,1	11,4	10,8
Males										
Total	5,7	8,2	8,4	8,0	7,4	6,4	7,0	7,6	7,4	6,8
Agriculture	3,4	5,4	6,7	6,6	4,9	4,4	4,1	4,7	5,3	3,6
Fishing	4,0	7,6	9,6	6,9	6,5	5,8	5,3	9,5	6,0	5,6
Mining and quarrying	0,9	2,0	2,9	3,3	3,3	3,7	3,6	2,3	1,9	3,2
Industry (total)	2,7	4,6	5,5	5,3	5,2	4,5	5,1	5,8	6,0	5,5
Electricity, gas and water supply	3,8	4,2	3,8	4,9	6,3	4,5	3,6	4,3	3,3	3,6
Construction	2,8	5,7	6,6	5,6	5,4	3,6	4,2	4,8	4,8	4,6
Trade	5,4	7,2	6,8	5,4	4,9	3,9	4,2	4,0	3,7	3,9
Hotels and restaurants	5,1	12,0	9,4	7,0	6,4	5,3	6,7	4,3	6,3	5,1
Transport and communications	2,1	3,7	4,2	4,1	3,9	2,6	3,3	3,5	3,5	3,6
Financial intermediation	4,9	9,3	8,7	5,1	4,8	3,5	3,1	3,1	2,8	4,4
Research, development, business activities	7,3	9,5	9,5	8,9	8,0	6,6	6,6	7,5	7,7	6,3
Public administration	28,2	30,3	27,6	27,6	25,1	25,6	26,1	26,7	23,8	22,5
Education	10,0	17,7	21,3	23,9	20,6	19,3	20,1	22,4	18,2	17,4
Health and social work	7,2	14,2	15,0	14,2	11,8	12,2	16,7	16,1	18,7	13,8
Other services	13,4	13,7	14,1	15,4	14,0	11,6	12,3	12,1	13,5	12,1
Females										
Total	5,0	7,6	8,6	8,6	8,2	7,2	8,4	8,7	8,2	8,4
Agriculture	6,3	8,9	10,3	10,0	8,4	6,7	7,7	7,3	7,9	5,2
Fishing	11,9	21,5	18,0	12,5	20,9	20,5	16,7	20,6	17,9	17,9
Mining and quarrying	1,9	4,5	2,8	2,1	3,9	3,3	3,9	5,6	2,6	3,8
Industry (total)	2,9	4,6	6,3	6,7	6,5	5,8	7,1	7,9	8,0	8,8
Electricity, gas and water supply	4,8	5,8	7,1	7,2	5,5	3,7	6,7	7,5	7,5	5,4
Construction	5,0	8,6	7,1	10,7	6,7	4,8	7,3	5,0	5,0	5,6
Trade	4,4	6,9	7,2	7,6	7,7	6,6	7,1	7,7	8,4	7,1
Hotels and restaurants	9,5	12,0	11,7	10,9	13,1	8,8	9,1	11,9	9,2	9,9
Transport and communications	3,6	5,2	6,1	5,2	6,0	5,9	4,7	5,1	4,8	5,5
Financial intermediation	2,2	5,3	4,9	4,8	4,4	3,7	4,4	4,2	3,3	6,4
Research, development, business activities	8,2	10,1	10,3	9,2	9,5	8,0	9,0	8,4	6,8	7,0
Public administration	5,4	8,8	10,0	9,4	7,6	6,1	8,5	8,9	9,7	9,5
Education	5,9	10,8	13,4	13,2	12,2	11,7	12,7	12,3	10,2	11,1
Health and social work	5,0	7,8	9,2	8,1	7,2	7,7	9,5	8,8	8,8	8,4
Other services	10,7	14,6	14,1	15,5	13,0	8,8	12,7	12,1	9,7	9,8

Source: CSO, Labour Force Survey



F.6 Part-time jobs and underemployment

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total										
Cannot find appropriate full-time job	3,3	3,3	3,6	3,4	4,4	5,3	6,5	8,6	9,8	10,9
Employer's initiative	14,7	15,7	15,5	15,1	14,9	18,5	18,5	18,6	17,7	
Health reasons	15,2	14,5	14,9	14,4	15,7	15,9	15,2	15,6	16,7	18,9
Family care (small children)	24,5	21,3	21,4	20,7	18,4	17,7	18,2	15,8	13,7	14,8
Attendance at school or training courses	6,2	10,6	9,0	7,6	6,7	4,5	3,9	4,8	5,6	5,3
Multiple job holding	1,2	1,6	2,0	2,3	1,7	1,6	1,2	1,4	0,9	
Satisfaction with part-time job	23,0	23,5	23,8	26,4	27,3	23,5	21,2	20,8	21,3	25,0
Other reasons	11,7	9,4	9,7	10,0	10,9	12,8	15,4	14,5	14,2	24,5
Not identified	-	-	-	-	-	-	-	-	0,0	0,5
Underemployment, total	18,1	19,0	19,1	18,5	19,3	23,9	25,0	27,2	27,5	22,7
Males										
Cannot find appropriate full-time job	1,6	2,2	2,1	2,2	2,3	2,9	3,4	4,1	4,8	4,4
Employer's initiative	9,5	12,1	10,8	10,6	9,0	9,3	8,9	10,6	9,4	
Health reasons	27,1	23,4	25,9	23,6	24,8	28,2	29,9	28,5	29,5	30,7
Family care (small children)	2,7	1,1	0,6	1,6	1,1	0,9	0,5	1,0	1,8	0,6
Attendance at school or training courses	14,0	22,5	21,3	16,3	14,7	11,9	10,4	10,4	12,7	12,5
Multiple job holding	1,0	1,4	2,8	4,3	2,8	2,3	3,1	2,0	1,3	
Satisfaction with part-time job	28,4	26,5	23,8	27,9	31,7	27,3	24,1	25,0	22,6	27,5
Other reasons	15,8	10,8	12,6	13,5	13,9	17,3	19,7	18,4	17,8	23,6
Not identified	-	-	-	-	-	-	-	-	0,1	0,7
Underemployment, total	11,1	14,3	12,9	12,8	11,1	12,2	12,3	14,7	14,2	34,2
Females										
Cannot find appropriate full-time job	3,9	3,7	4,2	3,9	5,2	6,2	7,5	10,0	11,5	13,2
Employer's initiative	16,7	17,2	17,2	16,9	17,0	21,7	21,5	21,1	20,5	
Health reasons	10,9	10,8	10,9	10,9	12,4	11,7	10,6	11,5	12,4	14,9
Family care (small children)	32,5	29,8	29,0	28,2	24,6	23,6	23,7	20,5	17, 19,6	
Attendance at school or training courses	3,4	5,6	4,5	4,3	3,8	2,0	1,8	3, 3,3	2,9	
Multiple job holding	1,3	1,7	1,7	1,5	1,4	1,3	0,6	1,2	0,8	
Satisfaction with part-time job	21,0	22,2	23,7	25,8	25,7	22,2	20,2	19,5	20,9	24,2
Other reasons	10,3	8,9	8,7	8,6	9,8	11,3	14,0	13,2	13,0	24,8
Not identified	-	-	-	-	-	-	-	-	-	0,5
Underemployment, total	20,5	20,9	21,4	20,8	22,2	27,9	29,0	31, 32,0	18,7	

Source: CSO, Labour Force Survey

F.7 Duration of the last job of employed with stable employment contract and self-employed (%)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total										
less than 6 months	10,4	8,9	7,8	6,4	5,5	6,0	4,8	4,8	4,3	4,2
6-12 months	12,1	10,2	8,0	7,1	6,2	5,8	5,2	4,8	4,8	4,7
1-3 years	21,5	26,3	25,3	22,7	21,5	19,9	18,8	17,5	16,8	17,9
more than 3 years	55,9	54,6	58,8	63,8	66,8	68,3	71,2	72,9	74,1	72,6
Not identified	..	..	..	..	..	..	..	0,0	0,0	0,5
Only self-employed:	9,2	11,0	12,1	12,5	12,7	14,0	14,9	15,5	15,6	20,1
less than 6 months	1,2	0,9	0,8	0,6	0,6	0,7	0,5	0,6	0,5	0,5
6-12 months	1,7	1,2	0,9	0,8	0,6	0,7	0,7	0,6	0,5	0,6
1-3 years	5,1	5,6	4,4	3,2	2,7	2,7	2,6	2,4	2,1	2,3
more than 3 years	1,2	3,0	6,	7,9	8,7	9,9	11,1	12,0	12,5	16,3
Not identified	..	..	..	..	..	..	..	..	..	0,1
Males										
less than 6 months	10,6	8,9	7,8	6,3	5,4	5,8	4,5	4,5	4,1	4,0
6-12 months	12,3	10,2	8,0	7,1	6,0	5,7	4,9	4,6	4,5	4,6
1-3 years	22,5	27,1	25,4	22,6	21,1	19,7	18,2	16,4	16,1	17,0
more than 3 years	54,6	53,8	58,7	64,0	67,4	68,8	72,4	74,5	75,3	73,9
Not identified	..	..	0,1	..	..	..	..	0,0	0,0	0,6
Only self-employed:	11,9	14,0	15,6	16,2	16,4	17,9	19,1	19,8	20,0	27,2
less than 6 months	1,4	1,0	1,0	0,8	0,7	0,8	0,6	0,7	0,6	0,6
6-12 months	2,1	1,5	1,1	1,0	0,8	0,8	0,7	0,7	0,6	0,7
1-3 years	6,8	7,4	5,5	4,0	3,4	3,4	3,1	2,8	2,5	3,3
more than 3 years	1,5	4,0	7,9	10,5	11,5	12,9	14,6	15,6	16,3	22,4
Not identified	..	..	..	..	..	..	..	..	..	0,2
Females										
less than 6 months	10,3	8,9	7,7	6,5	5,6	6,3	5,3	5,2	4,7	4,5
6-12 months	11,9	10,3	8,0	7,0	6,5	6,0	5,7	5,1	5,2	4,9
1-3 years	20,3	25,3	25,3	22,8	21,9	20,2	19,5	18,8	17,7	19,0
more than 3 years	57,5	55,5	58,9	63,7	66,0	67,6	69,6	70,8	72,5	71,1
Not identified	..	..	..	..	..	..	..	0,0	..	0,5
Only self-employed:	5,7	6,4	7,6	7,6	7,8	8,8	9,3	9,9	9,8	11,7
less than 6 months	0,8	0,7	0,5	0,4	0,5	0,6	0,5	0,4	0,4	0,4
6-12 months	1,2	0,8	0,6	0,5	0,5	0,5	0,6	0,4	0,4	0,4
1-3 years	2,9	3,3	2,9	2,1	1,9	1,8	1,8	1,8	1,5	1,7
more than 3 years	0,7	1,6	3,6	4,5	5,0	6,0	6,5	7,2	7,6	9,1
Not identified	..	..	..	..	..	..	..	..	..	..

Source: CSO, Labour Force Survey



F.8 Activity of employees in the civilian sector on labour market (%)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Total										
Seeking new job	5,6	4,8	4,3	3,8	3,5	3,3	3,3	2,9	2,7	2,7
Seeking another job	..	..	..	..	0,3	0,4	0,4	0,4	0,2	0,1
Not seeking another nor new job	94,4	95,2	95,7	96,1	96,1	96,3	96,3	96,7	97,0	97,3
Not identified	..	..	..	..	..	..	..	0,0	0,0	..
Seeking a job, total	5,6	4,8	4,3	3,8	3,9	3,7	3,6	3,3	2,9	..
<i>Reasons for seeking</i>										
Insecurity or anxiety about losing job	1,3	1,0	0,6	0,6	0,7	0,7	1,0	0,7	0,5	0,5
Present job considered as temporary	..	..	..	..	0,2	0,3	0,3	0,3	0,2	..
Significant changes in job profile	0,3	0,3	0,3	0,3	0,3	0,2	0,2	0,2	0,	..
Aspiration in higher income	2,6	2,3	2,2	1,9	1,9	1,8	1,5	1,5	1,4	..
Better use of qualification	0,6	0,4	0,4	0,3	0,3	0,3	0,2	0,2	0,2	..
Improvement of other conditions	0,4	0,4	0,4	0,4	0,3	0,3	0,2	0,2	0,3	..
Other reasons	0,5	0,4	0,4	0,3	0,2	0,2	0,2	0,2	0,2	..
Not identified	..	..	..	..	..	..	..	..	..	..
<i>Methods to find new/another job</i>										
Contacting public employment office	..	..	0,2	0,2	0,2	0,2	0,2	0,2	0,1	0,5
Contacting private agency	..	..	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1
Inputting advertisements	..	..	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,4
Studying advertisements	..	0,2	1,9	1,8	2,0	1,9	1,8	1,5	1,	2,3
Asking friends	..	0,2	2,4	2,3	2,5	2,3	2,2	1,0	0,9	2,2
Applying to employers directly	..	..	0,6	0,6	0,5	0,5	0,5	0,1	0,1	1,1
Other methods	..	0,1	1,3	1,0	0,9	0,7	0,6	0,3	0,2	..
Not identified	5,6	4,4	..	..	..	..	..	..	0,0	..
Males										
Seeking new job	6,4	5,3	4,6	4,0	3,6	3,4	3,4	2,9	2,7	2,5
Seeking another job	..	..	..	..	0,4	3,4	0,4	0,4	0,2	..
Not seeking another nor new job	93,6	94,7	95,3	96,0	96,1	96,2	96,2	96,7	97,1	97,4
Not identified	..	..	..	..	..	..	..	0,0	0,0	0,1
Seeking a job, total	6,4	5,3	4,6	4,0	3,9	3,8	3,8	3,3	..	2,5
<i>Reasons for seeking</i>										
Insecurity or anxiety about losing job	1,4	1,0	0,6	0,6	0,6	0,7	1,0	0,8	0,5	0,5
Present job considered as temporary	..	..	..	..	0,2	0,2	0,3	0,2	0,2	..
Significant changes in job profile	0,3	0,3	0,3	0,3	0,3	0,2	0,2	0,2	0,2	..
Aspiration in higher income	3,3	2,7	2,5	2,2	2,0	2,0	1,7	1,6	1,4	..
Better use of qualification	0,5	0,4	0,4	0,3	0,3	0,3	0,2	0,2	0,2	..
Improvement of other conditions	0,4	0,4	0,4	0,4	0,3	0,3	0,2	0,2	0,3	..
Other reasons	0,5	0,5	0,4	0,3	0,2	0,2	0,2	0,2	0,2	..
Not identified	..	..	..	..	..	..	..	..	..	..
<i>Methods to find new/another job</i>										
Contacting public employment office	..	..	0,1	0,2	0,1	0,1	0,1	0,2	0,1	0,1
Contacting private agency	..	..	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,2
Inputting advertisements	..	..	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,4
Studying advertisements	..	0,2	2,0	1,9	1,9	1,9	1,9	1,4	1,3	2,0
Asking friends	..	0,2	2,6	2,4	2,6	2,3	2,3	1,0	0,9	2,0
Applying to employers directly	..	0,1	0,6	0,6	0,6	0,6	0,5	0,2	0,1	1,0
Other methods	..	0,1	1,4	1,0	0,9	0,8	0,7	0,4	0,3	..
Not identified	6,4	4,9	..	..	..	..	..	..	0,0	..

F.8 Completion

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Females										
Seeking new job	4,6	4,1	3,9	3,6	3,5	3,2	3,1	2,8	2,8	2,9
Seeking another job	..	..	..	..	0,3	0,3	0,4	0,4	0,3	..
Not seeking another nor new job	95,4	95,8	96,1	96,3	96,2	96,4	96,6	96,8	97,0	97,1
Not identified	..	..	..	..	..	..	..	..	0,0	..
Seeking a job, total	4,6	4,1	3,9	3,7	3,8	3,5	3,4	3,2	..	2,9
Reasons for seeking										
Insecurity or anxiety about losing job	1,1	0,9	0,7	0,7	0,7	0,7	0,9	0,7	0,5	0,6
Present job considered as temporary	..	..	..	..	0,2	0,3	0,4	0,3	0,3	..
Significant changes in job profile	0,3	0,3	0,3	0,3	0,4	0,2	0,2	0,1	0,2	..
Aspiration in higher income	1,8	1,7	1,7	1,6	1,7	1,5	1,3	1,3	1,3	..
Better use of qualification	0,6	0,4	0,3	0,3	0,3	0,3	0,3	0,3	0,3	..
Improvement of other conditions	0,4	0,4	0,5	0,5	0,3	0,3	0,2	0,2	0,3	..
Other reasons	0,5	0,4	0,4	0,3	0,2	0,2	0,2	0,2	0,2	..
Not identified	..	..	..	..	..	..	..	..	..	..
Methods to find new/another job										
Contacting public employment office	..	..	0,2	0,2	0,2	0,2	0,2	0,1	0,2	0,1
Contacting private agency	..	..	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,2
Inputting advertisements	..	..	0,1	0,1	0,1	0,1	0,1	0,2	0,1	0,4
Studying advertisements	..	0,1	1,7	1,7	2,0	1,9	1,7	1,6	1,5	2,4
Asking friends	..	0,2	2,2	2,1	2,3	2,2	2,1	0,9	0,9	2,4
Applying to employers directly	..	..	0,5	0,5	0,5	0,4	0,5	0,1	0,1	1,2
Other methods	..	0,1	1,1	1,0	0,9	0,6	0,6	0,2	0,1	..
Not identified	4,6	3,8	..	..	..	..	..	..	..	..

Note: The methodology changed in 2002. Column „seeking for new“ and „seeking for other job“ are united now. Other columns are not comparable.
Source: CSO, Labour Force Survey

F.9 Readiness of unemployed people to accept a new jobs (% of answers)

Type of condition	Males	Females	Total	Type of condition	Males	Females	Total
Position with required lower qualification				Required night work			
Yes	52,4	43,9	48,1	Yes	54,9	31,4	42,6
No	14,0	21,1	17,6	No	23,3	48,1	36,2
Maybe	23,5	28,4	26,0	Maybe	19,0	14,5	16,6
Do not know	10,2	6,6	8,4	Do not know	2,8	6,1	4,5
Required special training or re-qualification				Required work on weekends			
Yes	70,6	74,9	72,8	Yes	51,6	37,7	44,3
No	9,2	9,0	9,1	No	14,5	34,9	25,2
Maybe	15,7	11,8	13,7	Maybe	30,2	24,2	27,1
Do not know	4,5	4,4	4,5	Do not know	3,7	3,2	3,4
Worse labour conditions				Required moving			
Yes	24,8	13,3	18,9	Yes	10,2	10,6	10,4
No	32,7	57,4	45,2	No	64,5	67,8	66,3
Maybe	36,0	16,6	26,2	Maybe	17,3	16,6	17,0
Nevím	6,6	12,6	9,7	Do not know	8,0	5,0	6,4
Lower income than so far				Part-time jobs			
Yes	16,2	17,1	16,7	Yes	32,8	55,6	44,7
No	54,4	50,9	52,6	No	27,3	11,1	18,8
Maybe	24,7	22,4	23,5	Maybe	30,2	27,6	28,8
Do not know	4,7	9,6	7,2	Do not know	9,7	5,7	7,6

Source: CSO, Labour Force Survey



F.10 *Methods to solve situation of losing job (% of answers)*

	Self employed	Employees		Total
		Non-manual	Manual	
Total				
<i>Would: live from unemployment benefits</i>	28,4	36,1	45,4	40,8
seek job in the same sector and region	91,3	88,3	86,7	87,5
seek any job in the same region	33,0	53,1	73,5	63,4
seek job in the same sector anywhere	57,6	41,1	39,2	40,4
seek any job anywhere	16,2	13,8	25,3	19,8
try to carry business	59,5	24,4	20,3	22,9
seek temporary jobs	42,0	37,9	57,0	47,9
try to get re-qualification	52,2	56,5	51,0	53,6
live from non-labour income	13,1	12,4	11,3	11,8
seek job abroad	30,4	16,6	19,0	18,1
use time for other training and education	52,7	52,5	25,7	
Males				
<i>Would: live from unemployment benefits</i>	26,2	27,7	39,9	35,3
seek job in the same sector and region	93,8	82,7	86,7	85,4
seek any job in the same region	33,4	44,8	71,3	61,2
seek job in the same sector anywhere	56,1	45,6	42,4	43,8
seek any job anywhere	11,8	15,9	26,8	22,6
try to carry business	64,7	32,7	22,8	27,2
seek temporary jobs	43,3	35,3	56,6	48,8
try to get re-qualification	56,5	52,1	49,0	50,3
live from non-labour income	8,2	15,8	12,5	13,6
seek job abroad	34,8	24,3	25,1	25,0
use time for other training and education	51,8	50,3	24,9	34,4
Females				
<i>Would: live from unemployment benefits</i>	32,7	42,2	56,0	47,5
seek job in the same sector and region	85,9	92,3	86,5	89,9
seek any job in the same region	32,1	59,0	77,8	66,1
seek job in the same sector anywhere	60,8	37,8	33,1	36,2
seek any job anywhere	25,7	12,2	22,4	16,4
try to carry business	48,4	18,5	15,5	17,7
seek temporary jobs	39,1	39,8	57,9	47,0
try to get re-qualification	43,1	59,6	54,9	57,6
live from non-labour income	23,7	9,9	8,8	9,6
seek job abroad	20,9	11,1	7,3	9,7
use time for other training and education	54,5	54,1	27,2	43,5

Sources: Survey "Ten Years In Transition" (1999).

F.II *Circumstances which started / finished self-employment (%)*

	Males	Females	Total
<i>A. What circumstances enabled self-employment?</i>			
a. Own financial means	54,7	47,6	52,3
b. Purchased financial means	45,6	40,8	44,0
c. Support from foreign funds	2,1	0,0	1,4
c. Properties, equipment obtained in restitution	6,0	5,4	5,8
d. Your skills, qualification	88,0	84,6	86,8
e. Your previous labour position	53,4	52,8	53,2
f. Help obtained from family and the closest relatives	65,9	69,8	67,2
g. Family tradition	18,7	14,7	17,4
h. Help obtained from friends and relatives	52,2	37,3	47,2
i. Suitable local opportunity or other coincidence	66,5	67,5	66,9
<i>B. If you decided to finish your business, which reasons led to such a decision?</i>			
a. Wrong business purpose	24,3	8,9	19,9
b. Lack of financial means	62,2	51,4	59,1
c. Deterioration of economic situation in the Czech Republic	69,9	46,4	63,1
d. Decline of demands	59,6	38,3	53,6
e. Competitive pressures	42,5	25,8	37,8
f. Excessive insolvency	22,0	21,3	21,8
g. Did not need to carry business anymore			
- had already enough money	3,3	9,7	5,1
h. Preferred employee status in the end	52,1	44,5	50,0
i. Was tired, had to relax	45,2	36,8	42,8
j. Private reasons	38,1	50,6	41,7
k. Health reasons	24,4	48,2	31,2

Sources: Survey "Ten Years In Transition" (1999).

G.1 *Entrepreneurs as a percentage of the total number of employed persons by branches in 1995 - 2002 (%)*

Branch (CZ-NACE)	1995	1996	1997	1998	1999	2000	2001	2002
Agriculture and hunting	10,8	11,8	12,0	12,8	13,5	14,2	13,4	13,7
Forestry and fishing	15,8	18,4	18,8	21,8	22,7	24,6	24,9	23,4
Mining and quarrying	0,8	1,2	1,0	1,4	1,4	1,1	0,6	1,9
Manufacturing	5,6	5,6	5,9	6,4	6,8	6,3	6,8	7,3
Electricity, gas and water supply	4,5	3,1	2,9	3,9	6,0	4,7	2,9	5,3
Construction	18,9	20,0	21,2	26,0	28,8	30,8	33,2	35,2
Trade, repairs of cars and consumer goods	25,2	25,4	23,8	24,7	26,5	27,5	25,9	27,2
Hotels and restaurants	16,5	16,2	15,1	16,8	17,9	20,1	19,4	21,6
Transport, storage and communications	8,7	8,7	8,6	10,2	10,3	11,1	10,9	11,4
Financial intermediation	6,4	6,2	6,8	9,2	9,4	12,8	17,9	18,6
Real estate, renting and business services	30,2	31,4	32,4	31,3	32,1	33,3	33,7	35,1
Public admin., defence, social security	0,7	0,8	0,7	0,5	0,8	0,8	1,0	1,3
Education	1,5	1,2	1,0	1,7	2,2	2,2	2,5	2,9
Healthcare and social work	6,8	6,8	7,0	8,2	7,4	8,0	7,9	7,6
Other public, social and personal services	18,8	18,4	22,0	25,0	23,9	26,3	27,0	27,5
Households with employed persons	12,1	12,8	6,4	0,0	0,0	0,0	9,2	7,7
Extra-territorial organizations and bodies	19,9	0,0	0,8	19,2	19,1	20,3	0,0	3,7
Other	6,4	8,2	6,0	18,6	8,2	19,8	18,8	26,6
Total	11,3	11,7	11,9	13,2	13,8	14,4	14,5	15,4

Source: CSO, Labour Force Survey

G.2 *Entrepreneurs as the percentage of the total number of employed persons by regions in 1995 - 2002 (%)*

region	1995	1996	1997	1998	1999	2000	2001	2002
Praha	16,49	16,53	16,11	16,60	18,36	19,39	19,42	21,60
Středočeský	11,49	12,54	12,93	13,98	14,67	15,45	16,08	18,05
Jihočeský	10,95	11,12	11,91	12,29	12,42	14,88	14,68	14,97
Plzeňský	10,25	10,58	11,25	12,76	12,37	13,95	13,68	14,11
Karlovarský	9,21	11,14	11,42	11,32	14,04	13,15	13,88	15,59
Ústecký	8,71	9,52	9,52	11,14	12,43	12,06	11,99	13,02
Liberecký	13,18	12,28	14,02	16,66	16,04	15,01	13,93	15,78
Královéhradecký	11,62	12,42	12,91	14,78	15,72	14,29	14,79	15,20
Pardubický	12,56	12,39	11,88	11,84	13,98	13,97	13,34	15,26
Vysočina	8,88	10,03	9,95	11,12	11,68	12,32	14,05	13,95
Jihomoravský	11,94	12,01	12,07	13,34	12,97	14,79	14,59	14,19
Olomoucký	8,15	10,23	8,44	10,33	11,60	11,51	13,17	11,60
Zlínský	12,02	11,18	12,41	15,35	15,03	15,02	14,13	14,71
Moravskoslezský	9,24	8,55	9,32	10,67	10,89	11,11	11,14	12,13

Source: CSO, Labour Force Survey

G.3 Entrepreneurs by age groups in 1995 - 2002 (thousand persons)

Age groups	1995	1996	1997	1998	1999	2000	2001	2002
Total								
15-19	3,8	2,7	3,7	3,4	2,0	1,7	0,9	0,8
20-24	36,4	35,1	35,1	43,0	39,7	38,1	33,0	30,6
25-29	56,5	63,7	60,8	67,3	71,8	76,1	76,1	81,5
30-34	83,1	87,5	87,0	94,9	92,3	84,5	87,5	97,8
35-39	97,5	95,7	86,2	90,4	97,1	103,0	107,8	107,9
40-44	104,0	103,8	106,1	107,4	107,1	111,0	102,1	101,3
45-49	87,5	88,5	93,4	105,8	104,3	113,6	112,0	119,0
50-54	45,7	52,7	63,3	72,7	81,2	83,8	91,2	98,8
55-59	22,4	26,0	28,6	30,3	38,0	42,5	49,1	60,1
60-64	12,0	13,5	11,7	13,1	14,6	15,4	16,5	21,5
65 +	13,6	10,8	11,4	11,7	11,7	12,7	13,0	13,7
Males								
15-19	2,1	1,9	2,4	2,0	1,0	0,8	0,3	0,2
20-24	29,1	27,7	26,8	32,2	30,1	27,1	23,0	22,7
25-29	43,6	49,4	49,2	52,9	55,6	58,1	60,7	65,9
30-34	61,5	65,0	64,2	69,2	68,8	63,3	67,3	74,5
35-39	66,1	68,7	62,8	66,9	72,3	73,7	73,9	74,9
40-44	72,9	70,9	72,4	74,0	75,1	77,5	70,2	71,7
45-49	61,2	62,0	63,7	73,8	71,6	79,8	81,8	84,4
50-54	32,1	40,0	46,9	51,4	56,3	59,6	63,8	70,6
55-59	17,7	20,3	22,1	24,7	30,0	32,6	37,8	45,5
60-64	8,5	10,9	9,4	9,2	10,7	11,2	11,0	15,9
65 +	10,9	8,7	9,8	8,9	8,9	10,4	10,6	11,2
Females								
15-19	1,7	0,9	1,2	1,3	1,0	0,9	0,6	0,6
20-24	7,3	7,4	8,3	10,8	9,6	11,0	10,0	7,9
25-29	12,9	14,3	11,6	14,4	16,2	17,9	15,4	15,5
30-34	21,6	22,5	22,8	25,7	23,5	21,2	20,2	23,3
35-39	31,4	27,0	23,4	23,5	24,8	29,3	33,9	33,0
40-44	31,1	32,8	33,7	33,4	32,0	33,5	32,0	29,7
45-49	26,3	26,5	29,6	32,0	32,7	33,8	30,2	34,7
50-54	13,7	12,7	16,4	21,3	24,9	24,2	27,5	28,1
55-59	4,6	5,7	6,5	5,6	8,0	9,8	11,4	14,6
60-64	3,5	2,6	2,3	3,8	3,9	4,2	5,5	5,6
65 +	2,8	2,1	1,6	2,8	2,8	2,2	2,4	2,6

Source: CSO, Labour Force Survey

G.4 Entrepreneurs with employees by educational attainment in 1995 - 2002 (thousand persons)

Educational attainment	1995	1996	1997	1998	1999	2000	2001	2002
Basic	4,7	4,2	5,7	6,3	5,0	6,5	5,0	4,7
Uppersecondary without "maturita"	60,5	63,1	60,3	57,3	57,5	58,1	52,0	56,3
Uppersecondary with "maturita"	73,0	77,7	76,6	81,6	79,1	80,8	80,4	79,7
Tertiary	49,7	57,3	56,1	56,4	53,8	50,7	49,3	51,9
Not completed education	-	-	0,1	1,0	0,4	0,1	0,3	n.r.
Not completed and not identified education	-	-	-	-	-	-	-	0,1
Total	188,0	202,3	198,7	202,5	195,7	196,2	187,0	192,7

G.5 Entrepreneurs without employees by educational attainment in 1995 - 2002 (thousand persons)

Educational attainment	1995	1996	1997	1998	1999	2000	2001	2002
Basic	23,2	21,2	19,5	23,5	22,4	24,2	22,4	19,8
Upper secondary without „maturita“	175,7	183,7	187,6	214,7	225,1	233,1	240,4	259,2
Upper secondary with „maturita“	123,3	121,7	128,0	143,9	158,2	163,7	170,0	179,0
Tertiary	52,4	50,9	52,5	54,1	57,2	64,9	69,1	82,2
Not completed education	0,1	0,3	0,7	1,4	1,1	0,3	0,3	n.r.
Not completed and not identified education	0,1	-	-	-	-	-	-	0,3
Total	374,6	377,8	388,4	437,5	464,0	486,1	502,2	540,5

Source: CSO, Labour Force Survey

G.6 Entrepreneurs with employees by occupational groups (CZ-ISCO) in 1995 - 2002 (thousand persons)

Occupational groups (CZ-ISCO)	1995	1996	1997	1998	1999	2000	2001	2002
Total								
Legislators, senior officials and managers	102,2	118,7	120,5	118,1	105,6	102,1	102,5	104,4
Professionals	23,0	25,9	26,4	28,2	32,3	30,4	28,9	24,5
Technicians and associate professionals	16,3	16,7	14,5	14,8	13,6	14,4	13,7	16,4
Clerks	2,6	2,4	2,3	3,4	2,5	1,8	2,7	3,4
Service workers and shop and market sales workers	15,0	14,6	13,6	14,1	15,4	18,3	14,7	16,6
Skilled agricultural and forestry workers	3,6	3,2	3,5	3,3	2,6	2,8	2,7	3,1
Craft and related trades workers	19,3	16,4	14,9	16,8	18,3	21,1	16,6	17,3
Plant and machine operators and assemblers	5,4	3,9	2,4	3,0	4,9	4,6	4,8	6
Elementary occupations	0,5	0,5	0,6	0,8	0,7	0,5	0,3	0,4
Others	0,2	..	0,0	0,0	..	0,1	..	0,3
Males								
Legislators, senior officials and managers	82,0	99,6	100,7	98,4	87,3	83,1	83,8	85,8
Professionals	11,9	14,3	14,8	15,1	19,8	19,0	17,7	14,6
Technicians and associate professionals	13,0	12,4	11,2	11,3	10,1	10,7	10,3	12,6
Clerks	1,6	1,2	0,9	1,7	1,5	0,8	1,9	2
Service workers and shop and market sales workers	7,0	7,4	6,6	6,6	8,1	10,1	7,4	8,8
Skilled agricultural and forestry workers	2,9	2,5	3,0	2,8	2,3	2,2	2,0	2,6
Craft and related trades workers	18,6	15,3	13,8	16,0	16,9	20,1	16,1	16,6
Plant and machine operators and assemblers	5,1	3,9	2,3	3,0	4,8	4,3	4,8	5,6
Elementary occupations	0,4	0,3	0,2	0,6	0,5	0,5	0,3	0,2
Others	0,2	..	..	0,0	..	..	..	n.r.
Females								
Legislators, senior officials and managers	20,2	19,1	19,8	19,7	18,3	19,1	18,7	18,6
Professionals	11,1	11,6	11,6	13,1	12,5	11,4	11,2	9,9
Technicians and associate professionals	3,4	4,3	3,3	3,5	3,5	3,6	3,4	3,8
Clerks	1,1	1,2	1,4	1,6	1,1	1,0	0,8	1,5
Service workers and shop and market sales workers	8,0	7,3	7,1	7,5	7,3	8,3	7,3	7,8
Skilled agricultural and forestry workers	0,7	0,6	0,5	0,5	0,3	0,6	0,7	0,5
Craft and related trades workers	0,7	1,1	1,0	0,8	1,3	1,1	0,6	0,8
Plant and machine operators and assemblers	0,3	0,0	0,1	0,0	0,1	0,3	0,1	0,4
Elementary occupations	0,1	0,2	0,4	0,2	0,2	..	..	0,2
Others	..	..	0,0	..	..	0,1	..	0,3

Source: CSO, Labour Force Survey

G.7 Entrepreneurs without employees by occupational groups (CZ-ISCO) in 1995 - 2002 (thousand persons)

Occupational groups (CZ-ISCO)	1995	1996	1997	1998	1999	2000	2001	2002
Total								
Legislators, senior officials and managers	141,7	155,7	152,8	152,5	142,9	132,9	133,9	136,9
Professionals	71,9	74,5	77,6	83,5	88,5	99,9	97,2	98,7
Technicians and associate professionals	78,6	76,5	78,0	82,4	87,6	90,6	97,1	107,0
Clerks	9,2	8,5	9,9	12,5	12,7	15,6	15,6	18,4
Service workers and shop and market sales workers	69,8	74,5	75,9	87,0	90,3	95,3	88,9	97,2
Skilled agricultural and forestry workers	27,6	28,6	26,9	28,9	28,6	30,1	26,5	26,1
Craft and related trades workers	120,8	120,3	128,3	149,9	165,9	172,9	182,0	197,5
Plant and machine operators and assemblers	33,4	34,3	32,0	36,4	37,4	38,1	38,3	40,4
Elementary occupations	8,2	7,1	5,7	6,6	5,7	6,7	9,6	10,3
Others	1,1	0,1	0,1	0,1	0,1	0,1	0,2	0,6
Males								
Legislators, senior officials and managers	110,6	127,2	125,3	123,7	115,4	107,4	107,3	110,2
Professionals	44,6	47,1	48,0	50,0	53,6	62,5	61,1	62,1
Technicians and associate professionals	53,8	51,5	52,7	54,8	55,4	56,9	60,8	72,6
Clerks	3,3	3,0	2,6	4,1	3,8	4,7	5,2	5,9
Service workers and shop and market sales workers	26,5	28,7	29,8	34,6	36,7	38,2	35,0	37,3
Skilled agricultural and forestry workers	21,6	22,6	21,7	23,0	23,9	25,1	22,0	22,1
Craft and related trades workers	107,6	107,6	115,9	136,8	152,1	160,0	167,1	183,0
Plant and machine operators and assemblers	31,2	32,5	29,8	34,0	35,5	35,4	36,8	37,6
Elementary occupations	5,3	5,0	3,8	4,3	3,9	3,8	4,8	6,4
Others	1,0	0,1	0,1	0,1	0,1	0,0	0,1	0,3
Females								
Legislators, senior officials and managers	31,1	28,5	27,5	28,8	27,4	25,5	26,7	26,7
Professionals	27,4	27,4	29,5	33,6	34,9	37,4	36,1	36,6
Technicians and associate professionals	24,9	25,0	25,3	27,6	32,3	33,7	36,3	34,3
Clerks	5,9	5,5	7,3	8,4	8,9	10,9	10,3	12,6
Service workers and shop and market sales workers	43,3	45,7	46,1	52,4	53,7	57,2	53,9	59,9
Skilled agricultural and forestry workers	6,0	6,0	5,2	5,9	4,6	4,9	4,5	4,0
Craft and related trades workers	13,2	12,7	12,4	13,1	13,8	12,9	14,8	14,5
Plant and machine operators and assemblers	2,2	1,8	2,2	2,4	1,9	2,7	1,6	2,8
Elementary occupations	2,8	2,1	1,9	2,3	1,8	3,0	4,8	3,9
Others	0,1	..	0,0	0,0	..	0,1	0,1	0,3

Source: CSO, Labour Force Survey



G.8 Entrepreneurs with employees by branches in 1995 - 2002 (thousand persons)

branch (CZ-NACE)	1995		1996		1997		1998		1999		2000		2001		2002	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Agriculture and hunting	6,3	0,9	6,8	1	7,3	0,8	7,2	0,9	6,2	0,9	6,6	1	4,8	0,4	6,2	1,1
Forestry and fishing	1	..	0,6	0	0,5	0,1	0,9	0	0,7	..	0,6	0,2	1	0,1	0,8	0,1
Mining and quarrying	0,3	..	0,6	..	0,2	..	0,2	..	0,3	..	0,4	..	0,3	..	0,3	n.r.
Manufacturing	28,5	4	31,6	5	33,1	5	33,5	4,8	32,6	4,3	25,6	2,7	28	3,1	28	3,1
Electricity, gas and water supply	1,2	0,1	1,2	0,1	0,9	0	1,1	..	1,4	..	0,7	..	0,5	..	0,9	n.r.
Construction	29,4	1,1	29,4	1,3	31,3	1,6	32,9	1,3	30	0,5	30,3	1,7	26,7	1,5	27,8	1,2
Trade, repairs of motor vehicles and consumer goods	58,3	17	65,9	17,5	62,1	17,4	58,1	17	57,3	16,5	60,4	16,4	52,1	13,4	52,8	14,7
Hotels and restaurants	15,1	4,5	14,8	3,5	15,5	4,2	14,7	4	16,1	4,4	17,7	6,2	17,4	6,8	20,1	7,1
Transport, storage and communications	9,6	1	9,7	0,9	8,2	0,9	9,8	1,1	9,7	1,4	12,1	1,1	11,9	1,2	13,7	1,3
Financial intermediation	0,9	0,4	1	0,4	1	0,4	0,8	0,2	1,2	0,2	0,9	0,2	1,7	0,1	1,8	0,2
Real estate, renting and business services	14,9	3,5	20	4,8	18,1	3,2	17	3,7	18,8	4,5	18,7	4,8	17,6	3,1	15,5	2,2
Public admin., defence, compulsory social security	0,4	0,1	0,7	0,2	0,7	0,1	0,7	0,3	0,7	0,3	0,8	0,1	1,3	0	1,7	0,4
Education	1,5	1,1	1,2	0,5	0,6	0,4	1,2	0,4	1,5	0,6	1,4	0,5	1,7	0,6	2,3	0,8
Healthcare and social work	14,3	9,4	13,1	7,9	13,6	8,3	16,3	9,8	13,6	8	13,6	7,4	15,5	9	14,3	8,8
Other public, social and personal services	6,1	2,4	5,5	2	5,5	2,7	8	3,6	5,7	2,9	6	2,8	6,3	3,3	6	2,5
Households with employed persons	..	..	0,2	0,2	0,1	0,1	..	..	..	..	..	..	..	..	n.r.	n.r.
Extra-territorial organizations and bodies	..	..	..	..	..	..	..	..	0,1	..	0,2	..	..	..	n.r.	n.r.
Not identified	0,1	..	0,1	..	0,1	0	0,1	..	..	..	0,1	0,1	0,2	0,2	0,5	0,3
Total	188	45,4	202,3	45,4	198,7	45,2	202,5	47	195,7	44,5	196,2	45,4	187	42,8	192,6	43,7

Source: CSO, Labour Force Survey

G.9 *Entrepreneurs without employees by branches in 1995 - 2002 (thousand persons)*

Branch (CZ-NACE)	1995		1996		1997		1998		1999		2000		2001		2002	
	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female	Total	Female
Agriculture and hunting	22,2	6	22,8	5,6	20,3	4,6	20,6	4,8	21	4,3	20,3	5	19	4,1	19,1	3,9
Forestry and fishing	8,7	0,4	9,5	0,3	9,7	0,8	9,8	1	9,9	0,5	11,8	0,5	10,8	0,4	9,4	0,5
Mining and quarrying	0,5	0,2	0,5	0,1	0,7	0,1	1	0,4	0,8	0,1	0,4	-	0,1	-	0,9	n.r.
Manufacturing	51,7	16,6	47,5	16	47,8	14,3	52,2	14,7	56,1	14,1	55,7	15,2	62	17,7	68,2	16,9
Electricity, gas and water supply	3,4	0	1,9	0,1	1,8	0	2,5	0,3	3,6	0,2	2,9	0,2	2	-	3,5	0,4
Construction	56,6	1,4	64	0,9	70,5	1,6	89,9	2,2	97,7	2,2	105,1	2,5	116	3	121,9	2,1
Trade, repairs of motor vehicles and consumer goods	97,4	36,3	96,6	35,8	94,8	32,4	101,5	37,5	112,4	40,7	107,9	40,8	105,8	40,3	115,6	40,5
Hotels and restaurants	10,2	4,3	10,3	4	9,6	3,8	13,7	5,8	12	5	13,7	4,7	13,5	4,7	16,7	6,5
Transport, storage and communications	23,6	1,6	24,1	1	24,5	1,8	28,6	2,5	28,7	3	29,4	2,7	27,7	2,5	28,1	2,5
Financial intermediation	4,9	1,5	4,9	1,8	5,6	2,7	8,4	3,2	8,1	3,6	11,8	5,2	16,5	6,9	15,8	6,2
Real estate, renting and business services	59,1	23	60,3	23,7	63,7	27,4	60,7	26,8	63,6	31,4	69,8	33,7	69,4	31,4	79	35,7
Public admin., defence, compulsory social security	1,8	0,6	1,9	0,7	1,4	0,3	0,9	0,2	2	0,9	1,9	0,3	2,3	0,8	2,4	1,1
Education	3,2	2,1	2,7	1,5	2,5	1,2	3,6	1,4	4,7	2,1	5,1	2,5	5,7	2,9	6,7	3,7
Healthcare and social work	5	2	5,6	2,7	5,6	2,8	5,8	2,6	6,8	3,7	9,5	5,4	8,8	5,5	8,9	5,7
Other public, social and personal services	25,9	15,2	25	15,3	29,9	18,3	37,7	24,2	36,4	22,9	40,3	23,8	42,2	25,8	43,4	26
Households with employed persons	0,2	0,2	0,1	0,1	-	-	-	-	-	-	-	-	0,1	0,1	0,3	0,2
Extra-territorial organizations and bodies	0,2	0	-	-	0	-	0,3	0,1	0,2	0,1	0,2	0	-	-	0	n.r.
Not identified	0,1	-	0,1	-	0	-	0,1	0	0,1	0,1	0,3	0,3	0,3	0,1	0,5	n.r.
Total	374,6	111,5	377,8	109,3	388,4	112,2	437,5	127,7	464	134,9	486,1	142,9	502,2	146,2	540,5	151,9

Source: CSO, Labour Force Survey



METHODOLOGICAL ANNEX

Table I Comparison ICT sector definitions

ISIC/NACE	ISIC (OECD)	NACE (EUROSTAT)	ISIC
Manufacturing			
consistency	30	30	Office, accounting and computing machinery
consistency	3130	31.III	Insulated wire and cable
Eurostat includes the whole category 32: Manufacture of radio, television and communication equipment and apparatus	3210	32.1	Electronic valves and tubes and other electronic components
	3220	32.2	Television and radio transmitters and apparatus for line telephony and line telegraphy
	3230	32.3	Television and radio receivers, sound or video recording or reproducing apparatus and associated goods
consistency	3312	33.20	Instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process equipment
NACE: „Manufacture of industrial process control equipment“	3313	33.30	Industrial process equipment
Services			
Eurostat includes only category 51.64: Wholesale of office machinery	5150	51.43 51.64 51.65	Wholesaling of machinery, equipment and supplies
consistency	6420	64.20	Telecommunications
EUROSTAT doesn't include this category into the ICT	7123	71.33	Renting of office machinery and equipment (including computers)
consistency	72	72	Computer and related activities

Source: OECD, Eurostat.

[1] CSO data are based on NACE.

Table 2 *Overview of providers of career choice guidance in the CR*

Provider	Activity	Managing and financing authority
Labour Office – Division of placement services	The countrywide network includes 77 Labour Offices and several dozens of their branches. The Division of placement services keeps a register of unemployed job seekers and job vacancies, communicates with the employers and mediates jobs to job seekers.	Methodological and strategic support provided by the MLSA Employment Service Administration.
Labour Office- Guidance (and Re-training) Division	Provides a wide range of services from basic advice through to specialised vocational guidance for complex problem solving, as well as professional diagnostics and psychosocial assistance to the unemployed. The counsellors usually specialize e.g. in career guidance for youth, for people with physical disabilities, in re-training, for specific groups of clients, etc. Some Labour Offices provide also diagnostic services (assessment of client's overall potential and his/her current opportunities to find a job in the labour market).	
Labour Office – Information and Guidance Centre (IGS)	Self-service centre with information about study programmes offered by all types of schools and training facilities, about individual jobs and professions, about labour market. It includes information in all formats, such as brochures, pamphlets, PC programmes, videotapes, as well as testing of interests and predispositions. In addition to information the presence of the counsellors is also available.	
Centres of Competences Diagnostics	Countrywide network of 23 centres that provide specialist guidance services to clients of Labour Offices based on agreement with Labour Office. The diagnostics services are guidance services that lead to an overall assessment of client's potential and his/her current opportunities to get a job in the labour market.	
Educational counsellor in schools	Available in every school. Addresses mainly issues relating to pupils' behaviour and education, partly also to their career guidance, provides especially basic information about and advice in study programmes offered by subsequent level of education, processing of papers related to application process for studies. Provides (or should provide) basic guidance to pupils in schools that should be than followed by more professional and qualified guidance (see other institutions). Too short a time allocated of just 1 - 3 hours a week, depending on the size of school. This is a problem, as well as insufficient education: only about 1/4 have completed a post-graduate course in educational guidance.	Is an employee of school – a teacher devoting 1-3 hrs to guidance (the school is managed by either MEYS, regional or municipal authorities, and financed by regional or municipal authorities, non-governmental schools are co-financed by them).

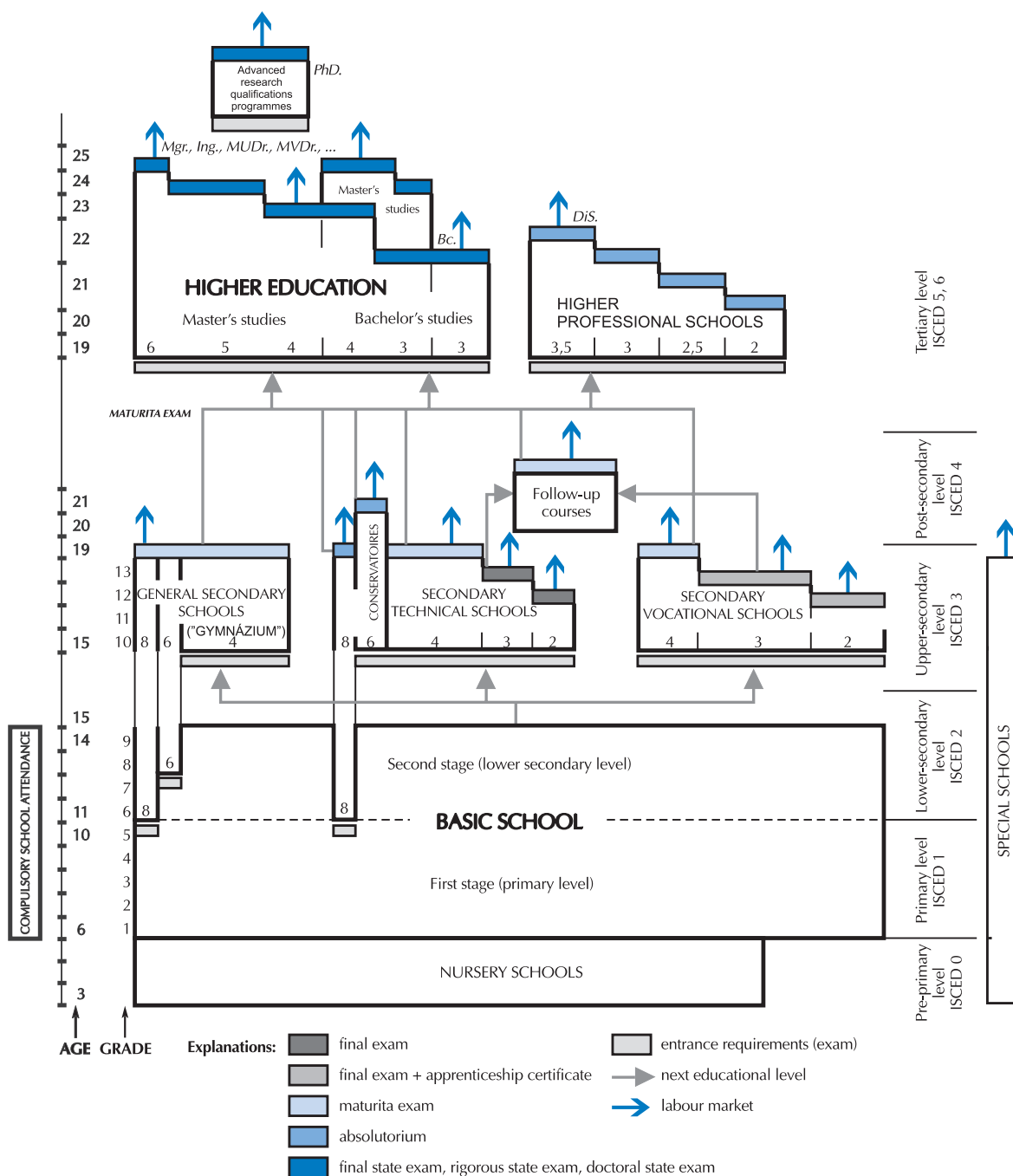
Table 2 Continuation

Provider	Activity	Managing and financing authority
School psychologist	Addresses mainly complex problems of pupils related to their behaviour and education, partly also provides career guidance, especially testing of predispositions for further educational and professional orientation, makes recommendations of educational path. Only a few schools have their school psychologist.	Schools hire them on part-time basis or on other type of contract.
Pedagogical and Psychological Counselling Centre (PPCC)	The countrywide network includes 103 centres. Like school psychologists they address especially complex pupils' problems in behaviour and education, are only marginally involved in career guidance, focus especially on testing of predispositions for further study and professional orientation, on recommending suitable educational path. According to surveys only some 10 % of basic school pupils and some 2 % in <i>gymnázium</i> use their services, and only some of them in career guidance).	Financed by regional authorities / municipalities, partly by revenues from paid services. Receives methodological support from Institute of IPPCC.
Information Centre for Youth (ICY)	23 ICYs are part of a gradually developing network. They provide information from a whole range of topics of interest for youth, e.g. sport, culture, travel, computers, drug prevention, as well as education and employment.	Financed and methodologically supported by MEYS, partly also by various foundations.
Counselling Centre at University	Counselling Centres at universities exist in most faculties. They provide services to their students relating to career development opportunities and also to pre-examination stress management, relaxation and autogenous techniques, etc. They also provide information about study programmes to students who want to get enrolled in respective faculties.	Is part of the organisation structure of respective higher education facility.
Academic Information Centre (AIC)	Unlike in previous cases AICs do not comprise a network. There is just one centre in Brno that provides information about possibilities of studying abroad, scholarships, conditions of competitions, etc.	Financed by foundations and funds.
Academic Information Agency (AIA)	AIA is based in Prague and provides similar information to AIC.	Financed by MEYS.
Centre for Career Guidance at the National Institute for Technical and Vocational Education (NITVE)	The Centre is in Prague and provides guidance for parents and their children in primary and secondary schools focusing on the selection of future educational path, as well as detailed information about study programmes offered by schools.	Financed by NITVE that is a contributory organisation of MEYS.

Table 2 *Completion*

Provider	Activity	Managing and financing authority
Centre for Equivalence of Documents about Education at the Centre for Study of Higher Education (CSHE)	The Centre is located in Prague and provides advice about recognition of qualifications in European university educational facilities.	Financed by CSHE that is a contributory organisation of MEYS.
Special Education Centre (SEC)	SECs are mostly set up in special schools, i.e. schools for children with disabilities. They help children who are in some way disadvantaged, with physical or mental disabilities. This assistance includes guidance in future career orientation in relation to their relevant disability. Compared to other activities, this represents only a very small part of the bulk of activities.	Financed by regional authorities or municipalities.
Regional Advisory and Information Centres for Businesses (RAIC)	30 RAICs comprise a countrywide network. They provide advice to people interested in doing business and to existing businesses, e.g. in starting up of a company, assessment of a business idea, using various support and subsidy programmes, solving problems in doing business such as drafting of contracts, bookkeeping, etc.	Financed by private companies subsidized from the SME Support Fund. Methodological guidance provided by the Agency for Business Development at the MIT.
HR agency	There are dozens of them. They do head hunting for their clients, the employers, who search for personnel to fill openings in selected positions.	Private companies

Education System of the Czech Republic



EDUCATION SYSTEM IN THE CZECH REPUBLIC - OVERVIEW

Pre-school education

Nursery school (*materská škola*) is part of the education system. The basic age group is from 3 to 6. Although attendance is not compulsory, it includes 86 % of the age group. The majority of schools are free but parents can be asked to pay a maximum of 30 % of the running costs.

Compulsory education

School attendance has been compulsory since 1774. It lasts for a period of 9 years, usually from the ages of 6 to 15, mostly at the basic school (*základní škola*). Catchment areas are defined, but the choice of school is free. Pupils can leave a basic school at the end of the 5th year for an eight year gymnázium or at the end of the 7th year for a six year gymnázium after passing the entrance examination set by the school. At the first stage, all subjects are taught by the same teacher, while at the second stage teachers usually specialise in two subjects. The national teaching standards authority sets the objectives and the basic curriculum. To achieve them, various educational programmes can be employed. Pupils are assessed (by teachers) on the basis of written and oral performance (and homework) and classified on a scale of 1 to 5. Continuous assessment is summarised in a report at the end of each semester.

Upper secondary education

There are three main types of secondary schools in the Czech Republic: general secondary school (*gymnázium*), secondary technical school (*střední odborná škola – SOŠ*) and secondary vocational school (*střední odborné učiliště – SOU*). A prerequisite for acceptance is completion of a compulsory education and successful meeting of the entrance requirements. The headmaster decides to accept some applicants without an entrance exam and to set the content of the exam. *Gymnázium* (ISCED 3A) provides a general, academic education. Its main aim is to prepare students for university studies. The duration is 4 years after 9 years of basic school, although there are also other types of gymnázium (see above). At the end of their time at the gymnázium students take a final exam (*maturita*). A *secondary technical school* (ISCED 3A, B) usually provides a complete secondary vocational education which takes 4 years and concludes with a final exam (*maturita*) and sometimes also lower-level secondary vocational education (2- or 3-year courses). The school prepares students for technical work in one of about 260 branches. About 40 % of teaching time is devoted to general education and 60 % to vocational technical education. Practical lessons are taught in laboratories and workshops at schools. *Secondary vocational school* (ISCED 3C) offers apprenticeship training mostly in 3-year (and sometimes 2-year) courses ending in a final exam and apprenticeship certificate. Practical training represents about one half of teaching time and it aims at the acquisition of manual skills. The number of branches amounts to about 280. There are also 4-year courses organised by secondary vocational school. They end in *maturita* exam. The courses lead to highly skilled worker qualifications. Graduates of the 3-year courses are offered to take *follow-up study* concluded by *maturita* exam. The curricula of all secondary schools must meet the requirements of the appropriate educational standards approved by the Ministry of Education, Youth and Sports.

Tertiary education

A *higher professional school* (*vyšší odborná škola*), ISCED 5B, provides the necessary qualifications for demanding technical activities which do not require a university degree. The programmes last a minimum of two years and a maximum of three and a half years. The graduate receives the title DiS. (specialist with a diploma). Higher education institutions can be either university or non-university types, both defined as *vysoká škola*. The type of institution is declared in its statute, and must comply with the verdict of the Accreditation Commission. They offer education at three tertiary levels: *bachelor study programmes* (usually 3 years, ISCED 5B) and *master study programmes* (usually 5 years, ISCED 5A) are available for applicants who have passed the *maturita* exam and have met the other admission criteria incl. entrance exam. The third level of higher education, *advanced research qualification programmes* (usually 3 years, ISCED 6), is open to graduates of the master study programmes. Traditional university-type institutions may offer all types of study programmes while non-university institutions are characterised by providing mainly bachelor study programmes. Most university-type institutions are divided into faculties.

LIST OF ABBREVIATION

AEP – Active Employment Policy
 BIC – Business and Information Centres
 BS – Basic School
 CER – Centre for Empirical Research
 CET – Continuing Education and Training
 CSO – Czech Statistical Office
 CVT – Continuing Vocational Training
 CVTS – Continuing Vocational Training Survey
 DS – Distance studies
 EC – European Commission
 EEA – European Economic Area
 EU – European Union
 GCSES – Government Council for Social Economic Strategy
 GDP – Gross Domestic Product
 HLCA – Higher-Level Collective Agreements
 HRD – Human Resource Development
 HWF – Households, Work and Flexibility
 ICT – Information and Communication Technology
 IGC – Information and Guidance Centre
 IIE – Institute for Information on Education
 ILO – International Labour Office
 ISCED – International Standard Classification of Education
 ISCO – International Standard Classification of Occupations
 ISDN – Digital network of integrated services
 IT – Information Technology
 KZAM – Classification of occupation
 LAN – Local Area Network
 LFS – Labour Force Survey
 MEYS – Ministry of Education, Youth and Sports
 MIT – Ministry of Industry and Trade
 MLSA – Ministry of Labour and Social Affairs
 NITVE – National Institute of Technical and Vocational Education
 NOET – National Observatory of Employment and Training
 NPE – National Plan of Employment
 NTF – National Training Fund
 NUTS – Nomenclature Units of Territorial Statistics
 OECD – Organization for Economic Cooperation and Development
 OK práce – Electronic information system of Employment Services Administration
 OKEČ – Branch classification of economic activities
 OP – Operational Programme
 p.p. – percentage point

PC – Personal Computer
 PISA – Programme for International Student Assessment
 PPCC – Pedagogical and Psychological Counselling Centres
 RAIC – Regional Advisory and Information Centres
 RILSA – Research Institute of Labour and Social Affairs
 SIALS – Second International Adult Literacy Survey
 SIP – State Information Policy
 SIPE – State Information Policy in Education
 SME – Small and Medium Size Enterprises
 SPD 3 – Single Programming Document for Objective 3 Region NUTS 2 Prague
 STS – Secondary Technical School
 SVS – Secondary Vocational School
 UN – United Nations
 WEF – World Economic Forum

A – Austria
 B – Belgium
 CZ , CR – the Czech Republic
 D – Deutschland
 DK – Denmark
 E – Spain
 EL – Greece
 FR – France
 FIN – Finland
 HU – Hungary
 I – Italy
 IRL – Ireland
 NL – the Netherlands
 P – Portugal
 PL – Poland
 S – Sweden
 SI – Slovenia
 SK – Slovakia
 UK – United Kingdom
 USA – United States of America

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Statistical and sociological surveys used:

Micro-census (a survey of household income) was conducted in the Czech Republic for the first time in 1956. As a regular survey of household income it is carried out once in 3-5 years using a representative sample of 1-2% of Czech households (with one exception in 1992 when the sample was smaller).

Labour Force Survey was resumed in the CR after 1989 – at first it was piloted in the last quarter of 1992. Since 1993 it has been carried out regularly every three months using a rotating sample of 60 thousand people (approx. 0.7% of households). This means that one fifth of the households surveyed is new. This is a standard Labour Force Survey designed from the outset in line with Eurostat recommendations. The outcome of each survey is a publication containing principal results and time series covering data obtained in all the surveys undertaken in the previous year. In 2002 the questionnaire was amended and the LFS time series were adjusted in line with the results of Population and Housing Census, 2001.

International Social Survey Program (ISSP). This is a long-term international research project launched in 1983 by four institutions: the Social and Community Planning Research (SCPR) in the UK, The National Opinion Research Center (NORC) in the USA, Zentrum für Umfragen, Methoden und Analysen (ZUMA) in Germany and The Institute of Advanced Studies of the Australian National University. Since 1983 the number of participating countries has been constantly growing up to the current 35. Research is carried out each year concerning one specific topic and the themes (modules) are taken up again after some time.

European Value Study - EVS. This extensive international and longitudinal programme is focused on changes in political and economic orientation, changes in family and religious values and expectations as regards economic and political regimes, minorities and socially disadvantaged groups etc. The survey was undertaken for the first time in 1981 as part of the “European Value Systems Study Group” in nine West-European countries. In the 1980s researchers from other parts of Europe and other continents joined the study increasing the number of participating countries to 23. A new wave of

surveys was carried out in 1990-1993 and covered 43 countries including Czechoslovakia. The third wave of surveys was conducted in 1999 and also included the Czech Republic.

(Second) International Adult Literacy Survey (SIALS) is a joint programme involving governments, statistical offices, research institutions and the OECD. The survey was supervised by the Canadian Statistical Office and Educational Testing Service at Princeton University. In 1994 the survey was conducted in nine countries (France, Germany, Ireland, Canada, the Netherlands, Poland, Sweden, Switzerland and USA). Another five countries-regions (Australia, Flanders in Belgium, the UK, New Zealand and Northern Ireland) decided to use IALS instruments in 1996 (Literacy Skills, 1997). Another eight countries joined the last survey in 1998 (Czech Republic, Chile, Denmark, Finland, Hungary, Italy, Norway and Slovenia). The survey examines three types of literacy: reading, documentary and numerical.

Economic Expectations and Attitudes is a survey which started in Czechoslovakia in 1990. In the first two years (1990-1992) it was carried out bi-annually, later on (1993-1998) once a year. The survey was organised by a team of experts in economic sociology at the Sociological Institute of the Czech Academy of Sciences, the team leader was Jiří Večerník. The survey was concerned with attitudes of the population to the economic situation and their own standard of living, and with objective data about income and living standards, positions in employment, mobility etc. The collection of the data was organised by the Centre for Empirical Surveys (STEM).

Households, Work and Flexibility (HWF) is the name of a survey conducted in 2001 as part of a project of the same name, which is part of the 5th Research Programme and co-ordinated by Claire Wallace, the Institute for Advanced Studies in Vienna. The survey worked with individuals aged between 15 and 65 in 8 countries (Czech Republic, Hungary, Slovenia, Bulgaria, Romania, the Netherlands, Sweden and the United Kingdom). The focus was on various forms of labour flexibility and latent conflicts between employment and family.

Ten years of social transformation in the Czech Republic is a survey undertaken by Pavel Machonin and Milan Tuček as part of GAČR 403/98/0170 project in 1999 using a sample of 5,000

adults. The data was collected by the Sociological Institute of the Czech Academy of Sciences under the leadership of Milan Tuček.

Survey into the Development of Human Resources and Skill Needs in Enterprises – the technical part of the survey was commissioned by the National Observatory of Employment and Training at the National Training Fund and the choice was the MEDIAN agency. The questionnaire was divided into five sections: human resources development and management, turnover and recruitment of staff, accession to the European Union, external links and business information. The data was collected in October and November 2002. The target group included individuals responsible for training and recruitment in enterprises with more than 5 employees. Information was gathered from 901 respondents (760 in the category of SMEs and 141 in large enterprises).

The survey „Access of Young People to Education and their Situation in the Labour Market”, was conducted by the National Institute for Technical and Vocational Education in 2002 as part of the LS “Research for Public Administration” programme of the Ministry of Education, Youth and Sports (the project identification code is LS02G).

Research into Career Services and the Needs of its Clients at Basic and Secondary schools was carried out at the end of school year 2001/2002 by the National Institute for Technical and Vocational Education in seven catchment areas. A total of 917 respondents at basic schools took part (8th year pupils), 256 respondents at secondary grammar schools (*gymnázia*) and secondary technical schools, and 528 respondents at secondary vocational schools (both in courses with and without “maturita”). All of them were final year students.

NATIONAL TRAINING FUND

The National Training Fund (NTF) was established in 1994 by the Ministry of Labour and Social Affairs (MLSA) within the framework of EU Phare programmes to support the development of human resources in the Czech Republic. The NTF mission has been defined as follows:

- to contribute to social and economic transformation in the Czech Republic by developing human resources primarily in the private sector and industry,
- to contribute to the development of lifelong learning by supporting the development of further vocational education and training,
- to support the integration of the CR into the EU in the area of human resources development, with particular attention to the improvement of public administration and provision of technical assistance to ESF programmes preparation and implementation.

Human Resource Development - section of NTF - in cooperation with team of experts elaborated the analytic and strategic document "The Strategy for Human Resources Development in the Czech Republic" and the project "Implementation of the Strategy for Human Resources Development in CR". The Strategy for HRD in CR was adopted by the Czech government in 2003.

Aware of the crucial role played by vocational training systems in sustaining the economy's performance and competitiveness, the NTF established two bodies in partnership with the European Union to deal with these issues: the *National Co-ordination Unit of the EU Leonardo da Vinci Programme* which promotes among other activities, transitional co-operation between training institutions and enterprises in the sphere of vocational training, and the *National Observatory for Employment and Training* (see next page).

Under NTF develops its activities also the *National Resource Centre for Vocational Guidance* which is part of the Europe-wide network Euroguidance. The Centre's main objective is to promote the European dimension in education and in counselling, to facilitate access to information about these subjects in European countries and to support their mutual co-operation.

National Support Structure EQUAL provides technical assistance to the European EQUAL Initiative. Main goal is to promote equal access to employment and to develop and verify procedures that restrain discrimination and inequalities in the labour market.

NTF – *Phare 2000 – The Human Resource Development Fund* is the implementation unit of the EU prestructural assistance to CR. This unit assists two NUTS 2 regions which suffer from the highest rate of unemployment.

NTF was designated by MLSA to provide also *technical assistance* in programming, managing, implementation, monitoring and evaluation of programmes co-funded from the European Social Fund.

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NATIONAL OBSERVATORY OF EMPLOYMENT AND TRAINING

The National Observatory of Employment and Training (NOET) was set up in October 1996 as a unit of the National Training Fund (NTF) under the initiative of the European Training Foundation (ETF). The NOET is part of a network of similar institutions in countries of Central and Eastern Europe and it also serves as an ETF contact point in the country. It participates in many international projects and closely co-operates with the European Commission, the CEDEFOP, the OECD, universities and other foreign partner institutions.

Fields of activities:

- Monitoring and analyses of mutual links between the labour market and the initial as well as continuing vocational education and training;
- Development and testing of methodology for regular forecasting of qualification needs of the labour market at the national, sectoral and regional levels; enhancing a relevant information base and an institutional background for regular forecasting and dissemination of information to users;
- Project design and coordination in the field of improving responsiveness of education and training to the needs of the labour market and promotion of the development of institutional links at the regional and national levels;
- Transfer of know-how and preparation for monitoring and evaluation related to the use of the European Social Fund at the national and regional levels;
- Monitoring and dissemination of outcomes of international activities focusing on research into vocational education and qualification needs of the labour market;
- Providing expertise and guidance for new candidate countries.

The NOET provides information about the development of human resources, collects data and analyses trends in education and the labour market against the background of social and economic changes. As part of the analyses extensive surveys are conducted, the results of which facilitate up-to-date information concerning specific areas that are not covered by regular statistical data. The outputs of the NOET activities are published in the form of reports and studies focusing on various areas of education, qualification needs and employment, and also in the form of statistical data concerning selected aspects of education and vocational training and the labour market. Based on such information, recommendations are formulated in order to support the development of initial as well as continuing education and training, and to set forth priorities of programmes co-financed from the ESF.

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