MINISTRY FOR REGIONAL DEVELOPMENT

IMPACT OF THE COHESION POLICY ON THE LEVEL AND QUALITY OF EMPLOYMENT IN THE CZECH REPUBLIC

FINAL REPORT

Prague, July 2010

Prepared by: **National Training Fund, p.b.o.**
Opletalova 25
110 00 Prague 1
Czech Republic
ID No.: 25751417
VAT No.: CZ25751417

1. Summary

The final report summarizes structured information on the solution of a project called *Impact of the Cohesion Policy on the Level and Quality of Employment in the Czech Republic*. The objective of this project was to find out what is the role and the effects of European cohesion policy onto improvement of employment level and quality in the Czech Republic. Similar projects have been concurrently solved also in Poland and Hungary.

Methodology used for the preparation of the final report applied approaches mentioned or used in the three main documents: in the Working Document No. 6 of the European Commission *Measuring Structural Funds Employment Effects*, in the methodological essay *Impact of the cohesion policy on the level and quality of employment in Poland* (issued in December 2008 by the polish Ministry for Regional Development) and in own works of the authors from the National Training Fund and Hope-Euservis.cz.

Primary data used in the final report have been divided in accordance with the assignment regarding the timeframe into periods of years before the Czech Republic joined European Union (1999 – 2003) and of years after the accession (2004 – 2008). Regarding the analytical approaches, both the *bottom-up* and *top-down* approach have been applied. In terms of the first approach relevant information from EU funds beneficiaries have been identified and then analyzed. Identification of this information has been done via specific survey questionnaires presented to the beneficiaries from chosen operational programmes which supported creation of jobs and whose managing authorities monitored these indicators. In the period of 2004 – 2006 mainly programmes OP HRD, CI EQUAL, SPD 3, SPD 2, OP IE, JROP and in the period of 2007 – 2013 programmes OP HRE, OP PA and regional operational programmes have been in question. Also directed discussions have been done with a chosen sample.

Data obtained at the national level have been used in the top-down approach analysis. Particularly information included in the reports and inquiries of the Czech Statistical Office, Ministry of Labour and Social Affairs and further organizations have been the case. Also specific reports on employment development in the Czech Republic and reports and evaluation studies concerning existing results of implementation of the operational programmes Development of Human Resources and Human Resources and Employment have been utilized. Desk research of all available materials and information represented the basic method of information obtaining.

As for information sources used for the comparison of the situation and/or the development in the Czech Republic and abroad, reports, studies and analyses in particular, created in the initiative of the general directorate Employment, Social Affairs and Equal Opportunities of the European Commission have been used. We have also utilized works of the European Centre for the Development of Vocational Training (CEDEFOP), which are addressing the development of supply and demand in the European labour market.

Chapter 4 – Cohesion policy and Employment in the Czech Republic – represents the main focus of this final report. Its content is in accordance with the assignment of the project

divided into 12 sections, each of them pursuing one of the 12 given main evaluation questions. Their content is outlined in a way so that these questions are responded by appropriate factual answers. Core of the answers to these questions represents at the same time the main conclusions stated on the basis of performed works.

Thanks to the interventions from Structural Funds, 47 000 gross and 32 640 net jobs were created in the Czech Republic in the period 2004 – 2008. In comparison to the number of jobs created by the means of the national support (active labour market policy, investment incentives), the contribution rate accounted to approximately one fifth. The most jobs (55.7 %) were created in the tertiary sector of the economy, out of which 45.7 % were sustained. 43.5 % of jobs were created in the secondary sector, however, the rate of sustainability was the highest in this sector (53 %). The most jobs were created in the region Central Moravia (21.1 %) and the least jobs in Prague (5 %). The most jobs were created for persons with secondary education (54.5 %) and the rate of sustainability was also the highest in this case (60.6 %). Regarding the age, the most jobs were created and sustained for persons aged 25 – 54 years. Share of women employed in the created jobs amounted to 43 %. Share of disabled persons employed in the created jobs reached 4.5 %. In total 92 % of projects sustained the created jobs for longer than one year.

Employment structure in the Czech Republic was changing in the period 1999 – 2008 only slightly. The development of employment structure showed in the main features same in the years before the Czech Republic joined the European Union as well as after its accession to the EU. Employment structure according to sex, age, education, sectors of the economy and profession (occupation) was developing and is in all the regions of the CR similar, with the exception of Prague.

Unemployment rate fluctuated between 7.8 – 8.8 % in the period 1999 – 2004 and fell down from 8.3 % to 4.4 % in the period 2004 – 2008 while the trends of its development remained in different regions of the Czech Republic the same, unemployment rate, however, was noticeably below average in Prague and noticeably above average in the regions of North-West and Moravia Silesia.

Interventions within the project frame of the Operational Programme Development of Human Resources were more effective in comparison with the active labour market policy. Cost per unit for creation/sustainability of jobs cannot be determined. ESF aid is markedly effective at specific groups – disabled, people over 50 and people with basic education. Mainly jobs with lower quality of work (in total three quarters) were created from EU funds.

In the monitored period 1999 – 2008 (i.e. before the CR joined EU as well as after accession) the key factor of employment development out of the observed factors impacting employment level in the Czech Republic (demographic factors, subjects of economy, earnings and economic growth) was economic growth. Further factors impacted the employment level only in a very limited extent.

Changes in the employment structure show the Czech Republic to be approaching knowledge economy, even though the pace of approaching is rather slow. The share of

persons employed in professions and branches demanding high qualification and technology and the share of employees with tertiary education are growing.

Forecasts on workforce demand show growth in workforce demand in the sector of services, in demand for workforce with tertiary education, for technical and related professions.

Concerning factors impacting part-time and full-time work, sex, education and age have been identified as factors influencing whether a given person works part-time or not. In the Czech Republic, the main reasons for part-time work are health reasons and care for children or disabled person. The total amount of people employed part-time is at a standstill, is, however, increasing in a group of people with higher education and decreasing in a group of people with lower education. The share of men in productive age working part-time is decreasing.

Analysis of factors impacting temporary employment (trial period, studies, scholarship, disability to find permanent job) indicated almost two thirds (63 %) of the Czech residents to have been forced into temporary employment by inability to find a job with another type of contract. The share of temporary employed people has rather been in a standstill in the Czech Republic recently, when the CR joined EU it even has gone down moderately. After the Czech accession to the EU, the share of part-time working people as well as people with temporary employment has increased. The highest share of temporary employed people is in administrative and support activities and in the area of real estates, culture and education.

Diversification of regions (NUTS 2) regarding the labour market indicators was increasing in 2004 and 2005 for the last time and since then it has been stagnating. Absolute variability rate has been decreasing since 2005 gradually. The importance of NUTS 2 regions diversification has decreased this way after the CR joined EU. Since 2006 so called beta convergence can be observed leading to the elimination of regional differences.

Qualification requirements in highly qualified branches have been increasing and this trend is to be expected also in coming years. Similarly, remuneration of employees with tertiary education shows a gradually growing tendency, even though salary level of these employees is below average when compared to the EU average. Rate of sustainability of jobs cannot be specified because relevant data do not exist. In spite of this, sustainability in sectors demanding high qualification can be assumed higher. Qualification requirements rise also in other (less qualification demanding) sectors, but not in such an extent as in the sectors demanding high qualification.

Based on the learned results, several recommendations have been expressed which should be applied in outlining and implementation of cohesion policy and labour market policy of the Czech Republic in the coming periods. These recommendations are stated at the end of Chapter 5 of this Final Report.

2. Content

3. Introduction

The presented final report from the project *Impact of the Cohesion Policy on the Level and Quality of Employment in the Czech Republic* contains total structured information on project solution which has been executed within the homonymic public contract of the Ministry for Regional Development. Authors of this final report are experts of a consortium set up by the National Training Fund and HOPE – Euservis.cz.

The objective of the project was to find out what is the role and the effects of European cohesion policy onto improvement of employment level and quality in the Czech Republic. Methodologically, the chosen solution is based on several key documents. They are (except for the assignment from the Ministry for Regional Development itself) mainly Working Document No. 6 of the European Commission *Measuring Structural Funds Employment Effects* from March 2007 and the methodological essay of a Polish organization PAG Uniconsult *Impact of the cohesion policy on the level and quality of employment in Poland* worked out following the initiative of the Polish Ministry for Regional Development. Concerning applied methodology of work, the authors of the final report used, in accordance with the assignment of the public contract, both the macroeconomic analysis of data of the Czech Statistical Office, Ministry of Labour and Social Affairs and of a number of further information („top-down" approach), and questionnaire surveys, directed discussions and analysis of data from EU funds beneficiaries („bottom-up" approach). Analysed data describe employment development in the Czech Republic before the accession of the Czech Republic to the EU in the years 1999 – 2003 as well as after the accession in the years 2004 – 2008.

The structure of the final report is arranged in a way as it was presented in the offer of the mentioned consortium. Except for the usual summary, content and introduction, the most important parts of the final report are chapters 4 and 5.

Chapter 4 represents the content focus of the entire submitted final report. This chapter 4 is, taking into account the required structure of the object of the performed public contract, divided into 12 sections (4.1 – 4.12). Each section of this chapter pursues one of the 12 given main evaluation questions and its content is outlined in a way so that these questions are answered in an appropriate concrete manner. In case more questions have been asked in the assignment of the contract for each topic, the content of each section deals with all of them. Answers to the given evaluation questions are stated always at the end of each section of chapter 4.

Chapter 5 presents conclusions and recommendations. These recommendations focus on execution of cohesion policy in the employment area. They are drafted in a way so that they can be considered contribution to the common European discussion on future state of the cohesion policy after 2013. Content of recommendations concentrates on direct interventions within cohesion policy, on efficient and effective maintenance and establishing of new better jobs in the Czech Republic.

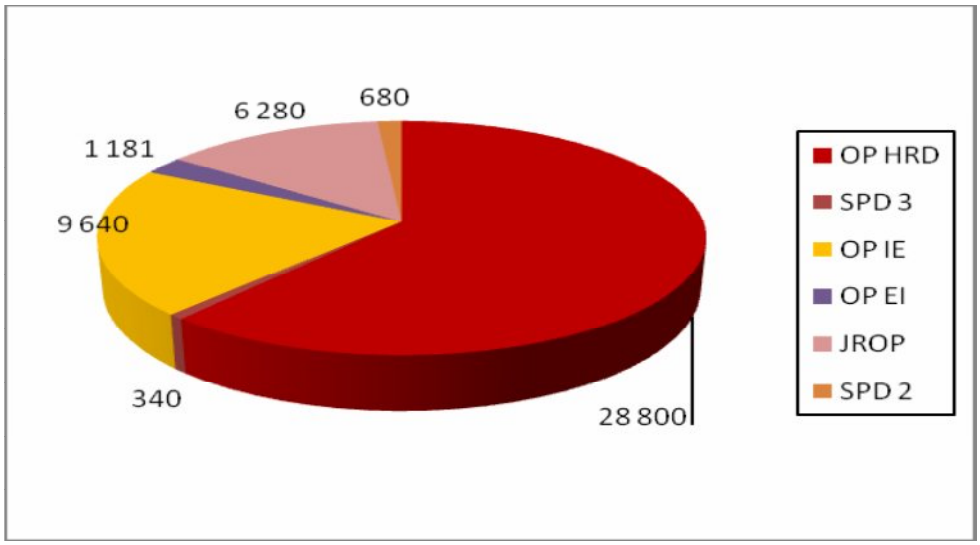
Two last chapters of the final report include attachments and thereinafter a description of used methodology and data sources used in the final report.

4. Cohesion Policy and Employment in the Czech Republic

4.1 Interventions of Cohesion Policy and Creation of New Jobs

In the years 2004 - 2008 approximately **47 000 new jobs** in total were created with the assistance of structural funds in the Czech Republic. The jobs were created mainly in terms of programmes: OP HRD, OP IE and JROP (see following chart). **Contribution of ESF programmes was predominant**.

Chart 1: *Number of created jobs in the period 2004 -2008*



Source: IS SF

In total 51 % of projects created a job or jobs from grant support programmes of the MIT (OP IE and OP EI). This information for ESF programmes is not available in the IS.

In the past programme period the conditions to create a certain minimal number of new jobs was rather exceptional for receiving support to the project. This condition can already be found more often in the current period in the programmes (e.g. programme ICT and strategic services of the OP EI[1]). In some calls, the applicants creating jobs use to be given preferential points in projects selection, even this is however exceptional.

Number of Jobs According to Subject and Sector

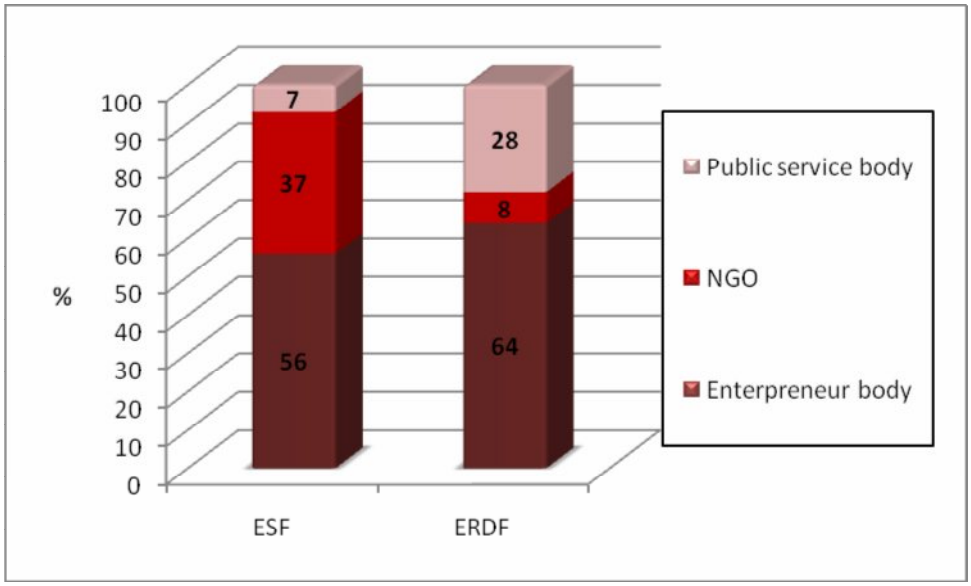
After the CR joined EU, jobs from structural funds were created mainly by entrepreneurial subjects, which is in all programmes. In programmes funded by ERDF this dominance was even more noticeable than in ESF programmes, which is due to the focus of the programme (see following

[1] E.g. III. call from 3 to 40 jobs according to the size of the enterprise and supported activity

chart). The representation of non-profit sector was more than four times higher in ESF programmes than in ERDF programmes.

According to the IS OP IE, small and medium enterprises created 6 205 jobs, the remaining 3 512 jobs were created by large enterprises and other organizations and institutions (e.g. universities etc.).

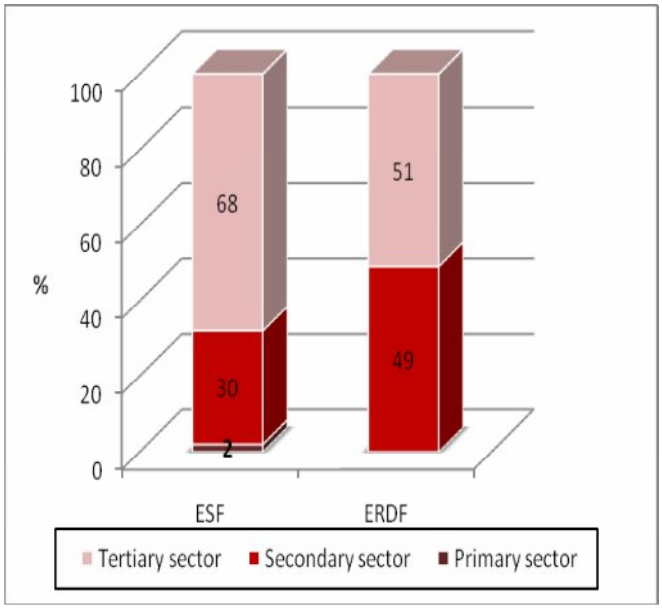
Chart 2: *Distribution of newly created jobs according to structural fund and type of beneficiary*



Source: Questionnaire survey among beneficiaries

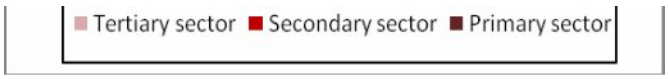
When analysing the distribution of jobs according to the sector, we will find out minimum share of jobs to be created in the primary sector. In ERDF programmes, the secondary and tertiary sector were represented evenly (around 50 %). In ERDF programmes, however, the tertiary sector was predominant (68 %). The distribution of jobs according to the sector reflects, in fact, the focus of programmes. If we compare created jobs with employment in the national economy, newly created jobs established in operational programmes appear to be heading into secondary sector more than what would correspond with its share on employment in the national economy.

Chart 3: *Distribution of newly created jobs according to sector*



Source: Questionnaire survey among beneficiaries

Chart 4: *Comparison of distribution of jobs according to sector*



Source: Questionnaire survey among beneficiaries, CSO

While the tertiary sector is predominant for created jobs in total for both SFs (56 %), secondary sector is predominant for retained jobs. 53 % of jobs were retained there (46 % in the tertiary sector). This distribution reflects in fact the development of the labour market, which is a growing share of the tertiary sector, meaning jobs are being created rather in this sector, while the secondary sector rather tends to retain jobs with support of SF.

Regional Division of Created Jobs

Regional division of jobs is available just for ERDF programmes, the highest share of jobs from ERDF was created in the NUTS 2 regions Central Moravia (approx. 21 %), South-East (17 %) and South-West (15 %) and the lowest in the region Prague (approx. 5 %). More about employment in regions in chapter 4.3.

Jobs According to Education and Age of Employees

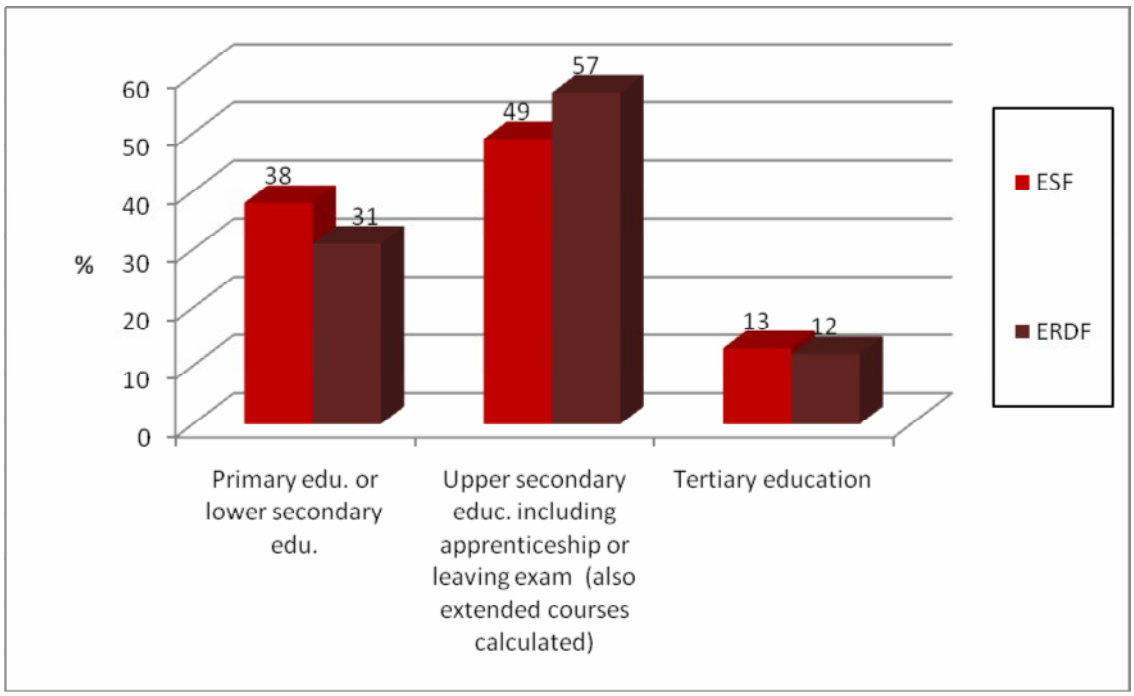
Regarding the age of persons employed in the newly created jobs, group of people aged 25 - 44 years is absolutely predominant. Also group of people aged 45 - 54 years is relatively significantly represented in ERDF (approx. 1/4). It is interesting that ESF programmes focus on older age groups

rather little. Nevertheless, the highest unemployment rate in the CR shows precisely among people aged 25 - 44 and 45 - 54 years.

The retained jobs are in comparison to created jobs more concentrated on group of people aged 45 – 54 years (28 % against 19 %) and less on people aged till 24 years (7 % against 13 %). Focus on older age group is positive and logical.

Chart 5: *Distribution of newly created jobs according to age*

Chart 6: *Comparison of distribution of jobs according to education*



Source for both charts: Questionnaire survey among beneficiaries

Created jobs are filled first of all by persons with higher secondary education (i.e. secondary education with apprenticeship certificate or leaving exam (including extension studies after apprenticeship)), which is in both funds. This group of employees is even more predominant in ERDF programmes. In ESF programmes, the representation of persons with basic and lower secondary education is more noticeable. This ESF focus can be evaluated positively. The representation of persons with university degree is generally lower.

Also retained jobs relate mainly to persons with secondary education (61 %), while the dominance of this group is even more significant than as for created jobs. The representation of persons with university degree is similar both in retained and created jobs (approx. 13 %).

Jobs According to Sex and Specific Groups of Persons

Questionnaire survey showed a fact that generally men and women are evenly represented in newly created jobs, with a little excess of men (53 %). In ESF programmes, there is a higher representation of women in newly created jobs - 61 %, while in ERDF programmes there are just 43 %. This representation mirrors in fact the focus of programmes.

On the contrary, if we look at the share of women among persons who increased their qualification, the number shows 54 % out of the total, in favour of women.

Chart 7: *Share of women in newly created jobs*

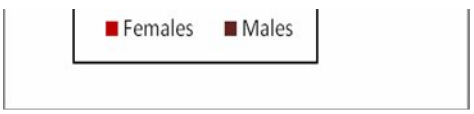
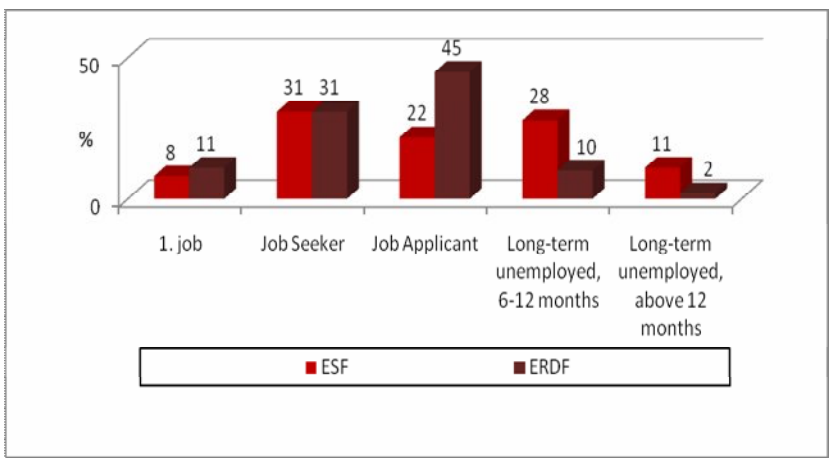


Chart 8: *Representation of specific groups of persons in newly created jobs*



Source for both charts: Questionnaire survey among beneficiaries

Also data from IS for OP IE and OP EI show lower representation of women in newly created jobs in these programmes. Nevertheless, it is already higher nowadays in OP EI in comparison to OP IE (37 % against 27 %).

The representation of employment applicants, which is of unemployed people till 6 months, is for both groups of programmes – ESF as well as ERDF – even (31 %). ESF programmes concentrate more significantly onto long-term unemployed people and ERDF programmes on the contrary on employment applicants (in other words still employed persons). This division is also logical and adequate in terms of focus of the programmes.

Chart 9: *Representation of specific groups in the projects*

Source: Questionnaire survey among beneficiaries

Only a very little share of projects of SFs created jobs for disabled persons or mothers coming back to the labour market after the maternity leave, approx. 3-4 %. Both groups are better represented in ESF programmes than in ERDF programmes. In more than 60 % of ESF projects, where jobs were created, at least one job for mothers after maternity leave was created.

Sustainability of Created Jobs

Sustainability of jobs is in the CR monitored only in chosen programmes (JROP, SPD 2). The sustainability was not monitored in programmes of the OP IE, because beneficiaries did not get any grants directly for creation of jobs in the past programme period. However, following the questionnaire survey results high sustainability of jobs in general, and in ERDF programmes mainly, was found out, which is, in consideration of the current economic crisis and recession, important to

be estimated as very positive. In ESF programmes the sustainability was not monitored in long-term and shows generally noticeably lower.

Chart 10: *Sustainability of newly created jobs*

Key: A – We were able to retain most of the jobs for longer than one year; B – We could retain only some of the jobs for longer than one year, but most of the jobs for longer than six months; C – No job retained for longer than one year, but most of the jobs for longer than six months; D – We could retain jobs for less than six months

Source: Questionnaire survey among beneficiaries

Benefits of ESF Programmes in Comparison with the National Support (ALMP, Investment Incentives)

The number of jobs created under support from structural funds is lower in comparison with the national support to create jobs. If we compare jobs created under ALMP, their number would be three to four times higher in comparison with the number of jobs created from SFs. An exact comparison cannot, however, be done since jobs in terms of ALMP are being monitored differently. The importance of jobs created from SFs is in fact, however, higher than the stated ratio (27 % out of all created jobs), because many jobs are created without being registered in projects by beneficiaries. On the other hand, if we count also jobs created from investment incentives[2], jobs created thanks to support from structural funds represent only 18 % of the total.

[2] Projects of CzechInvest Agency (www.Czechinvest.org)

Net Effects of Jobs Created from SFs

In programmes of structural funds in the CR, the newly created jobs under programmes of SFs were created as additional to the existing jobs. Jobs could not therefore substitute other jobs (e.g. after dismissal of workers).

Following the evaluation study done in 2009 for NCA, the dead weight is in individual operational programmes different. The total „dead weight" was determined as 29 %, calculating multiplication effects at the same time. Going out of these data, net 32 640 jobs were created in the period 2004 – 2008 with the support of structural funds.

Also the questionnaire survey with beneficiaries confirmed that most beneficiaries would not create jobs without complete support from structural funds at all. Only 15 % of beneficiaries would create all jobs even without any support.

Based on all the stated data, assigned questions can be answered:

Question: Into what extent the interventions done in terms of cohesion policy have directly or indirectly contributed to retaining existing jobs and creation of new jobs?

Thanks to interventions from SFs, 47 000 gross and 32 640 net jobs were created in the years 2004 - 2008. Contribution rate in comparison with jobs created from national support (ALMP, investment incentives) is approximately around 1/5.

Only from OP HRD approx. 2 mil. items of support were awarded to individual persons. This number, nevertheless, does not state the total number of supported persons, e.g. persons who were provided education or who increased their qualification in another way, just the total number of awarded supports, one persons is counted more times as well.

How many jobs were retained / created? Divided according to:

a) Individual branches (production, services, agriculture)

Primary sector: created – 0.8 %; retained – 1.4 %
Secondary sector: created – 43.5 %; retained – 53 %
Tertiary sector: created – 55.7 %, retained – 45.7 %

b) NUTS 2 regions

The most jobs were created in the region of Central Moravia (21.1 %) and the least in Prague (5 %).

c) Level of education of employed persons (divided according to ISCED levels):

Primary and lower secondary, level 0-2: created – 33.5 %; retained – 26.6 %

Upper secondary & post-secondary, level 3-4: created – 54.5 %; retained – 60.6 %

Tertiary education, level 5-6: created - 12 %; retained – 12.8 %

d) Age of employed persons (with a special focus on young persons and persons in post-productive age, mainly 15-24, 25-54, 55-64 years)

Group 15-24 years: created – 13.2 %; retained – 6.7 %

Group 25-54 years: created – 81.5 %; retained – 87.6 %

Group 55-64 years: created – 5.2 %; retained – 5.4 %

e) Sex of employed persons

Share of women in created jobs: 43 %

Share of women who increased their qualification: 54 %

f) Specific groups of people

Long-term unemployed: 22 % (over 6 months); 5.4 % (over 12 months)

Person employed for the first time: 10 %

Mothers after maternity leave: 3 %

Disabled persons: ca 4.5 %

g) What is the sustainability rate in created jobs (temporary jobs – till 6 months, permanent jobs)

Sustainability of created jobs is high, mainly regarding the current economic crisis. 92 % of projects in total were able to retain all jobs for longer than one year.

4.2 Cohesion Policy and Employment Structure in the Czech Republic

The employment in the Czech Republic in the monitored ten-year period (1998 – 2008) did not show any striking deviations. In principle, both total employment and employment structure were developing steadily.

Employment rate (measured as a percentage ratio of number of employed people and total number of residents of relevant age) changed in the Czech Republic in the years 1999 - 2008 only slightly: in the period 1999 – 2003 it oscillated between 65.61 % and 66.73 % and in the period 2004 – 2008

increased a little from 64.95 % to 67.78 %. This increase was caused by economic growth as well as partially by effort to meet one of the objectives of the Lisbon strategy of EU by 2010 – employment rate of 70 %.

When compared to the employment rate of other countries, employment rate in the Czech Republic in 2008 can be seen as moderately above average of 27 EU countries, which reached 65.9 % at that time. According to EUROSTAT data (1 – Structural Indicators, Employment, till 18. 10. 2009) employment rate in the Czech Republic in 2008 reached 66.6 %, in Poland 59.2 %, in Hungary 56.7 % and in the Slovak Republic 62.3 %.

In addition to the indicator of total employment rate also indicators of employment structure are very important. As for employment structure according to sex, there was a different employment rate for men and women in the monitored period. Development of both of these rates was identical with the development of the total employment rate. For women the rate was, however, oscillating between 56.53 % and 58.28 %, for men between 73.04 % and 76.58 %. Proportions between employment rate for women and employment rate for men remained in the monitored period roughly the same.

Chart 11: *Employment rate of persons aged 15-64 years in the CR, 1999-2008*

Source: Labour Market in CR 1993-2008. Prague: Czech Statistical Office, 2009. Calculations NTF.

Regarding the age structure of employees, data on age structure of employees always from the first, middle and last year of each of both monitored periods, i.e. data from 6 years in total at usually two-

years intervals, were used to assess its development. The total complex of employed people from the age of 15 years to more than 65 years was split into four age groups: there are employed persons aged 15 – 24 years in the first group, persons aged 25 – 44 years in the second one, aged 45 – 64 years in the third one and older than 65 years in the fourth one. The first group corresponds to a group of young people, the second and third one to productive age and the fourth one to group of older people including people in retirement age.

Development of age structure shows an obvious trend affected by the ageing of the Czech population. In the state data it appears mainly as the gradually decreasing share of employed persons in the lowest age group. During the monitored period this share went down almost to one half in the Czech Republic, which is valid for the total number of employed persons as well as for the employed women and employed men.

Chart 12: *Development of age structure in the CR, 1999-2008*

Source: Labour Market in CR 1993-2008. Prague: Czech Statistical Office, 2009. Calculations NTF.

In the most numerous group of employed persons, i.e. in the age groups of 25 – 44 years and 45 – 64 years, this trend cannot be seen for the first gimps in the chart, because both age groups are relatively wide. The original statistical data are, however, segmented into groups of five years and the trend is better observable in such a finer segmentation. The trend of population ageing belongs to the most crucial negative factors, impacting the economic and social development in the Czech Republic.

A positive factor, on the contrary, emerging also in the development of employment structure, is the raise of average education level. Also in order to determine the development of employment

structure according to education level, the classification of employed persons into four groups was used. The first category contains employed persons without any formal education and with basic education corresponding with levels 1 and 2 of the international classification ISCED. The second group includes persons with secondary education without option to apply for tertiary education (ISCED 3C), the third one contains persons with secondary education with the option to proceed with the tertiary education (ISCED 3A, 3B and 4) and the fourth group includes persons with university degree.

Table 1: *Development of employment structure according to education in the CR*

Development of employment structure according to education in the Czech Republic in the period 1999 – 2008						
Education Level	*1999*	*2001*	*2003*	*2004*	*2006*	*2008*
ISCED 0 - 2	8.7	8.8	6.8	6.3	5.9	5.8
ISCED 3 (part)	44.9	42.3	43.9	43.3	41.9	40.2
ISCED 3 (part) and 4	34.8	36.6	35.8	36.4	37.3	38.2
ISCED 5 and 6	11.6	12.3	13.5	14	19.9	15.8
TOTAL	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Women	*1999*	*2001*	*2003*	*2004*	*2006*	*2008*
ISCED 0 - 2	11.6	11.5	9.5	8.9	8	7.9
ISCED 3 (part)	36.1	32.5	33.9	33.2	32.8	30.7
ISCED 3 (part) and 4	42.1	44.9	44.2	45	44.9	45.6
ISCED 5 and 6	10.2	11.1	12.4	12.9	14.3	15.8
TOTAL	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Men	*1999*	*2001*	*2003*	*2004*	*2006*	*2008*
ISCED 0 - 2	6.4	6.6	4.7	4.3	4.2	4.2
ISCED 3 (part)	51.7	49.9	51.5	51.1	48.9	47.3
ISCED 3 (part) and 4	29.3	30.3	29.4	29.8	31.6	32.7
ISCED 5 and 6	12.6	13.2	14.3	14.8	15.3	15.8
TOTAL	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Source: Labour Market in CR 1993 - 2008. Prague: Czech Statistical Office, 2009. Calculations NTF.

Following the data in the table, two important conclusions can be taken. First of all, a very high share of employed persons with secondary education, which proves in the whole ten-year period almost 80 %. This is a specific feature of the Czech Republic (and of the Slovak Republic as well), of countries with the highest share of young people educated in vocational schools. Despite the fact that this high share of employed persons does not practically change, an increase in share of persons with

secondary education with the option to proceed with tertiary education within this group can be observed.

The second conclusion, which can be stated based on the data in the table, is the increasing share of employed persons with tertiary education (in the ten-years period of monitoring increase by one half) and, on the contrary, the decreasing share of persons without any formal education or with basic education (decrease by one third). Further, we can observe differences in the education structure of employed women and men in the monitored decade. At the end of the monitored period the employed women show higher average education level than men.

An important indicator of employment structure is the distribution of the total number of employees into three main economic sectors (primary, secondary and tertiary). Development of this structure is to be seen in the following table.

Table 2: *Development of the employment structure according to economic sectors in the CR, 1999 -2008*

Development of employment structure according to economic sectors in the Czech Republic in the period 1999 - 2008 (in %)						
Sector	*1999*	*2001*	*2003*	*2004*	*2006*	*2008*
Primary	5.2	4.8	4.5	4.3	3.7	3.3
Secondary	40.1	40	39.4	39.2	40	40.5
Tertiary	54.7	55.2	56.1	56.5	56.3	56.2
TOTAL	*100*	*100*	*100*	*100*	*100*	*100*
Women	*1999*	*2001*	*2003*	*2004*	*2006*	*2008*
Primary	3.9	3.3	3.2	3	2.8	2.4
Secondary	28	28.3	27	24.9	27	26.9
Tertiary	68.1	68.4	69.8	70.1	70.2	70.7
TOTAL	*100*	*100*	*100*	*100*	*100*	*100*
Men	*1999*	*2001*	*2003*	*2004*	*2006*	*2008*
Primary	6.2	5.9	5.4	5.3	4.5	4
Secondary	49.5	49.1	48.8	48.9	49.8	50.7
Tertiary	44.3	45	45.8	45.8	45.7	45.3
TOTAL	*100*	*100*	*100*	*100*	*100*	*100*

Source: Labour Market in CR 1993 - 2008. Prague: Czech Statistical Office, 2009. Calculations NTF.

Data in the table express both the specific situation in the employment structure in the Czech Republic (i.e. a relatively high share of persons employed in the secondary sector, mainly in the processing industry) and the development of this structure in the monitored period. A more common

trend affecting most countries can be perceived, i.e. gradual decrease in share of persons employed in the primary sector, or also in the secondary sector and, on the contrary, increase in share of persons employed in the tertiary sector. The data also display another, otherwise rare, situation which occurred in the Czech Republic in about the period of 2005 – 2008 in the time of economic growth. The share of people employed in this industry in was increasing in this period, which is in context of automobile industry boom (and boom of its suppliers), since it represents a large industry branch in the Czech Republic.

Development of employment structure according to sectors proves also significant differences between women and men. They confirm at the same time the dominance of men in the secondary sector and dominance of women in the tertiary sector.

When analysing the development of employment structure according to occupations, we used classification of occupations into 10 groups (COCC). Statistical data from the monitored period show the most people employed in 2008 in the Czech Republic in class 3 (technical, medical and pedagogical workers), 7 (craftsmen and qualified producers, processors, repairmen) and 8 (machine and equipment operators. More than half of the total employed people is employed in these classes in the Czech Republic.

Table 3: *Development of employment structure according to occupation in the CR, 1999-2008 (%)*

CLASSIFICATION OF OCCUPATIONS AND ROLE OF EMPLOYEES IN NE						
Employment category	*1999*	*2001*	*2003*	*2004*	*2006*	*2008*
1 - Legislators, chief executives and managers	6.6	6.4	6	6.2	6.6	6.7
2 – Research and expert intellectual workers	10	10.7	10.2	10.6	10.8	11.1
3 - Technical, medical and pedagogical workers	18.4	19	20.1	20.7	21.9	22.7
4 – Lower administrative workers	7.7	8.1	8	7.9	7	7.1
5 – Operation workers in services and sales	12.1	12.2	12.6	12.3	12.1	11.6
6 – Skilled workers in agriculture and forestry	2.1	1.9	1.9	1.7	1.5	1.3
7 – Craftsmen and qualified producers, processors and repairmen	20.9	19.8	19.6	19.3	18.2	18.7
8 – Plant and machine operators	12.8	13.1	13.2	13.4	14.3	13.5
9 – Auxiliary and non-qualified workers	8.2	7.9	7.6	7.4	7.3	7
10 – Army members	1.2	0.9	0.8	0.5	0.3	0.3
TOTAL	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

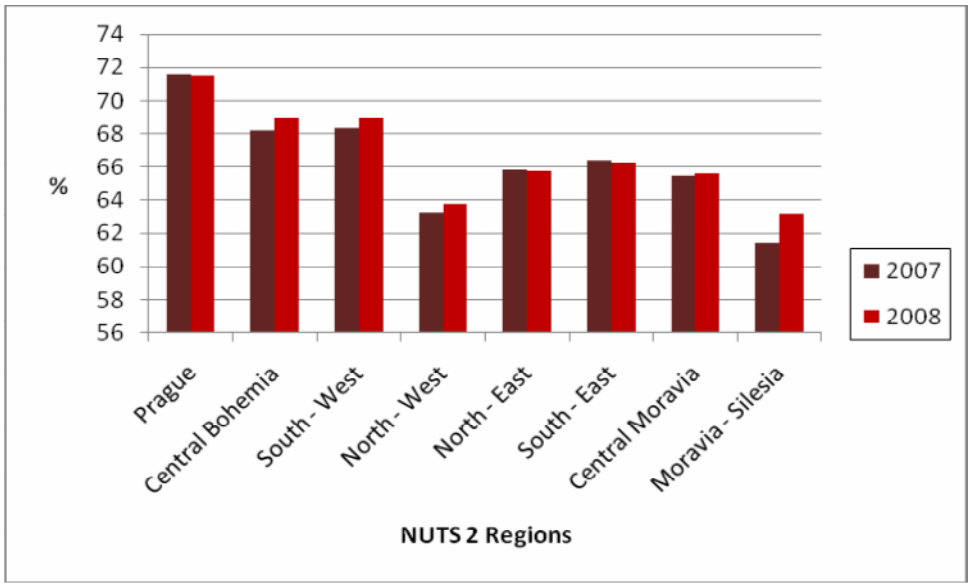
Source: Labour Market in CR 1993 - 2008. Prague: Czech Statistical Office, 2009. Calculations NTF.

Also in this viewpoint, however, noticeable differences between the structure of employed women and men can be found. While almost two thirds of men worked in the three above mentioned groups in 2008 in the Czech Republic, a similar share of women worked in the classes 3 (technical, medical and pedagogical workers), 5 (operation workers in services and business) and 2 (research and expert intellectual workers).

In the entire monitored ten-year period the employment structure according to occupations changed only slightly. More striking changes or trends are only an increase in number and share of people employed in class 3 and on the other hand a decrease in number and share of people employed in class 7.

Regarding employment structure from the point of view of regions in the Czech Republic, statistical data show that employment in individual regions differs mainly depending on the structure of economy of individual regions, which represent the basic regional structural unit in the CR at the level of NUTS 3. There are 8 units of NUTS 2 in the Czech Republic, one of them is capital city of Prague. The differences in the employment structure between individual regions, or between individual NUTS 2 regions are not significant. The only exception is Prague, where a number of economic and social indicators show differently from other regions.

Chart 13: *Employment rate in individual NUTS 2 Regions of the CR*

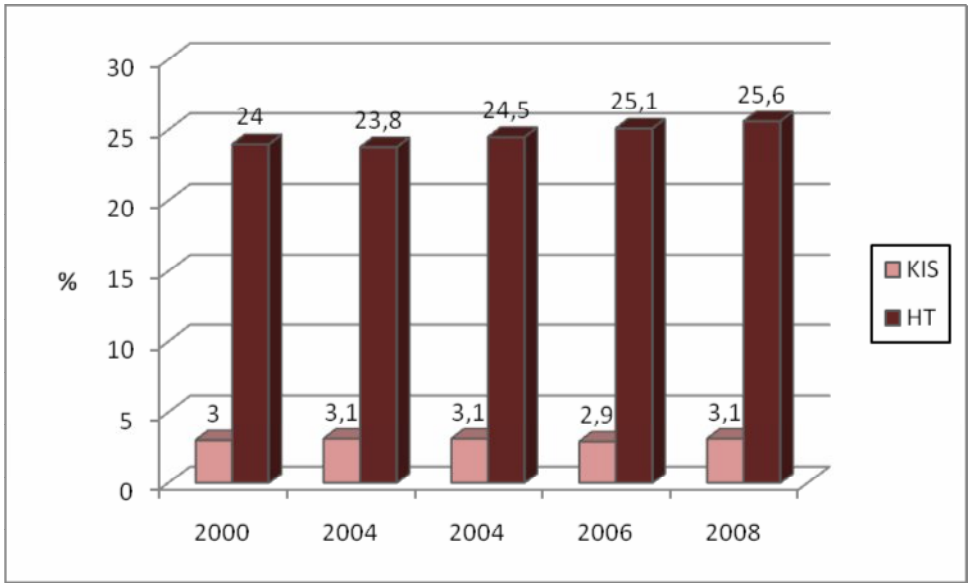


Source: Analyses of the Employment and Unemployment Development in 2008. Prague: Ministry of Labour and Social Affairs, April 2009. http://www.portal.mpsv.cz/sz/politikazamest/trh_prace/rok2009/Anal2009.pdf.

The employment in high-technology branches which contributes to acceleration of the process of approaching closer to so called knowledge-based society, can be assessed by a number of indicators.

Indicators used for comparison of competitiveness of individual countries were chosen because they sum up several partial indicators.

Chart 14: Employment development in knowledge intensive services



Key: KIS = knowledge intensive services in total; HT = high-tech services

Source: Collective of authors CES VŠEM, NOZV NVF: Competitiveness of the Czech Republic 2008 – 2009. Prague: Linde, 2010.

Both indicators in the table do not appear significantly different for the Czech Republic from other new EU member states. Analogical indicators for the whole group of 27 member states of the EU showed in 2001 3.3 for KIS indicator and 33.0 for HT indicator.

Based on all the stated data, assigned questions can be answered:

Question: Did the employment structure change in the period 2000 – 2008 (according to sex, age, education, occupation?

Answer: The employment structure changed in the monitored period, however only slightly.

Question: Did the employment structure of the Czech Republic change after it joined EU (according to sex, age, education, occupation?

Answer: Even though small changes can be spotted in the employment structure after the Czech Republic joined EU, the main features of the employment structure remained the same.

Question: Are there significant differences in the employment structure in the regional scale

(NUTS 2)?

Answer: There are no significant differences in the employment structure in the regional scale (NUTS 2) with the exception of Prague.

Question: How does employment in high-technology branches display in the sense of acceleration of approaching closer to the so called knowledge-based economy?

Answer: Even though the employment in high-technology branches is increasing gradually, still the speed of this development is low.

4.3 Effects of EU Financial Support onto Employment in Regions with the Highest Unemployment Rate

The analysis and evaluation of effects of invested money from SF programmes onto employment in regions is solved at the level of NUTS 2 regions in three parts:

- Unemployment structure in the regional view,
- Drawing money from operational programmes from ERDF and ESF in the regional view,
- Effects of SF operational programmes onto employment in the regional view.

Unemployment Structure in the Regional View (NUTS 2)

The evaluation of unemployment structure in the regional view was done by evaluation of the following chosen characteristics for individual NUTS 2 regions:

- total general unemployment rate,
- total number of not employed applicants,
- total general unemployment rate according to age,
- total general unemployment rate according to education,
- long-term unemployment rate.

Total General Unemployment Rate

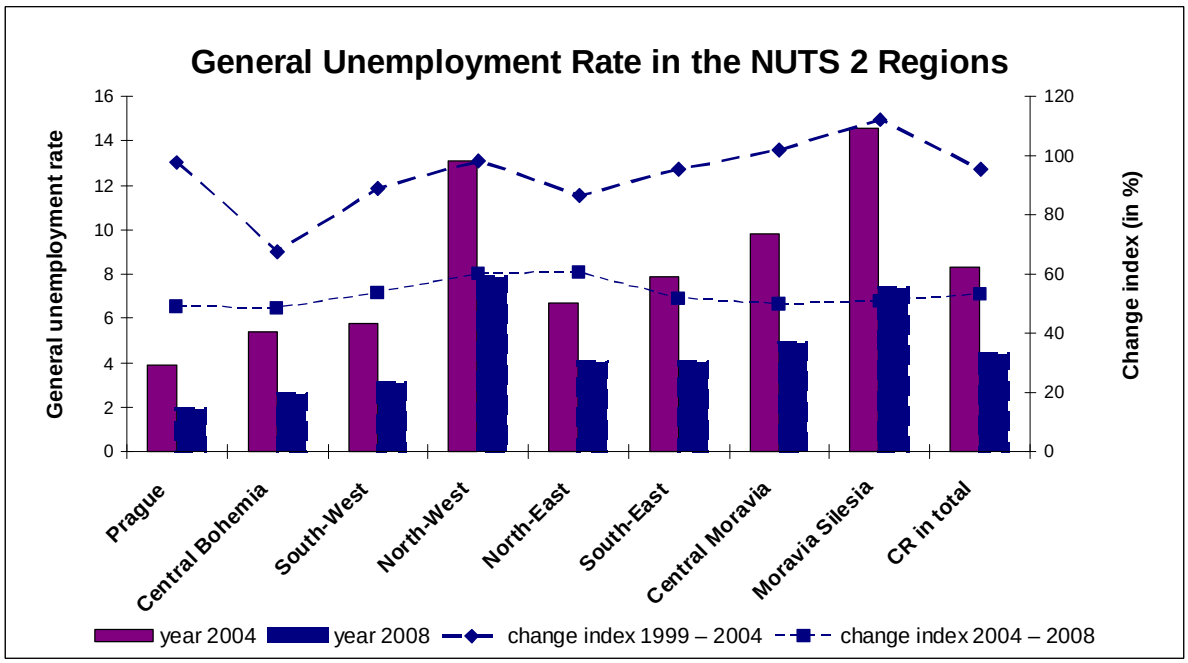
Regional Differentiation

A general unemployment rate in individual NUTS 2 regions proves a significant differentiation for the whole monitored period from 1999 till 2008. The unemployment rate in three regions (North-West, Moravia Silesia and Central Moravia) was exceeding the average values for the whole CR during the entire monitored period from 1999 till 2008. The most problematic, structurally affected regions North-West and Moravia Silesia exceeded that way with more than 13% of unemployment rate a general level of unemployment in the CR (8.7 %) by 50 % in 1999. Till 2008, the difference in unemployment rate between these regions and a Czech average (4.4 %), deepened, despite a total decrease in unemployment, which is with 7.8 % of unemployment rate for North-West region to 178 % of average for the CR and with 7.4 % for Moravia Silesia to 160 % of average for the CR.

Significantly lowest unemployment is in the whole monitored period to be found in region of Prague, where the unemployment rate for the entire monitored period (4 % in 1999 and 1.9 % in 2008) reaches less than half of the average for the total CR. Except for Prague, also regions South-West and Central Bohemia count among regions with an unemployment rate below average showing 65 and 64 % of average of the CR in 2008. In both regions, both absolute and relative improvement of situation in the unemployment rate appeared in the monitored period. In the region South-West, the decrease was more evenly spread into periods 1999 - 2002 (from 6.5 to 4.8 %) and 2004 - 2008 (from 5.8 to 3.1 %). The region of Central Bohemia registered a significant downturn of unemployment from 8 % to 4.9 % already in the years 1999 till 2002 and became this way a region with a below-average unemployment rate instead of being region with an average unemployment rate.

Two regions (North-East and South-East) recorded a moderately below-average unemployment rate in the whole monitored period – 88 and 95 % of Czech level in 1999 and 90 and 97 % in 2008. In 2008, the unemployment rate in both regions reached 4 %.

Chart 15: *General unemployment rate in the NUTS 2 regions*



Source: http://www.czso.cz/csu/2009edicniplan.nsf/p/3103-09

Development in the Period 1999 – 2008

Regarding the development, it can be stated that unemployment rates in individual NUTS 2 regions reflected a total development in the CR in the monitored period 1999 – 2008. The unemployment development can therefore be divided into three stages. The first stage of 1999 - 2002 features unemployment drop in all regions except for Moravia Silesia region (growth by 3 %). In the CR as a whole, the unemployment rate fell down by 16 % (from 8.7 % in 1999 to 7.3 % in 2002). The deepest decrease of unemployment was recorded in the region of Central Bohemia, which is to 62 % of the original level (from 8.0 to 5.2 %) and in the region of North-East to 69 % of the original level (from 7.7 to 5.3 %). Here mainly because of noticeable decrease in unemployment in the region of Liberec and Hradec Králové. An above-average drop (by 26 %) appeared also in the region of South-West.

The second stage of 2002 - 2004 is characterized by a repeated growth of unemployment rate, which is in all NUTS 2 regions. In the CR as a whole, the unemployment rate went up by 14 % (from 7.3 to 8.3 %) in the monitored period. The highest increase (by 25 %) was observed in the region of North-East (mainly in the region of Liberec and Hradec Králové) and in the region of South-West (by 19 %). The lowest increase in unemployment in this period was then, on the other hand, recorded in Prague (by 7 %) and in Central Bohemia (by 9 %) and Moravia Silesia (by 10 %).

In the third stage of unemployment development in the years 2004 – 2008, a significant drop in unemployment rate in all NUTS 2 regions occurred. The drop in unemployment ranged between 47 to 52 % (average for the CR 47 %) for most of the regions. Only two regions (North-West and North-East) registered a lower decrease in unemployment, which is to 60 % of the situation from 2004.

In 2008, the unemployment rate in the Czech Republic reached roughly 50 % of the state of the year 1999. The unemployment in the CR fell down from 8.7 % in 1999 to 4.4 % in 2008. Mainly the region of Central Bohemia, from all NUTS 2 regions, registered a more significant drop in unemployment in the whole period 1999 – 2008, which in 2008 reached 32.6 % of the level of the year 1999. The reason for this was mainly a deep decrease in unemployment in the region in the years 1999 - 2002 and a low growth in the years 2002 - 2004. On the contrary, the lowest decrease of unemployment in the period 1999 - 2008 was recorded in the two most problematic regions, which is North-West and Moravia Silesia, which reached in 2008 with their unemployment rate 59 a 57 % of the level of the year 1999. The region North-West saw a lower decrease of unemployment than the one recorded in average for the entire CR, which was caused by a lower decrease of unemployment in the third stage of the monitored period, i.e. between 2004 and 2008. The region of Moravia Silesia showed an increase in unemployment in the years 1999 – 2002 which caused a lower decrease of unemployment than average for the entire CR, because in other regions the unemployment rate was going down. In the region of Moravia Silesia, on the contrary to the region North-West, there was a more positive development from 2002 till 2008 in comparison with the Czech average - it was a lower increase in unemployment in the period 2002 - 2004 and a higher decrease in the period 2004 - 2008.

Total Number of Not Employed Job Applicants

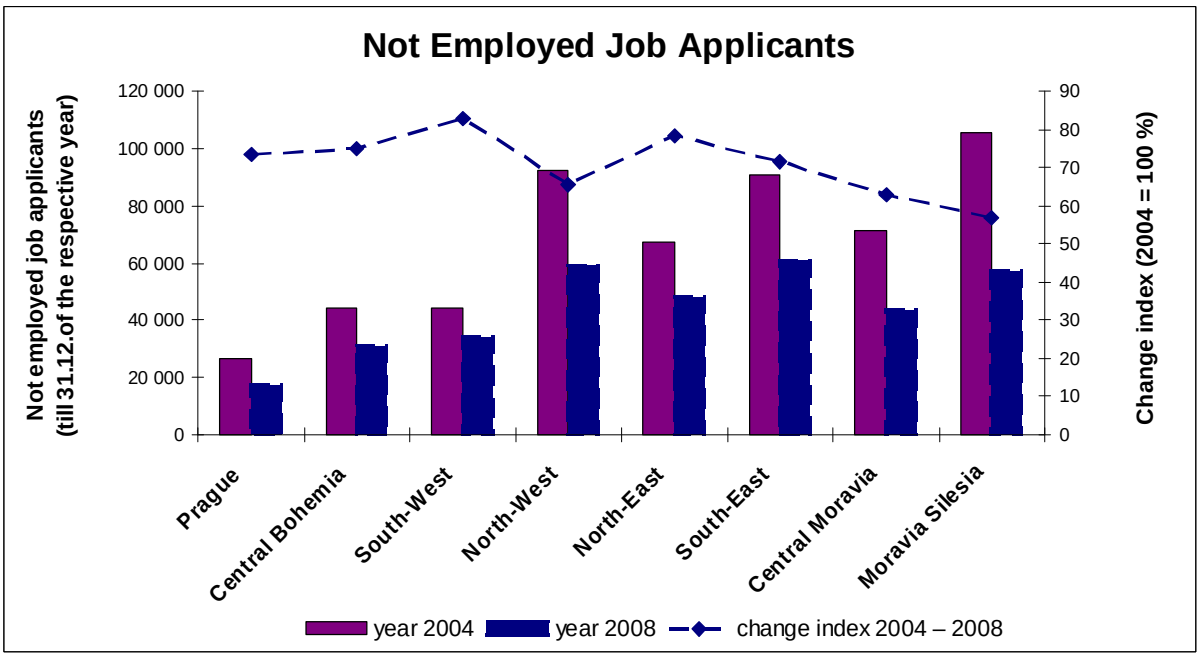
The total number of not employed job applicants registered at the employment offices in individual NUTS 2 regions reflects mainly the state and development of differentiation in general unemployment rate, described in the previous chapter. In the years 2002 till 2004, an increase in absolute number of not employed applicants in all NUTS 2 regions occurred, in the years 2004 till 2008 there was a decrease. The total number of not employed job applicants reached from almost 27 000 in Prague to more than 105 000 in Moravia Silesia in 2004. Till 2008, this number dropped down in Prague to 17 400 and the region of South-East became the region with the highest number of not employed applicants with more than 60 000 applicants.

The most significant decrease in the absolute number of not employed applicants, by 43 % in the years 2004 till 2008, was recorded in the region Moravia Silesia and regarding the number of not

employed applicants it ranked third with 57 500 applicants with the first region South-East (60 900) and second North-West (59 100). Except for Moravia Silesia also two other most problematic regions showed an above-average decrease in number of not employed applicants – North-West by 35 % and Central Moravia by 37 % (an average decrease in the CR was 32 %). In other regions the decrease was above average of the CR.

The lowest decrease in number of unemployed people in the years 2002 till 2008 was recorded in the region South-West with a decrease of 17 %, in the region North-East with a decrease of 22 % and Central Bohemia and Prague, where the number of not employed applicants dropped down by 25 and 26 %.

Chart 16: *Not employed job applicants*



Source: Ministry of Labour and Social Affairs of the CR

Total General Unemployment Rate according to Age

The unemployment in individual age groups features generally high unemployment rate in the age group to 19 years. For the whole CR, the unemployment rate in this age group showed 24.4 % against the total unemployment rate of 4.4 % in 2008. Regarding the regional differentiation, high unemployment is for the age group to 19 years characteristic mainly in the region North-West, where the unemployment rate in 2008 reached 45 % in comparison to the total unemployment rate in the region of 13.1 %. The region North-West also showed the lowest decrease in unemployment in this

age group in the years 2004 - 2008 – only by 20 % in comparison with almost 42 % of average for the whole CR.

Regarding the development in the years 2004 - 2008, when a total decrease in the unemployment rate in all NUTS 2 regions occurred, the deepest decrease was recorded mainly in the age group over 35 years. The lowest decrease in unemployment, or even its increase, was then, to the contrary, registered in the age group from 20 till 34 years in this period. The increase in unemployment rate occurred in five regions, the highest ones in the regions of North-West (by 17.4 %) and South-East (by 11.7 %). On the other hand, the region South-East registered till 2008 the deepest decrease in unemployment in the age group till 19 years, which is to 33 % of the state in 2004 (the decrease for the whole CR made 58 % of the original state). There was also a relatively deep drop in unemployment in the age group till 19 years in the period 2004 - 2008 in the region Moravia Silesia (to 46 %).

Total General Unemployment Rate according to Education

The unemployment rate generally goes down with achieved higher education. Unemployment structure according to achieved education in the regional view refers then to structural inequality and problems in individual regions.

For both most problematic regions, in the view of unemployment, North-West and Moravia Silesia, a very high unemployment rate of persons without education or just with basic education is characteristic. It reached almost 30 % in 2008. The same as in 2004, only these two regions showed unemployment rates higher than the Czech average.

There could have been differentiation regarding the development in the years 2004 till 2008 in the decrease in unemployment rates in individual groups according to education across regions spotted. A low drop of education rate in a group of inhabitants with basic or no education was typical in the region North-East (by 10 %) and partially also in the region North-West (by 19 %) against the state-wide average (decrease by 27 %).

To the contrary, a relatively high decrease in unemployment in the group of people with university degree was in the years 2004 and 2008 typical in four regions – Central Moravia, South-East, South-West and Moravia Silesia. In the regions of Central Bohemia, North-East and moderately also in Prague, the unemployment in a group of people with university degree went up in this period.

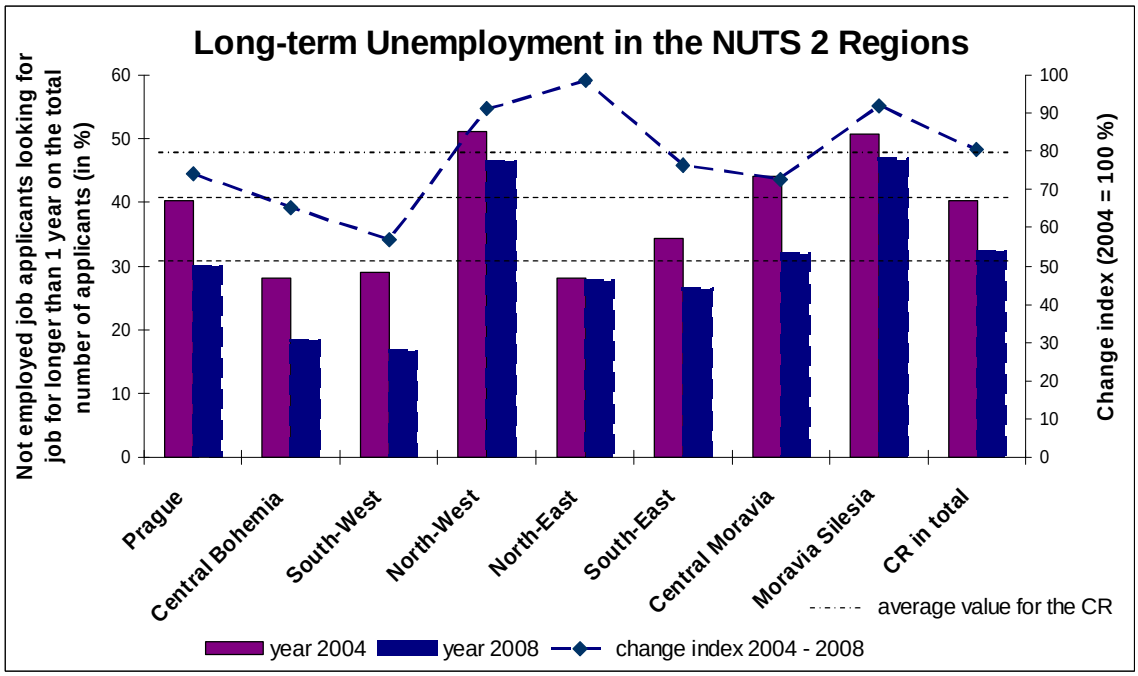
Long-term Unemployment Rate

Long-term unemployment rate was analysed as a ratio of not employed applicants looking for job for longer than one year and of total number of not employed applicants. Czech state-wide share was 32.4 % in 2008 and in the individual NUTS 2 regions it ranged from 16.6 % in the South-West region to 46.6 % in Moravia Silesia and North-West.

Individual NUTS 2 regions differ, therefore, significantly in the share of long-term unemployed people. This differentiation deepened in the years 2004-2008 even more because share of long-term unemployed people in individual regions decreased at different rates. Just in the most problematic regions – North-West and Moravia Silesia, which deal with structural problems and already in 2004 featured the highest share of long-term unemployed people, a relatively low decrease in this share in comparison to other regions occurred. The decrease in number of long-term unemployed people was not even 9 % in these regions, while the state-wide average stated 19 %. A below-average drop was recorded also in the North-East region, where the decrease was only at minimum (by 1.4 %). Here we are, however, talking of a region showing, together with Central Bohemia, the lowest share of long-term unemployed people out of all NUTS 2 regions in 2004.

Mainly regions of South-West (by 43 %) and Central Bohemia as well (by 35 %) showed high decrease in share of long-term unemployed people.

Chart 17: *Long-term unemployment in the NUTS 2 regions*

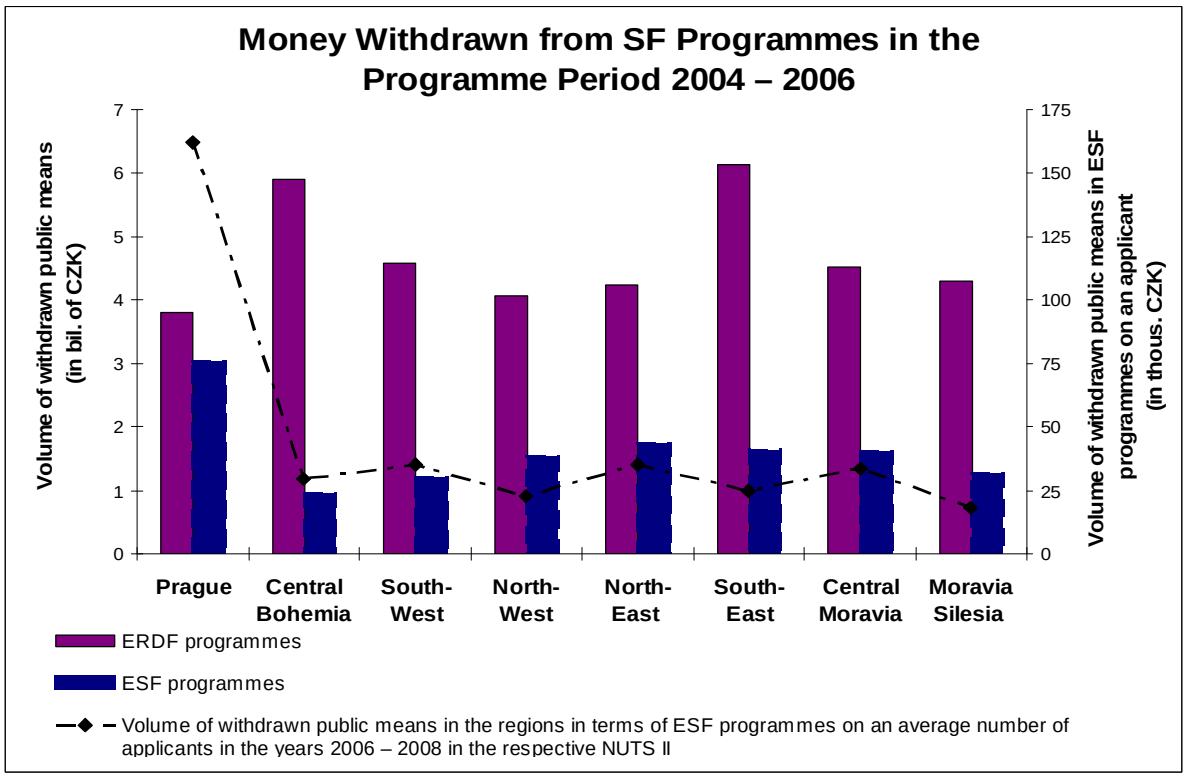


Source: Ministry of Labour and Social Affairs of the CR

Drawing Money from Operational Programmes from ERDF and ESF in the Regional View (NUTS 2)

Till the end of 2008, more than CZK 50 billion[3] of public expenses in the programme period of 2004-2006 and more than CZK 1.6 billion[4] of public expenses in the programme period of 2007-2013 was withdrawn from programmes supported from ERDF and ESF in the CR. Out of the total volume of withdrawn money from programmes supported from ERDF and ESF, almost 75 % came from ERDF programmes (without including part of JROP supported from ESF) and more than 25 % from ESF programmes (including part of JROP supported from ESF) in the programme period 2004-2006. Till the end of 2008, no money was drawn from ESF programmes in the programme period 2007-2013.

Chart 18: *Money withdrawn from SF programmes in the programme period 2004 – 2006*



Source: MSSF Central (May 2009), Note: In the multi-objective programme JROP, the expenses are divided according to individual Funds

Regarding the availability of data and the fact that till the end 2008 no money in terms of the programme period was withdrawn from ESF programmes, the regional analysis of money withdrawal was done just for the programme period 2004-2006.

[3] Data from May 2009. Without OP RDMA, which did not use ERDF and ESF

[4] Without SF contribution, where CZK 210.5 mil. was withdrawn

The biggest total volume of money in the programme period 2004-2006 from programmes supported from ERDF and ESF, was taken by the region South-East (CZK 7.8 billion representing 15.4 % out of the total volume for the CR). Moravia Silesia spent the smallest volume of money with 11% share on the total withdrawal (5.6 billion).

The share of withdrawn money from ESF programmes on the total withdrawal ranged in individual NUTS 2 regions except for Prague from 14 % in Central Bohemia (CZK 944 mil. of public means from ESF programmes), which was the only region with less than 20% share, to 29 % in North-East (CZK 1.7 billion of public means from ESF programmes). This share was in Prague in favour of the SPD 2 programme supported from ERDF (55.6 % went to SPD 2 and 44.4 % to SPD 3 in Prague). More than CZK 3 billion were spent in the programme SPD 3. Prague is leading the list of NUTS 2 regions in the volume of drawn public money from ESF programmes compared to the average number of not employed applicants in the years 2006-2008 with almost CZK 162 000 per one applicant. In other regions, the money per one not employed applicant ranged in average in the realization period of the programme period 2004-2006, i.e. in the period 2006-2008 from 18 000 in Moravia Silesia to 35 000 in South-West and North-East.

Calculating the correlation coefficient, there is low correlation (0.5) between the volume of drawn money from programmes in the programme period 2004-2006 supported from ESF and the number of not employed applicants, and de facto zero correlation between the volume of drawn money from ESF programmes and the unemployment rate (correlation 0.2). Regarding the total volume of withdrawn money from ERDF and ESF programmes, the correlation between the volume of drawn money and the unemployment rate is low and shows a negative value -0.5, i.e. following can be stated: regions with lower unemployment rate withdrawn little bit more money than regions with higher unemployment.

Effects of the SF Operational Programmes onto Employment in the Regional View (NUTS 2)

Taking the availability of data into account, only direct effects of SF programmes onto employment were analysed in the regional view. Figures on created jobs and figures on persons supported by implemented projects can be counted among direct effects.

Gross numbers of created jobs were monitored in OP IE, JROP and OP HRD in the programme period 2004-2006. In total, more than 46 800 of gross jobs (out of which almost 3 000 in non-grant programmes of the OP IE) were created, 30 000 of jobs in the OP HRD, where the data were not monitored in the regional split and therefore a detailed regional analysis cannot be done.

The below stated table shows regional distribution of created gross jobs in the programme period 2004-2006 based on the available data.

Table 4: *Number of created gross jobs in the programme period 2004-2006*

Number of created gross jobs in the programme period 2004-2006									
OP	Prague	Central Bohemia	South-West	North-West	North-East	South-East	Central Moravia	Moravia Silesia	CR in total
OP IE*	-	382	1587	100	1293	1184	1283	820	6647
JROP	-	348	516	1250	567	1165	1591	840	6277
SPD 2	678	-	-	-	-	-	-	-	678
OP HRD	x	x	x	x	x	X	X	x	30 322

Source: MSSF Central, for OP IE data from MA from IS OP

* In OP EI, only jobs created within grant programmes included. The total gross number of created jobs in OP IE was 9 563.

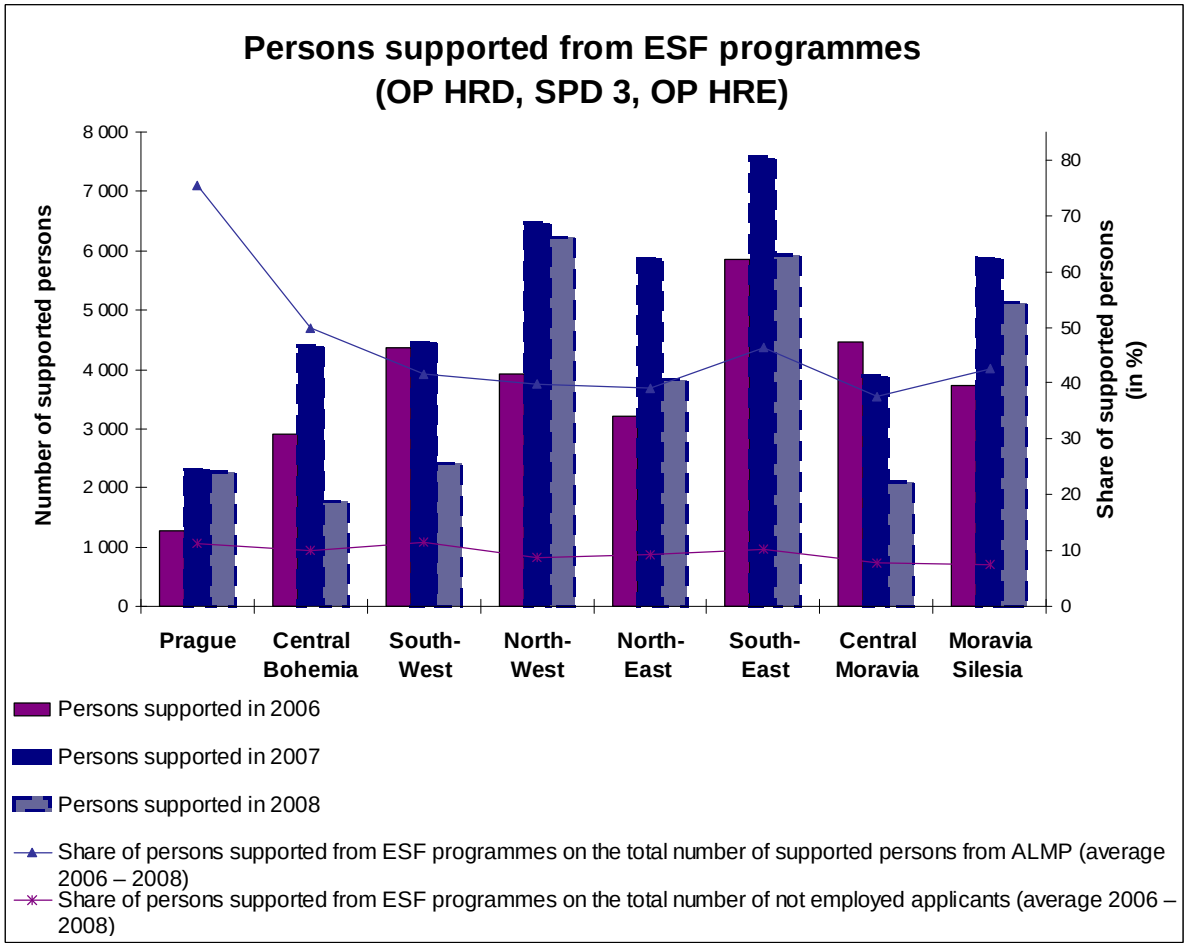
Supported persons were monitored only in the programmes OP HRD, SPD 3 and OP HRE. Till the end of 2008, 100 000 of persons[5] were supported in terms of these programmes in total. The number of persons supported from ESF programmes grew with the run-up of the programmes in the programme period 2004-2006 from not even 30 000 in 2006 to 40 800 in 2007. In the years 2006 – 2008, also share of persons supported from ESF programmes on the total number of persons in terms of ALMP rose, which is from 33.4 % to 49.2 %. In 2008, an increase in number of supported persons to not even 30 000 occurred. The share of persons supported from ESF programmes on the

[5] Number of participants in courses or tools was monitored in the programme period 2004-2006, i.e. in case one person participated on more tools, he/she was counted more times. In a similar way, also numbers of persons supported from APE are recorded. Relative comparison is therefore relevant. In OP HRE, already real numbers of supported persons are monitored on the basis of available information.

total number of persons supported in terms of ALMP in the years 2007 - 2008 however remained at the level of not even 50 %.

In the regional view, the differentiation regarding share of persons supported from ESF programmes on the total number of persons supported in terms of ALMP is obvious. In the years 2006 – 2008, Prague is the most dominant here with more than 80% share showing also the highest share of persons supported from ESF programmes on the total number of not employed available applicants (14 %). In using money from ESF programmes in terms of number of supported persons the South-East region shows in 2008 as above-average (54.6 % supported from ESF programmes in terms of ALMP), as well as region North-West (53.6 %), where a significant increase against year 2006 could be seen, and Moravia Silesia (52.2 %). In these regions, also a relatively higher share of persons supported from ESF programmes on the total number of not employed available applicants can be found (9.4 to 11 %). Mainly Central Moravia shows low usage of money from ESF programmes in terms of ALMP, where the share of persons supported from ESF programmes on the total number of persons supported within ALMP was in 2007 and 2008 the lowest and made 34.2 % in 2008. Therefore low is here as well the share of persons supported from ESF programmes on the total number of not employed available applicants (5.1 %).

Chart 19: *Persons supported from ESF programmes (OP HRD, SPD 3, OP HRE)*



Source: MSSF Central

In calculation of the correlation coefficient between the number of persons supported from ESF programmes in individual NUTS 2 regions and the related unemployment rates in these regions, an increase of dependency from 2006 to 2008 is obvious, when in 2006 this coefficient was 0.4, in 2007 0.7 and in 2008 even 0.9. Similarly also correlation with the total number of not employed available applicants shows. From this point of view a positive trend in transferring weight of usage of money from ESF programmes into regions with higher unemployment can be pronounced. A question remains into what extent the usage of money from ESF programmes allowed support of more persons and into what extent it represented just a substitution of national programmes. The total share of supported persons in total (i.e. both from ESF and national funds) on the total number of not employed applicants remained from 2005 to 2006 the same for the whole CR (21 % in 2005 and 21.1 % in 2006) and we could therefore claim a mere substitution here. However, in 2007 this share rose, which is to 25 % of available applicants. Thereinafter following drop in 2008 to 17.8 % could

have been caused by a change in methodology of records on supported person (till 2007 numbers of participants were recorded, i.e. if one applicant attended more courses, he/she was counted more times).

Table 5: *Number of supported persons in total (ESF + national) on the total number of not employed applicants (in %)*

Share of supported persons in total (ESF + national) on the total number of not employed applicants (in %)					
NUTS 2	*2004*	*2005*	*2006*	*2007*	*2008*
Prague	1.3	3.4	10.8	18.2	17..0
Central Bohemia	9.1	16.8	20.2	27.5	12.9
South-West	11.4	25.2	32.3	33.0	18.6
North-West	13.2	25.3	20.5	24.4	20.5
North-East	11.8	25.0	22.5	30.3	18.7
South-East	11.1	22.7	23.4	25.1	18.6
Central Moravia	10.5	21.3	23.4	23.1	14.9
Moravia Silesia	8.3	17.2	15.2	20.2	18.1
Czech Republic in total	10.3	21.0	21.1	25.0	17.8

Based on all the stated data, assigned questions can be answered:

Question: Are there significant differences in the unemployment structure region wide (NUTS 2)?

Answer: The differences in the unemployment structure between individual NUTS 2 regions are obvious, which is both regarding age, education and long-term unemployment rate as well. Regions with a high unemployment rate (mainly North-West, Moravia Silesia) prove structural problems in the view of unemployment. High unemployment rate in the age group till 19 years (in the region of North-West in particular), high unemployment rate for the persons without education or with only a basic education and high share of long-term unemployed people is characteristic for them.

Question: Were there any effects of EU funds interventions onto employment in the regions with the highest unemployment rate?

Answer: Regarding the withdrawn money from SF programmes, no positive relation between unemployment rate and the volume of withdrawn money was observed. In ESF programmes, this relation was very weak, which is only in case of setting Prague aside. In the view of supported

persons, a general gradual increase in usage of ESF programmes in terms of ALMP in the more problematic regions occurred during years 2006 till 2008 (a noticeable exception was Central Moravia with a minimum share of ESF programmes on persons supported within ALMP).

Question: What is the distribution of financial resources / allocation region wide (NUTS 2) according to ERDF and ESF?

Answer: The distribution of financial resources according to ESF and ERDF programmes see in the text.

4.4 The Most Efficient and Effective Interventions from EU Funds

This chapter describes the effectiveness of ESF programmes, mainly the one in OP HRD, ERDF programmes are not included, because they did not primarily focus on employment and creation of jobs.

A study prepared by the Research Institute for Labour and Social Affairs (Horáková, Hora, Vyhlídal, 2010) dealt in detail on the effectiveness of ESF projects within OP HRD. Among others, also effects of projects in OP HRD were analysed, which is on a complex of almost 640 thousands of respondents – unemployed people and persons participating at some of the offered programmes of the active policy in the labour market aggregated from data from all EO (for year 2007). The outcomes of the study therefore are grounded on the year 2007, which is appropriate for application of gained results on the whole programme and period regarding the progress of program implementation.

The effects of projects in OP HRD were calculated as the attrition rate of programme participants from the unemployment records. The attrition rate from unemployment records is evaluated in long-term, in the interval of 30 to 360 days. This way short-term, mid-term and long-term effects can be evaluated, which is important also because of different „types“ of ESF projects, or their focus and offered tools. For example the effects of education or advisory services are in the short term lower in comparison to e.g. direct retraining or job created. Sampling set for evaluation of effects of OP HRD were therefore:

- unemployed people who participated at an ESF project and finished it in 2007 (participants were monitored till 30. 6. 2008)

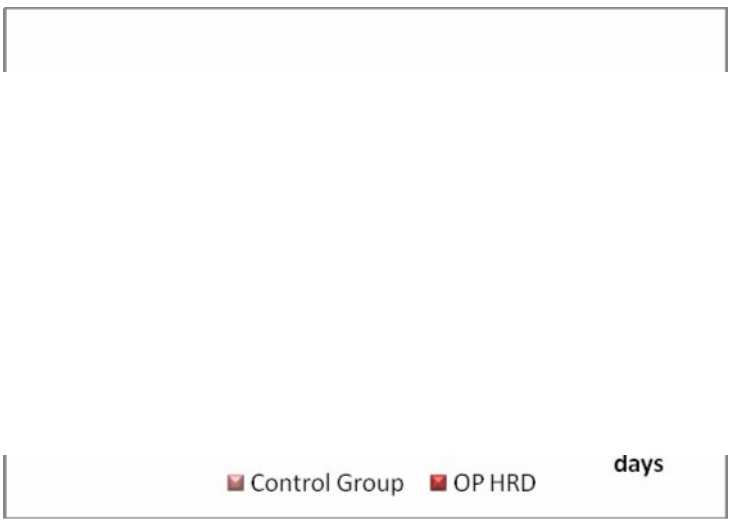
- unemployed people who did not participate at any project (neither ESF nor ALMP) in 2007 (control group chosen by a method of so called pairing with help of so called propensity score).

Re-trainings were evaluated independently as a tool used by approx. 90 % of participants at the projects in OP HRD, while only 10 % of participants participated at the projects focused on creation of jobs.

Effectiveness of OP HRD

OP HRD proves to be more effective according to the executed calculation, or in other words participants at ESF projects show a lower turnout in the unemployment record in the entire monitored period (30 – 360 days), in comparison to the control group.

Chart 20: *Effects of the OP HRD – comeback into unemployment records*



Source: Evaluation of OP HRD projects affects to ALMP in CR, RILSA, 2010

The highest effectiveness of ESF projects against the control group is met in the long term, after 360 day only not even 25 % of participants – beneficiaries remain in the unemployment records, while in the control group there were more than 35 % persons.

In comparison with effects of individual national tools of ALMP, OP HRD has similar effects as well as tendencies to retraining funded by ALMP. Within 30 days after the end of the project approx. 44 % of participants at projects in OP HRD (in retraining it is 34 %) leave the unemployment records. Little bit more efficient are projects of OP HRD in the timeframe within 210 days after the end of the project and after this timeline re-trainings in ALMP were slightly more efficient. After 360 days from the end

of support the effects are comparable - in case of OP HRD approx. 25 % of participants stay in the records, in case of re-trainings less – approx. 23 %.

Effectiveness according to Specific Groups of Persons and Type of the Project

ESF support seems to be very effective for the most disadvantaged persons such as persons with health problems, also persons with basic education and persons 50 + years. The biggest differences in the support effectiveness against the control group are to be found just in these groups (see the following chart).

Chart 21: *Effectiveness of the OP HRD according to target groups (turnout in unemployment records after 360 days from the end of support)*

Source: Evaluation of OP HRD projects affects to ALMP in CR, RILSA, 2010

Regarding the type of the project, the most effective projects were in the past programme period the national ones (unemployed recorded after 360 days - only 22 %). Only in the group of people with basic education the long term effectiveness is higher for grant projects, the difference against the national projects is, however, not significant (while in short term the national projects are more effective). A higher effectiveness of national projects related possibly with a bigger conceptual preparedness of these projects. The fact that the support in the current programme period moved just in a direction towards these projects is positive.

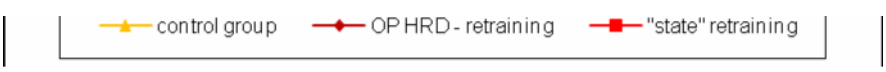
Effectiveness according to the Classification (EC Regulation No. 438/2001)

Principal measure of the OP HRD focused on creation and sustainability of jobs, which is Measure 1.1 Strengthening the Active Employment Policy for Job Seeker and Job Applicants – category 21 (human resources), was in the view of effectiveness the best (there are after 360 days not even 23 % of participants in the records). On the other hand, the effectiveness of the Measure 2.1 Integration of Specific Population Groups at risk of Social Exclusion - category 22 (social inclusion) was the lowest (there are 39 % of participants in the records). The Measure 2.3. Enhancing the Capacity of Social Services Providers - category 22 (social inclusion) is also rather low (there are 35 % of participants in the records).

Effectiveness of re-trainings

Re-trainings are the mostly used tools of the active labour market policy, also almost 90 % of participants at the OP HRD projects participated at a retraining. The comparison of the effects of the re-trainings themselves sounds, however, unfavourable for OP HRD, mainly in long term view. After 360 days from the end of re-trainings, almost 26 % of persons who attended re-trainings in OP HRD are still in unemployment records, while only 22.5 % of persons who attended re-trainings in terms of ALMP are kept in records. The biggest difference between both types of re-trainings appears in the short term. One of possible explanations might be also a closer cooperation of EO with employers, or also long-term tradition of „state“ re-trainings.

Chart 22: *Effects of re-trainings – turnout in the unemployment records*



Source: Evaluation of OP HRD projects affects to ALMP in CR, RILSA, 2010

Total Effectiveness

All in all, it is obvious that effects of ALMP and ESF support are in comparison with the control group higher, but not significantly. It is necessary to become aware of a fact that the participants at ALMP support and mainly at ESF projects were chosen among all unemployed people and those are selected who are more convenient for the participation in projects. Beneficiaries are bound by chosen indicators in the projects, among others also by the successfulness of implemented activities, therefore the selection of participants into projects is rigorous and then a so called „creaming off" effect occurs.

The effects of ESF, or also ALMP projects in total were probably relatively (seemingly) higher in a favourable economic situation, because people's looking for job was easier be it with assistance of ALMP, ESF or without. On the other hand, in the time of economic recession, growing unemployment and decrease of jobs unemployed people are finding jobs with difficulties and need more assistance by the active labour market policy.

Effects of Projects from the Beneficiaries' Point of View

From the questionnaire survey among beneficiaries it is clear that beneficiaries themselves understand the benefit of projects for themselves mainly in the increase of quality of the executed activity or product (34 %). Only 13 % of them observed also an increase in the flexibility of organization (e.g. in the relation to form and length of the work load), which also corresponds, apart from other things, with findings that the newly created jobs show low share of part-time employment (see chapter 4.9).

Chart 23: *Benefits of SF projects*

Source: Questionnaire survey among beneficiaries

Efficiency of the OP HRD

Unit cost for creation and sustainability of a job cannot be calculated, ESF projects are very heterogeneous and include a large range of tools. Each project has a different number of these tools. Number of created jobs cannot, therefore, be easily matched with the project budget. What more, project cost differ very much also in connection with different target groups. Additionally, the effect of selection of project participants plays a key role. „Better prepared" individuals (e.g. graduates of other - previous – projects including national ALMP) enter this way some of the projects and activities executed in terms of the project are not that financially demanding, compared to projects which work with the target groups from the very beginning. ALMP funds are in the CR granted for creation of a job – one-time contribution, amounts in the years 2004 - 2008 ranged between approx. 10 000[6] and 100 000[7] CZK per one job with the commitment to fill the job for approx. 12-24 months (however not always met). Neither an average amount spent nor the total per one job cannot therefore be responsibly specified, because different forms of contribution cannot be calculated (taking the simple average, however, the amount would reach several tens of thousands)[8].

Jobs according to Quality of Labour

Support from SF, or created jobs, was oriented into different occupation groups. Most jobs were created in the occupation group „Plant and machine operators" (29 %), mainly the ERDF programmes were predominant here. Second in the number of created jobs ranged the group „Operation workers in services and sales" (24 %), here the ESF programmes were predominant.

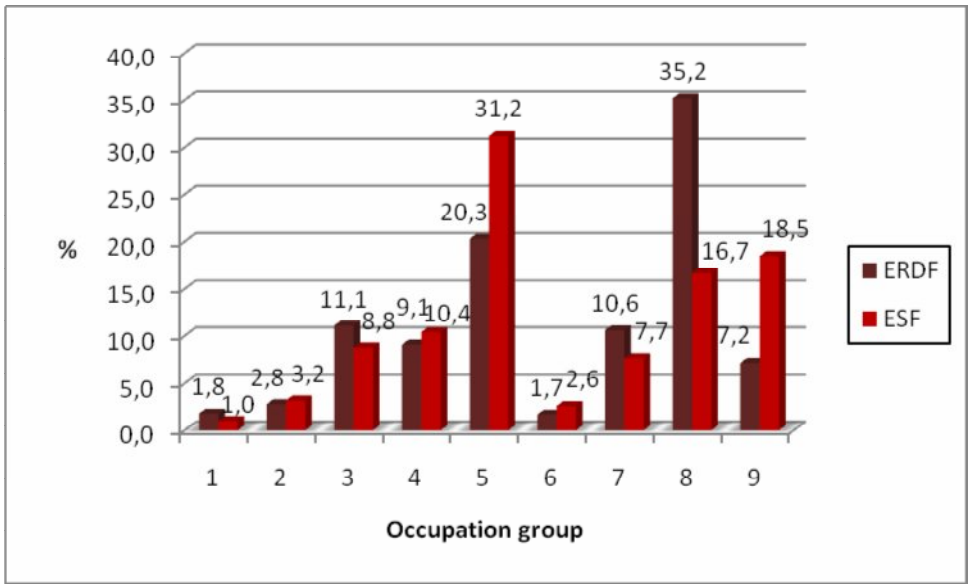
To the contrary, the least support was given to the jobs in the group „Legislators, chief executives and managers" (not even 2 %) and „Skilled workers in agriculture, forestry and related occupations (except for plant and machine operators)" (2 %). A low representation of the last group reflects also in general low share of primary sector in the projects and in jobs. ESF showed also a significant representation of the group „Auxiliary and non-qualified workers" (almost 19 %). The representation of groups according to quality of labour is therefore in SF rather low – ¼ of jobs in total was created in groups 1 to 4 (the share is similar in both funds).

[6] Public utility works

[7] Creation of protected workshops.

[8] Incomparably higher (approx. CZK 1.6 mil.) are the cost per creation of one job within investment incentives (Source: Analýza investičních pobídek v České republice, MIT).

Chart 24: *Created jobs according to occupation groups*

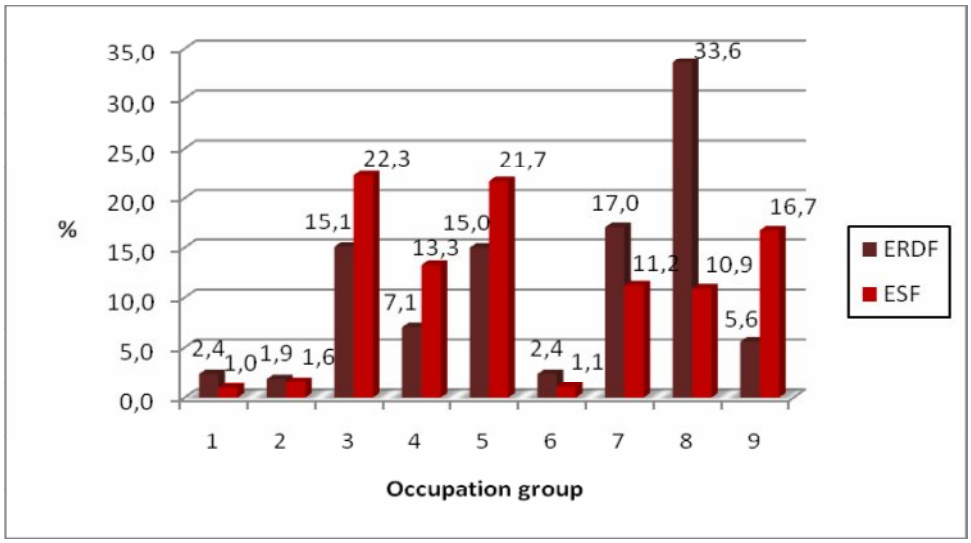


Key: 1 Legislators, chief executives and managers; 2 Research and expert intellectual workers; 3 Technical, medical and pedagogical workers and workers in related occupations; 4 Lower administrative workers (clerks); 5 Operation workers in services and sales; 6 Skilled workers in agriculture, forestry and in related occupations (except for plant and machine operators); 7 Craftsmen and qualified producers, processors and repairmen (except for plant and machine operators); 8 Plant and machine operators; 9 Auxiliary and non-qualified workers

Source: Questionnaire survey among beneficiaries

The distribution of retained jobs, in other words those where the education was oriented to, was already more uniform. Even though most of them went again into occupation group „Plant and machine operators“ (20 %). Another noticeably supported groups were „Technical, medical, pedagogical workers and workers in related occupations“ (19.4 %), in other words a group which was represented much less in the view of created jobs (10 %) and „Operation workers in services and sales“ (19 %). Nevertheless, the representation of the high ranked qualification groups (1-2) is also completely marginal (around 3 %).

Chart 25: *Retained jobs according to occupation groups*



Key: see chart 24 description,
Source: Questionnaire survey among beneficiaries

The following chart displays a different orientation of created and retained jobs into individual occupation groups, always in comparison with an average for both funds. The biggest differences can be observed in the group „Plant and machine operators“, the smallest on the other hand in the group of highly qualified occupations.

Chart 26: *Jobs according to occupation groups and funds – comparison with an average for both funds*

Key: see chart 24, Source: Questionnaire survey among beneficiaries

Based on all the stated data, assigned questions can be answered:

Question: What kind of interventions from EU funds was the most efficient and effective (including unit cost per created / retained jobs)?

Answer: OP HRD was in total more effective in comparison to ALMP (as well as to control group) in the view of effects on employment. In case of re-trainings OP HRD projects were, however, less effective. Unit cost per creation/sustainability of jobs cannot be determined. The most effective within OP HRD was the Provision 1.1 Active labour market policy, which is class 21 according to EC Regulation No. 438/2001.

ESF assistance is significantly effective in specific groups – persons with health handicap, persons over 50 years and persons with basic education.

The most effective support cannot be determined in general, because they differ according to specific groups, age and similar.

Did the interventions from EU funds support mainly occupations with high quality of labour?

Answer: Mainly jobs with lower quality of labour (occupation group 5-9) were created from EU funds support, which is ¾ in total. Education and therefore sustainability of jobs was oriented into more qualified occupation groups (gr. 5-9 made 66 %). In general, occupations with lower quality of labour were supported in the years 2004 – 2008.

What type of intervention should be developed and continued also in the future in connection with changing conditions in the labour market (including e.g. in connection with the current economic crisis and expected socio-economic development)?

Answer: Projects implemented by the employment offices seem to be more effective in general, unlike grant projects. Although activities in class 21 appear more effective, this group of activities cannot be ranked over the other classes as more needed, the other classes work with more problematic or threatened groups of persons. Projects directly creating jobs or with the direct connection to employers are more effective in the sense of passing persons out of the unemployment records.

In the economic view and regarding the expected development, we can recommend so that SF projects concentrate more into occupations where the demand on work force will grow. In connection with the expected development of the labour market[9] it would be convenient to

[9] Labour market needs forecasting, NOET, NTF, 2009

direct the support such as re-trainings into occupations where the demand on work force will grow (i.e. „medical assistants, opticians, rehabilitation workers and hospital attendants"; „financial, insurance and business representatives" – which is even despite the negative impact of the crisis; and qualified technical occupations (also ERDF support is suitable here)); see also chapter 4.8.

4.5 Main Factors Impacting the Employment Level in the CR

The main objective of this section is to identify key factors impacting the employment level in the Czech Republic and to indicate their importance in impacting employment. The employment in the Czech Republic – similarly to other countries – impacts a whole number of factors. The factors are of an economic as well as other character. In particular the number and structure of population, the number of economic subjects, the wage level as work remuneration and the rate of economic growth were chosen.

Above mentioned four factors were chosen intentionally, for several reasons. The number and structure of population were chosen because population is the most important resource of work force and therefore impacts significantly the number of employed people. The number of economic subjects functioning in the economy is a factor showing number of employers on one hand and reflecting conditions under which people are being employed including self-employment, or carrying out an independent gainful activity on the other hand. Also wage level gives evidence on these conditions as a noticeable motivation factor. The rate of economic growth was chosen as an indicator showing the overall condition of an economy and its development. The content structure of this section is arranged in a way that the characteristic of employment level and development in the CR comes first and then the impact of individual chosen factors onto employment level and development is described.

Going out of the data on the development of number of employed persons, the decrease in number of employed persons in the years 1999 till 2004 is obvious, while after this period the number – similarly to the case of employment rate – increased. A similar development can be seen also in the data on the number of workers in the national economy.

Population

To evaluate the impact of the first of the chosen factors onto employment level and development in the Czech Republic, i.e. the factor of number and structure of population, intentionally, we did not

choose the indicator showing a total number of inhabitants, but two indicators with a closer relation to the employment. These indicators are the number of inhabitants older than 15 years and the number of inhabitants from 15 to 49 years (middle age). These indicators from the period 1999 – 2008 are stated in the following table.

Table 6: *Development of number of population*

Development of number of inhabitants						
	1999	2001	2003	2004	2006	2008
Number of inhabitants older than 15 years (thous. of persons)	8 555	8 577	8 637	8 673	8 773	8 944
Index 1999 = 100	100.0	100.3	100.9	101.4	102.6	104.6
Number of inhabitants from 15 to 64 years (thous. of persons)	7 138	7 168	7 211	7 240	7 308	7 414
Index 1999 = 100	100.0	100.4	101.0	101.4	102.4	103.9

Source: Labour Market in CR 1999 – 2008. Prague: CSO 2009. Statistical Yearbook CR 2009. Prague: Scientia 2009.

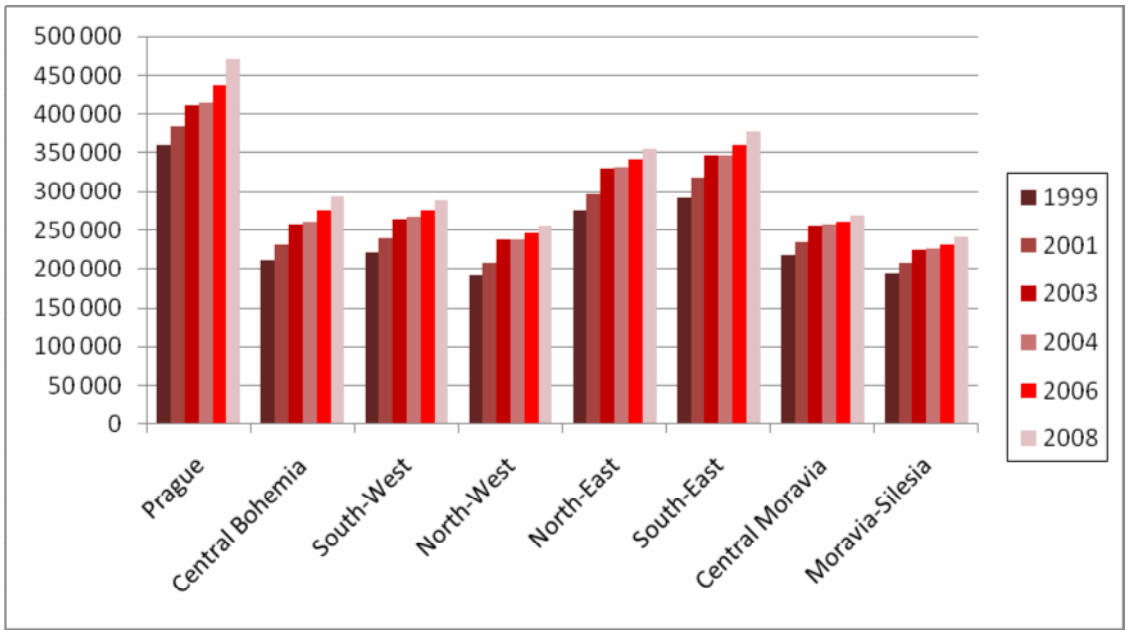
If we compare data on the employment development and on the number of workers and employees in economy on one side with data on the development of number of inhabitants on the other side, a different development of number of inhabitants with age relevant for employment is obvious. The difference lies mainly in the fact that the trend of both indicators of the number of inhabitants is in the whole monitored period 1999 – 2008 going up, i.e. without a decrease in the period 1999 – 2003, or 2004, which occurred in the development of employment indicators. Although the development of both indicators differs slightly (the number of inhabitants older than 15 years grew a bit faster than the number of inhabitants from 15 – 64 years, their trend is the same.

Based on the found data a conclusion can be reached that the development of the number of inhabitants in the monitored period did not belong to the key factors which would impact the employment development in the Czech Republic

Economic Subjects

As for the development of the number of economic subjects in the monitored period, following two charts give a true picture of it.

Chart 27: *Number of economic subjects according to regional division*



Source: Regional yearbooks of the Czech Statistical Office for individual regions in the respective years. The last volume of the regional yearbooks is available at the Czech Statistical Office websites www.czso.cz.

Chart 28: *Numbers of economic subjects in the CR, 1999-2008*

Source: Regional yearbooks of the Czech Statistical Office for individual regions in the respective years. The last volume of the regional yearbooks is available at the Czech Statistical Office websites www.czso.cz.

Both enterprises and individuals who are self-employed or carry out a trade as registered tradesmen are included in the number of economic subjects. Private entrepreneurs have the biggest share on the total number of economic subjects. For example in 2008 their share reached more than 68 % out of the total number of economic subjects. The data on the total number of economic subjects also

show the same trend during the whole monitored period - steady growth. This growth is the fastest among all of the so far monitored indicators: when expressed by an index with the basis 1999 = 100, then in 2008 the value was 129.9, i.e. a significantly higher value than the indicators of population or employment.

Data on the development of number of economic subjects in individual region help us assess the differences between an average development for the entire Czech Republic and the development in individual regions. Information in the table state clearly in the first place that all regions as well as the whole Czech Republic showed the same trend, i.e. the numbers of economic subjects were constantly increasing in all regions in the monitored years. The speed of growth of the number of economic subjects differs only slightly in individual regions: the slowest growth in the region of Zlín (121.7) and the fastest in the region of Karlovy Vary (139.3).

Going out of the data on the number of economic subjects a conclusion can be pronounced: this development was different from the development of employment indicators in the monitored period, which is both regarding the main development directions (trends) and regarding the development speed of monitored indicators. Therefore it follows that the development of the number of economic subjects cannot be considered key factor impacting the employment level in the Czech Republic either.

Wages

The third factor chosen for the analysis of key factors impacting employment is wage level as work remuneration. In the following table, there are data on the development of average gross monthly wages in individual regions and in the whole Czech Republic.

Table 7: *Average gross monthly wages*

Average gross monthly wages						
	1999	2001	2003	2004	2006	2008
Prague	17 437	17 889	26 502	26 972	31 173	35 905
Central Bohemia	12 590	14 524	19 128	20 324	22 811	26 445
South-West	12 241	13 319	18 013	18 946	20 895	23 891
North-West	11 737	12 947	17 874	18 595	21 089	23 523
North-East	11 878	12 939	17 678	18 400	20 225	23 734
South-East	.	12 309	17 504	18 757	20 786	24 246
Central Moravia	12 555	12 434	17 910	18 775	20 571	23 305
Moravia Silesia	11 985	13 877	18 180	19 100	20 811	24 075
ČR	**12 651**	**14 750**	**19 510**	**18 025**	**20 158**	**23 430**

Source: Yearbooks of Regions. Prague: Czech Statistical Office, www.czso.cz.

Data in the table suggest how much did the average wage in individual regions differ. These differences are not substantial, except for one exception which is the long-term difference between Prague on one side and remaining regions on the other side. Even though there were differences in average wages in individual regions, the trend of continuous relatively fast growth of wages can still be easily found in the table. It is in all the regions without an exception the same. The speed of growth is the highest among all the monitored indicators: the average wages grew to their double in the monitored ten-years period.

A more detailed analysis of the development of wages would show usual and expected differences in wages in individual branches and also in individual occupation classes. Neither these differences would, however, disapprove the existence of the main mentioned trend. This trend proves similar characteristics as the development of previous chosen indicators, different from the employment development. Therefore also in the case of wages the conclusion is reached that neither the factor of wages can be considered a key factor impacting the employment development.

Economic Growth

The monitored period 1999 – 2008 was regarding the economy development in the Czech Republic predominantly positive. Already at the beginning of this period, a moderate decrease of economy which appeared in 1998 was mastered successfully and in the following years the gross domestic

product grew steadily. The speed of economic growth was increasing and reached its top in 2006, when it reached a value of 6.8 %. Also in the following year 2007 the economy developed favourably (6.1 %), but then the first consequences of the economic crisis occurred, and the economic growth slowed down in 2008 to 2.5 %. The speed of economic growth in the next year 2009 was as far as negative, the performance of economy went down by 4.2 %. The following table summarizes the economic development in the monitored period.

Table 8: *Economic growth in the CR*

Economic growth in the Czech Republic						
	1999	**2001**	**2003**	**2004**	**2006**	**2008**
GDP in going prices (billion CZK)	2 080.80	2 352.20	2 577.10	2 814.80	3 222.40	3 689.00
Index	1.3	2.5	3.6	4.5	6.8	2.5

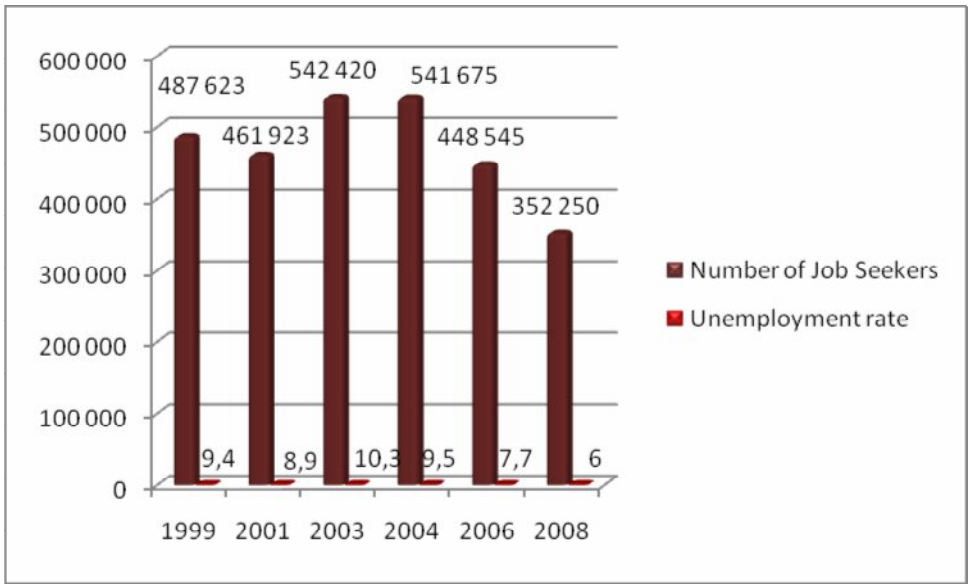
Source: Statistical Yearbook of the Czech Republic 2009. Prague: Scientia 2009.

Note: Index in the table is calculated the way that data of GDP in going prices in a certain year were compared to the GDP in going prices from the previous year.

A favourable economic development in the monitored period (and thereinafter its break in the following years 2009 and 2010) confirm also further data concerning the gross national product (for example on the GDP development in going prices in PPS standards). A crucial observation for the identification of key factors impacting employment is a fact that exactly the development of economic growth is the closest to the employment development out of all analysed indicators. In other words the key factor impacting the employment is the economic growth.

Also the development of other crucial indicators relating to the employment, which is the development of an average unemployment rate and the development of the number of job applicants kept in the records of the employment offices supports this conclusion. The development of these indicators in the Czech Republic in the monitored period is displayed in the following chart.

Chart 29: *Development of unemployment*



Source: http://portal.mpsv.cz/sz/stat/nz.

Data in the chart clarify the increase of employment rate in the first half of the monitored period, and the relatively rapid decrease in the second period. If we compare the development of economic growth with the development of the unemployment rate, the principle that together with the economic growth the employment grows and unemployment rate goes down is also obviously confirmed in the monitored period. The main trends are the same for the economic growth as well as for the employment rate, while they are opposite for the economic growth and the unemployment rate. They confirm this way the basic connection between the economic growth and employment.

Based on the so far analysis, assigned questions can be answered:

Question: Which are the key factors impacting the employment level in the Czech Republic?

Answer: The key factor impacting the employment (und unemployment) in the Czech Republic is the economic growth.

Question: What is the importance of impact of the key factors onto employment in the CR?

Answer: The economic growth impacts fundamentally the employment and unemployment development, while any other factors can just moderate this impact only in a very limited way.

4.6 The Effects of Interventions on Creation of Knowledge-based Economy

Knowledge-based economy is in general considered one of the development stages of an economy, or a society. It follows chronologically the economies, or societies, primitive, agricultural and industrial and according to several theories also informational. Unlike the industrial society, where the critical production factors were work force, raw material and capital, information and knowledge are the critical production factors in the knowledge economy. Robotics represents a typical technological process and communication via electronic media is a typical communication system.

A development characterized by changes typical for the transition from the previous industry economy towards economy based on knowledge can also be observed in the Czech Republic. Some of these changes were already presented in section 4.2. One of the demonstrations of these changes are changes in the employment structure regarding the individual economic sectors. For example a decrease in the share of persons employed in the agriculture occurred in the monitored period 1999 – 2008. While there were 5.2 % of all employees employed in this branch in 1999, the share went continuously down so that in 2008 there were only 3.3 %. The mentioned development is visible also on the absolute number of persons employed in the agriculture. There were almost 200 thousand of people employed in 1999, however, only approximately 120 thousand of people in 2008. in accordance with NACE classification, also persons working in forestry were included in the above mentioned data, but these represent only approximately one sixth of the total number of people employed in the agriculture and forestry.

As for the development of employment structure in further sectors, for example data from the years 2003 and 2007 show that the biggest increase in number of employed people appeared in the processing industry in the Czech Republic, in the real estate and rent activities (mainly in so called other entrepreneurial activities), in health and social care, accommodation and catering and in public administrative and defence. In terms of the processing industry, this increase was most of all impacted by the development in the motor vehicle production (automobiles), production of metal constructions and metal machines and equipment.

Further important changes in the structure of the total employment of the Czech Republic show changes in the employment structure regarding classification of occupations, or professions. The Czech Statistical Office uses in this regard a classification of occupations COCC, derived from the international classification of occupations ISCO-88. This classification segments professions into ten main categories (0 – 9). According to qualification demands of professions, the ten main categories can be divided into three groups including professions of categories 1 – 3 (professions demanding on

qualification), 4 – 8 (professions with medium demanding qualification) and 9 (profession not demanding on qualification).

The development of employment structure regarding professions shows the increasing shares of persons employed in professions demanding on qualification in the Czech Republic. This development is displayed in the data of the following table.

Table 9: *Development of employment structure according to occupation categories*

Development of employment structure according to occupation categories				
Occupation categories	**2000**	**2003**	**2006**	**2008**
COCC 1 – 3	35.8	36.6	39.2	40.5
COCC 4 – 8	55.5	57.2	24.8	52.5
COCC 9	8.3	5.9	5.6	6.9

Sources: Kadeřábková A. and comp..: The Competitiveness Year book of the Czech Republic 2006 – 2007, Prague, Linde 2007; and Statistical Year book of the Czech Republic 2009, Prague: Scientia 2009.

A successful performance of professions included into category COCC 1 – 3 usually requires tertiary education. Similar changes appearing in the Czech Republic can also be observed in most of the EU member states. In the view of an international comparison, the share of persons performing professions included in categories COCC 1 – 3 reaches roughly the same values as they are in average within the original 15 EU countries and significantly higher than the average of the „new" EU member states. Mainly a high share of persons performing occupation classified in the sub-section 31 – technicians is typical for the Czech Republic. This share is almost double the average of all EU states.

Existing analyses prepared in the Czech Republic show that the number of research workers, scientists and other intellectual workers grows more slowly than the one in the most of the EU member states.

This is obvious also thanks to another indicator used in the human resource development for knowledge economy, which is the indicator of a share of human resources in science and technologies (HRST). It is defined as the number of persons with tertiary education level and persons working in scientific and technical occupations. This indicator is growing in the Czech Republic (e.g. in the period 2000 – 2006 it grew from 33.8 % to 36.7 %), but an EU average is higher (in 2006 it was 42.1 %). If we compare the share of scientists and engineers on the total number of employees in the

Czech Republic and in other countries, the Czech Republic shows a lower share than most of the EU countries and a lower share than for example Hungary or Estonia from the new member states.

Regarding the second group of employees, i.e. workers in professions with medium demanding qualifications, their share on the total employment was increasing in the monitored period, however significantly more slowly. A low speed of decrease of this share, whose slowness was also much different from most of the other countries, was in the Czech Republic impacted by the support of foreign investments requiring these workers. In this category are, that is to say, included for example construction labourers, machine-industry workers, metal industry workers and repairmen.

Also results of analyses regarding the development of unemployment in branches demanding on qualification show changes in the employment structure in connection to economy. It is concerning the employment in specific branches of processing industry and of sector of services with a high share of occupations requiring tertiary education or representation of professionals and technicians from classes 2 and 3 of the COCC. The share of these employees was also increasing in the Czech Republic in the monitored period. The share of these workers in the Czech Republic is above-average in terms of the European Union (it is the 7th biggest out of all 27 member states), which is impacted by the fact that the Czech processing industry builds a high number of jobs. Also the employment in services demanding on qualification is increasing gradually, even though very slowly.

A similar development can be observed also in the employment development in the technologically highly demanding branches of the Czech processing industry, where the production of office machines and computers, the production of radio, television and connecting devices and appliances and the production of medical, precise optical and time-measuring devices belong. The number of employed people in these branches grew from approx. 57 thousand to approximately 81 thousand of persons in the monitored period 2003 – 2007, which is by 42 %. The following chart shows the employment share in the technologically demanding sectors on the total employment (in %) both in the Czech Republic and in further chosen countries.

Chart 30: *Employment share in technologically demanding sectors on the total employment (%)*

Note: TNS = technologically demanding services, TSNO = technologically medium demanding branches of the processing industry, TVNO = technologically highly demanding branches of the processing industry.

Sources: EUROSTAT: Labour Force Survey 2003 (2nd quarter) and 2007 (year average), own calculations.

Also the share of people employed in the ICT sector increases. 3.6 % of the total number of employees was employed in 2006 in this sector, which was a significant above-average share in comparison to other EU member states. The demand on these employees grows quickly and according to specific surveys (from the years 2006 and 2007) the graduates of ICT degrees are able to satisfy just approximately half of the demand.

In terms of development evaluation towards knowledge economy and society, different methods were created, also evaluation of knowledge-based competitive advantage belongs to them. Such an evaluation was provided by the outcomes of the World bank's project *Knowledge Assessment Matrix (KAM)* from 2006. Four areas were assessed considered as key for the transition towards knowledge economy:

a) economic and institutional regime

b) efficient innovation system

c) education and qualification of population

d) infrastructure of informational and communicational technologies

Based on a number of indicators from these areas, two aggregated indexes were set up, which is knowledge index (KI) and knowledge economy index (KEI). Using relevant indexes from the years 1995 and 2006 the development in individual countries could then be observed. The data for the Czech Republic and also for several other countries were chosen from gained outcomes (see the following table).

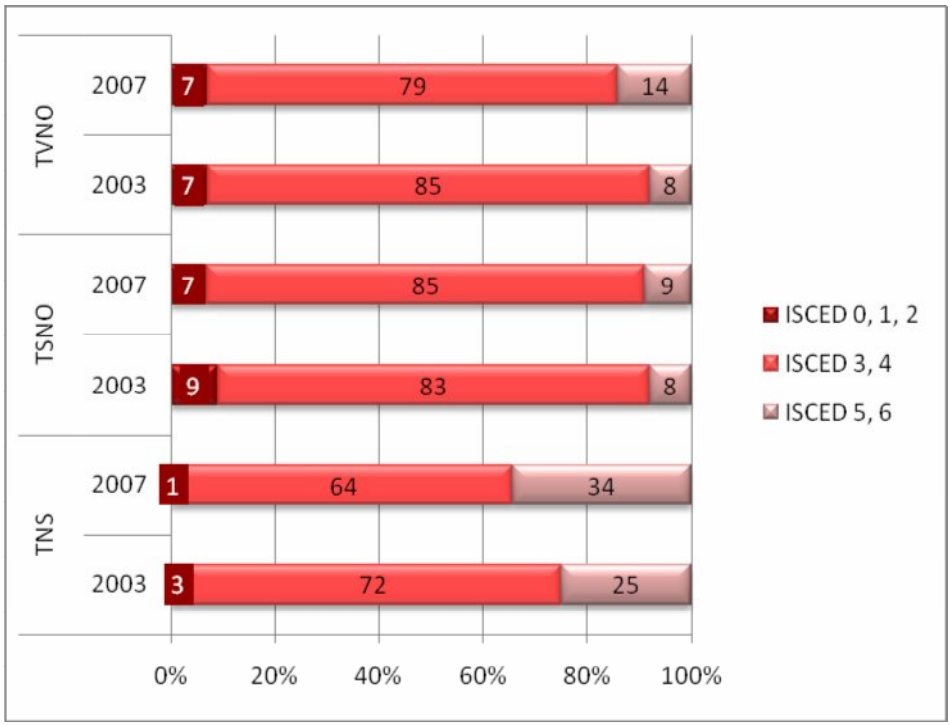
Table 10: *Knowledge economy indexes*

	KEI		KI		Economic regime		Innovations		Human resources		ICT	
	1995	2006	1995	2006	1995	2006	1995	2006	1995	2006	1995	2006
EU 27	7.04	7.81	7.75	7.88	7.30	7.60	7.48	7.69	7.88	7.94	7.87	8.02
EU 15	8.40	8.32	8.47	8.37	8.21	8.17	8.31	8.40	8.46	8.20	8.62	8.52
CR	7.41	7.57	7.10	7.64	8.33	7.35	6.62	7.34	7.20	7.56	7.49	8.04
Poland	6.48	7.04	6.99	7.11	4.92	6.82	6.49	6.44	7.99	8.08	6.51	6.80
Hungary	6.78	7.28	7.09	7.25	5.84	7.40	6.84	7.10	7.35	7.60	7.07	7.04
Slovakia	6.80	7.10	6.81	7.08	6.79	7.15	6.66	6.84	6.81	6.85	6.95	7.56

Source: World Bank – Knowledge Assessment Matrix, in: Kadeřábková A. and comp.: The Competitiveness Year book of the Czech Republic 2006 – 2007, Prague, Linde 2007.

There are also changes in the employment structure regarding education structure of the employees. It is concerning mainly growth of the number of employees with tertiary education (ISCED 5 and 6). This is obvious mainly in the branches demanding on technologies and qualification. The development of share of persons with tertiary education employed in technologically demanding sectors in the Czech Republic in the years 2003 and 2007 (in %) is displayed in the following chart.

Chart 31: *Development of share of persons with tertiary education employed in technologically demanding sectors (%)*



Note: TNS = technologically demanding services, TSNO = technologically medium demanding branches of the processing industry, TVNO = technologically highly demanding branches of the processing industry.

Source: EUROSTAT (2003a), EUROSTAT (2007b),NTF own calculations.

The chart obviously shows an increase in the share of persons with tertiary education employed in branches demanding on technologies or qualification.

The development towards knowledge economy depends in large measure on the resources of highly qualified employees, mainly employees with tertiary education. Therefore attention is paid also to changes which happened and are still happening in education (initial as well as further), which contributes in a crucial manner to the increase in qualification of future as well as current employees.

During last ten years, the number of young people attending universities grew in the Czech Republic quickly, which is independently on the demographic development which shows the decrease of number of persons in younger age groups. While in 2000 41 947 young people were accepted at universities, in 2009 already 82 220 were accepted, which represents almost double increase. Statistical data show further that in average two thirds of students finish the studies, which is a rather lower share in the international comparison. In the total number of university graduates the graduates of longer (five years and more) educational programmes prevail. Even though the share of graduates in technical sciences and natural sciences grows, still it is below average of EU countries.

As for the education of employees in enterprises, mainly statistical surveys provide data on them. They are coordinated by Eurostat and are known as CVTS (*Continuing Vocational Training Survey*). It was organized in all EU member states in the years 1999 and 2005 (and currently preparations for another survey are being done). Outcomes of these surveys show for example that approximately three fourths of enterprises provide their employees with further education in the Czech Republic, which is an above-average share in the EU whose value increases moderately. Another outcome of the surveys says that the education of employees is more frequent in bigger enterprises than in smaller ones.

Based on all so far information, assigned questions can be answered:

Question: Do the changes in the employment structure in branches and occupations confirm, whether we approach more significantly so called knowledge based economy? Is it possible to prove, whether these changes appear as a decrease of jobs in agriculture and on the other hand as an increase in jobs in the areas connected with modern technology?

Answer: Changes in the employment structure confirm that we are approaching knowledge economy, even though the speed of this approaching is slow. It is possible to prove that numbers of jobs in agriculture are decreasing and numbers of jobs in areas connected with modern technology are increasing on the other hand.

Question: What changes (in the time before and after the CR joined EU) happened in the relation to specialized professions and modern technologies?

Answer: In the relation to specialized professions and modern technologies, mainly following changes were done and are being done:

a) **shares of persons employed in professions demanding on technology and qualification grow**
b) **shares of persons employed in branches demanding on technology and qualification grow**
c) **shares of employees with tertiary education grow**

Mentioned changes are in continuous progress both before and after the CR accession to the EU.

4.7 Trends in the Employment Development after the CR joined EU

In 2004 two important events occurred in the area of employment and labour market policy in the Czech Republic:

- the National Action Plan of Employment for the years 2004-2006 was announced
- a new Act on Employment became valid and contributed to a solution of material security in unemployment, of employment of disabled persons and defined a complex of tools of the active labour market policy. New tools of the ALMP were introduced: a contribution for training, an overarching contribution, a transport contribution.

As more in detail stated in chapter 4.2, the unemployment rate in the Czech Republic changed in the years 1999-2008 only very slightly. Thanks to the transformation the percentage of unemployed increased only after 1996 from 5 % to 9.4 at the end of 1999. The main reason for such an increase in unemployment was an increase in the trade balance deficit, economic slowdown and privatization of the bank sector. From 2000, the percentage of unemployed remained relatively steady approximately around 9-10%. Between 2005-2007, the percentage of unemployed was going down to 6 %, which is thanks to a strong economic growth (5-6 %) yearly.

Despite a quick economic growth in the monitored period a problem with a relatively high share of long-term unemployed persons and of very long-term unemployed persons remains. Long-term unemployment is usually connected with a certain specific group of unemployed people, where a combination of several disadvantages/limitations occurs such as: low qualification, higher age, children care etc.

Table 11: *Labour market in the Czech Republic (trends, 1999-2007)*

	1999	2000	2001	2002	2003	2004	2005	2006	2007
GDP (real, %)	1.3	3.6	2.5	1.9	3.6	4.5	6.4	6.4	6.5
Unemployment rate (%)	9.4	8.8	8.9	9.8	10.3	9.5	8.9	7.7	6.0
Number of employed persons on 1 available job	13.9	8.8	8.9	12.6	13.5	10.6	9.8	4.8	2.5
Average length of unemployment (days)	-	-	-	484	530	567	610	649	659
Share of unemployed over 50 years (% of unemployed)	14.7	16.2	17.1	19.4	20.8	22.4	25.2	27.1	30.6
Share of persons with basic education (% of unemployed)	30.0	31.6	32.1	31.5	31.4	30.6	30.7	31.4	31.6
Long-term unemployment (≥ 12 m) (% of unemployed)	29.7	38.4	37.1	37.2	40.3	40.6	41.7	41.2	38.6
Long-term unemployment (≥ 24 m) (% of unemployed)	11.9	19.1	22.0	21.3	23.1	24.9	26.1	27.2	25.9

Source: MoLSA, Portal

A high proportion of long-term unemployed people is therefore an important area for the implementation of the labour market policy in the Czech Republic. At the same time it is true that this is connected with an important share of grey economy and also due to this reason changes in the Czech system of social benefits are undertaken continuously to increase motivation and incentives of the system.

Except for an increasing share of long-term unemployed and very long-term unemployed in the labour market, a trend of an increase in workers with university degree in the labour market is obvious. Regarding regional view, this growth is most significant in the region South Moravia where Brno represents a natural and developing centre of education.

Table 12: *Share of work force with university degree (in % of work force)*

	2001	2002	2003	2004	2005	2006	2007
Czech Republic	11.6	12.5	12.7	13.2	13.7	14.2	14.4
Capital city of Prague	25.2	27.5	27.1	28.1	28.5	28.2	28.4
Region Central Bohemia	8.8	8.9	8.6	10.8	11.1	11.0	11.4
Region South Bohemia	9.6	11.5	11.6	11.9	11.4	13.3	13.2
Region Plzeň	9.8	11.1	10.1	11.3	10.8	11.7	13.2
Region Karlovy Vary	7.7	7.5	8.5	8.1	8.5	8.2	9.0
Region Ústí nad Labem	6.6	7.7	6.4	6.7	7.6	8.6	7.1
Region Liberec	8.3	9.0	9.3	8.1	10.3	9.8	9.8
Region Hradec Králové	10.2	10.4	11.6	11.5	11.2	13.8	12.8
Region Pardubice	9.0	9.0	10.3	10.4	11.9	12.0	10.7
Region Vysočina	7.6	9.3	9.9	9.9	11.3	11.4	11.6
Region South Moravia	13.2	15.9	15.8	16.6	16.6	17.0	18.2
Region Olomouc	11.3	9.6	10.0	11.6	13.0	13.4	13.5
Region Zlín	9.8	10.6	11.3	11.6	12.4	12.5	13.3
Region Moravia Silesia	10.5	10.5	10.8	10.7	11.5	11.8	12.7

Source: CSO-SRWF

Based on all so far information, assigned questions can be answered:

Question: Which indicators / trends relate to the indicators of the labour market in the period of 18 quarters before the CR joined EU?

Answer: In the monitored period the employment in the Czech Republic developed without any significant oscillations. In principle, both the total employment and the employment structure developed evenly.

Question: Which indicators / trends relate to the indicators of the labour market in the period of 18 quarters after the CR joined EU?

Answer: The answer to this question can be connected with the previous answer, however, for

the period of 18 quarters after the CR joined EU we need to enlarge this answer to emphasize that the trend of population ageing deepened and with this a decrease in share of employees in the lowest age group was connected. Another trend is the increase of average education level and the increasing share of employed persons with tertiary education and the increase in number of people employed in the tertiary sector.

Question: Did the positive trends relating to the situation in the labour market observed before the CR joined EU strengthen, and are they relevant also nowadays (or till the end of 2008)?

Answer: After the CR joined EU, the labour market policy in context of the European labour market policy started to be applied. The Czech Republic observed Lisbon objectives and a practise of EU countries was transferred more significantly into performance of the national policy. A bigger importance is given to the ALMP tools oriented towards social inclusion, gender approaches are taken more into account.

4.8 Forecasts of Work Force Demand in the Czech Republic and EU

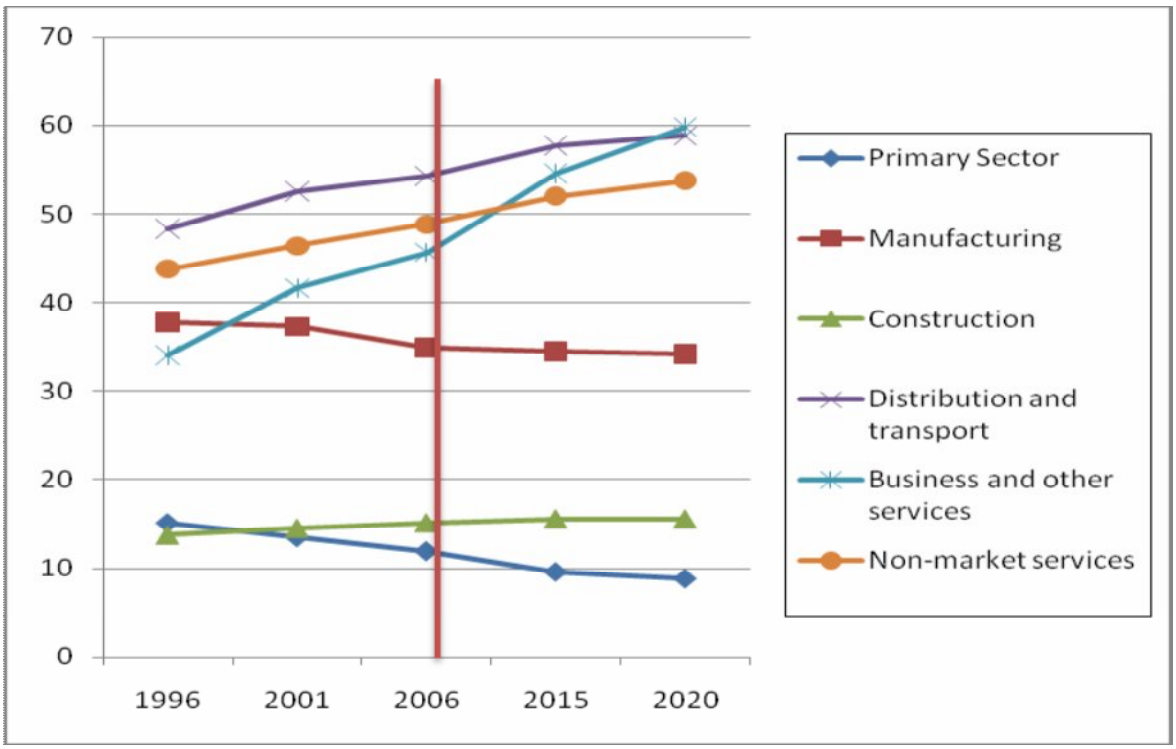
In connection with the discrepancies between supply and demand in the labour market (and of course also with the economic and social consequences of these discrepancies), constantly more attention in different countries is paid to the forecasting of supply and demand development in the labour market. One of the most explicit demonstrations of this trend was a large project realized in the entire EU by the European Centre for the Development of Vocational Training (CEDEFOP) in cooperation with experts from British institutes Warwick Institute for Employment Research (IER) and Cambridge Econometrics (CE) and from the Dutch Research Centre for Education and the Labour Market few years ago.

Within this project, a large databases and relevant projection models enabling forecasts of expected development of occupations, sectors and qualifications in 25 EU countries (today's 27 member states without Bulgaria and Romania), in Norway and in Switzerland were created. Medium-term forecasts were done, with a view of a period till 2020. The outcomes of the research were published in several CEDEFOP publications, most of the information is included in the comprehensive report *Future Skill Needs in Europe – Medium-Term Forecast, Synthesis Report* from 2008 and a study *Skill Needs in Europe – Focus on 2020* from the same year. The content of these publications represents the basis for the identification of the expected demand development in the EU labour market.

Extensive analytical and forecasting works lead to the identification of at least five main trends of employment in the EU till 2020.

The first trend is a continuous growth of employment in the sector of services. This trend was proved during the mentioned project not only by using data on employment divided into three usual main economic sectors (primary – agriculture, secondary – industry, tertiary – services), but also by implementing a finer division into six sectors which enable a more structured view. This trend is transparently displayed in the following chart.

Chart 32: *Employment in sectors in the CR*



Source: Skill Needs in Europe, Focus on 2000. CEDEFOP Panorama series; 160. Luxembourg: Office for Official Publications of the European Communities, 2008, own calculations.

In the chart (and of course in the detailed data) it is clear that the numbers and shares of persons employed in services, which is in sales, transport as well as so called non-market services such as for example education, medical and social care or public administration, will steadily grow together with a gradual decrease in number and share of persons employed in the primary sector (agriculture).

The second main trend are changes in the structure of new jobs. The analyses and forecasts made forecasting of employment structure in the future periods (time horizon till 2015 and 2020) possible, comparison with the current employment structure and quantification of expected changes could have been done. Although approximately 3 million of jobs in agriculture and approximately 800

thousand of jobs in the processing industry will be cancelled in the EU countries in the period 2006 – 2020, creation of approximately 20.3 million of new jobs is expected. This will concern mainly jobs in so called business services, where following NACE branches belong: banking industry (classes 65 and 67), insurance industry (66), ICT services (72) and further services (70 - 71, 73 - 74 and 90 – 93, 95 and 99). Approximately 5 million of new jobs will be created in the so called non-market services and approximately 4.5 million of jobs will be created in the sector of distribution and transport (including wholesale and retail, hotel industry and accommodation, transport and communication services).

The expected changes in the employment structure are transparently displayed in the following chart.

Chart 33: *Change in the sector employment, EU 25*

Source: Skill Needs in Europe, Focus on 2020. CEDEFOP Panorama Series, 160. Luxembourg: Office for Official Publications of the European Communities, 2008, own calculations.

The third main trend of the employment development in the coming periods is an expected shortage of workers. As pronounced above, even though more than 20 million of new jobs are expected till the year 2020, another 85 million of jobs will be available (i.e. more than four times more) because of retirement of current workers or because of other reasons in the same period. In total more than 105 million of jobs will have to be filled.

The total number of jobs in 2020 is estimated to be 223.6 million. Till that time, the number of EU inhabitants in productive age will, according to Eurostat presumption, drop down from approximately 309 million in 2006 to approximately 302 million in 2020. Although this number will go

down by approximately 7 million, more than 20 million of new jobs will be created in the same period. Therefore a noticeable shortage of workers is to be expected in the future periods.

To fill the expected jobs with workers, the average employment rate would have to be increased to 74 % in the EU. If the objective of the Lisbon strategy in the area of employment succeeded to be met by the year 2020 (70 %), approximately 12 million of workers would be missing.

The fourth main trend of the employment development concerns changes in the occupation structure, which are naturally related to the changes in employment structure according to sectors. If we monitor 9 main categories of occupation, different numbers of workers in individual categories will be needed in the future period. The changes expected in the occupation structure are transparently displayed in the following chart.

Chart 34: *Demand according to the type of occupation, 2006-2020, EU 25*

Source: Skill Needs in Europe, Focus on 2020. CEDEFOP Panorama Series, 160. Luxembourg: Office for Official Publications of the European Communities, 2008,NTF own calculations.

The chart shows the highest demand on workers in the category of technicians and related occupations and in the category of workers in services and sales in the future periods. Demand on workers can also be expected in the categories where the number of jobs will drop, because jobs available after the current workers leave them will have to be filled. The mentioned chart contains important information also for politicians, providers of vocational trainings, providers of consultancy services on occupation as well as for citizens, because it can help them revise unrealistic or unsubstantiated basis for their decisions.

The fifth trend of the employment development is concerning the expected development of the employment structure regarding qualification. In this trend it is obvious that higher qualification demands can be expected in all occupation categories in the future periods, in other words the average qualification level is increasing. If we distinguish three categories of jobs, i.e. jobs requiring high qualification (ISCED 5 and 6), medium qualification (ISCED 3 and 4) and low or no qualification (ISCED 0 – 2), it is clear that in future a higher share of workers with high and medium level of qualification and to the contrary, a lower share of workers with low level of qualification, are to be taken into account. The development is displayed in the following chart.

Chart 35: Impact of qualification onto employment

Source: Skill needs in Europe, Focus on 2020. CEDEFOP Panorama Series, 160. Luxembourg: Office for Official Publications of the European Communities, 2008.

More than 20 million of jobs in the EU till 2020 is, regarding the qualification, represent a balance between approximately 19 million of jobs with high qualification and approximately 13 million of jobs

with medium qualification and almost 13 million of cancelled jobs requiring low or no qualification. In 2020, jobs requiring high qualification will represent almost one third of all jobs, there will be one half of jobs with medium qualification and the share of jobs with low qualification will go down to approximately 18 %.

The mentioned trends referred mainly to the demand side of the European labour market. After having done the forecast of demand, CEDEFOP with cooperating institutions addressed also the supply side of the labour market in the EU. The outcomes of these follow-up works were then summarized and published in the comprehensive study *Future Skill Supply in Europe, Medium-term Forecast up to 2020, Synthesis Report,* which was published by CEDEFOP last year.

All trends applying in all of the mentioned works to the EU as a whole, refer also to the Czech Republic. Their interpretation regarding the Czech Republic, however, requires also specific view of the Czech Republic connected with the employment structure as well as with the way of forecasting the situation in the labour market.

A continuous forecasting of work force demand, or forecasting of qualification needs, is in the Czech Republic, unfortunately, rather marginal to the attention of public authorities, despite the benefit it could bring for the qualified decision making of both public and private subjects. Only the National observatory for employment and training of the National Training Fund works continuously at forecasting for already several years. For example the outcomes of this institution, published in Competitiveness Yearbook of the Czech Republic 2007 – 2008 (Prague: Linde, 2009) were used.

The existing forecast indicated that several general factors, or trends will affect the economy and labour market in the Czech Republic in the coming periods, mainly:

a) shortage of qualified workers; these workers will be available in the labour market more and more scarcely, therefore employers will have to „manage“ human resources better
b) demographic development; in connection with the population ageing and with less numerous groups of young people, the numbers of school graduate will be decreasing for a certain period
c) speed of economic growth; slower speed of growth will limit creation of new jobs and will increase numbers of job applicants
d) generation Y; young generations entering the labour market will have different values and preferences than mainly older persons leaving the labour market
e) proceeding globalization; economy will be more and more sensitive against global changes outside the Czech Republic

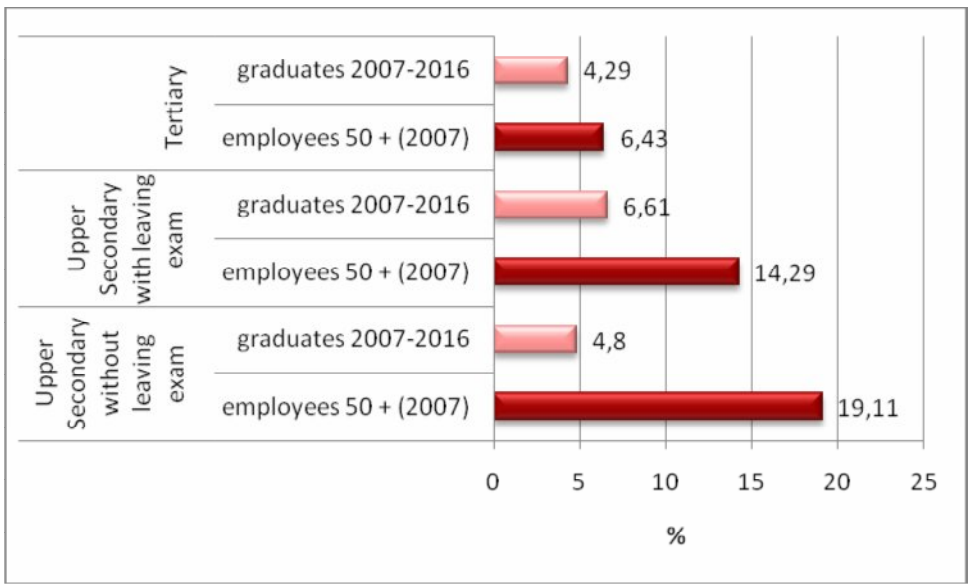
f) investment policy of global companies; loss of existing cost advantage will end in the decrease in numbers of jobs

g) cost factors; growth of energy and wage prices and sometimes also development of rate of exchange will intensify pressure on competitiveness increase

Forecasting studies focused mainly on four sectors in the previous years: power engineering, ICT production, optical and medical technologies, production of electrical machines and appliances and ICT services and professions.

Power engineering belongs among the crucial sectors of economy, even though the share of employees in this sector is not high (approximately 1.2 % in the Czech Republic). In comparison to other sectors, power engineering belongs to sectors demanding on higher qualification, for example an above-average share of workers with tertiary education work here (around 20 %). Demographic development (and also meanwhile decreasing interest of young people in technical disciplines) will, however, limit the possibility to substitute older, leaving, workers with young school graduates, which will significantly increase the role of further education. The expected generation changes of workers in power engineering till 2016 are to be found in the following chart.

Chart 36: *Generation changes of workers in power engineering (assumption till 2016)*



Source: Competitiveness Yearbook of the Czech Republic 2007 – 2008. Prague: Linde 2008.

In the sector of ICT production and production of optical and medical technologies, the employment has been increasing so far, for example in the branch of consumer electronics in the period 2000 – 2006 by 70 %, so that there are approximately 100 000 persons employed in this sector currently. In the employment structure, the share of workers with tertiary and secondary education grows. This

trends will go on, the demand of employers on qualified technicians, however, will be more and more difficult to satisfy. The employment development in the sector will be affected also by the growth of cost in the future periods (a Czech labourer is approximately four times more expensive than a Chinese one).

In the production of electrical machines and appliances was the employment going up as well so far. Also in this sector, the share of employees with higher levels of education and qualification is growing. In connection with the development of some other branches, for example with automobile production, the continuation of these trends can be expected also in the coming periods.

The employment in the sector of ICT services shows similar trends, speed of the employment growth belongs to the fastest. Forecasts of the development in the labour market indicate a significant increase of the number of university graduates with focus on ICT who will partially satisfy the demand on these graduates but will not be probably enough to satisfy the whole demand.

It is therefore obvious that trends concerning the future development of employment structure and appearing within the whole EU, do appear also in the Czech Republic and will have to be therefore taken into account also in our country.

In connection with the existing outcomes of forecasts, assigned questions can be answered:

Question: What are the forecasts for the structure of work force demand in the main branches of economy?

Answer: Forecasts show a high future demand on work force mainly in a wide sector of services, stagnation in industry and building industry and decrease in demand on work force in agriculture.

Question: What are the forecasts for the structure of work force demand depending on education?

Answer: Forecasts show a total increase in qualification demands, the highest demand to be expected on workers with higher levels of education.

Question: What are the forecasts for the structure of work force demand according to main professions and specializations?

Answer: Forecasts indicate an above-average increase of demand on technicians and related occupations and on workers in different sectors of services, an average growth of demand on craftsmen and clerks and a below-average growth of demand on operators, assembly

professions and agriculture professions.

Question: What are the forecasts for structure of work force demand depending on education?

Answer: Forecasts show a total increase in qualification demands, the highest demand to be expected on workers with higher levels of education.

Question: Does the structure of work force demand in the Czech Republic differ from other states of the European Union?

Answer: The demand structure in the CR differs of course from other EU countries, the main trends, however, are the same in the entire EU as well as in the CR.

Question: What recommendations can be pronounced in relation with the future of the cohesion policy in the context of global trends in the labour market (changes in occupations, branches, qualification)?

Answer: The cohesion policy should in the coming periods support for example

- **employment in sectors with a higher qualification demand**
- **employment in services**
- **education in technical sciences at the level of tertiary and secondary education**
- **innovation activities**

4.9 Factors Impacting the Extent of Work

The share of persons working part-time was around 5 % of all employed people in the CR in the years 2000 to 2008. Looking at the data in the below table it is obvious that women are predominant in the part-time jobs in the Czech Republic – between 8 and 9 % of women worked part-time in the 2000 to 2008, while only 2 % of men worked part-time.

A comparison with other EU countries is convenient to frame this point of issue. The comparison shows that the share of persons employed part-time is in the Czech Republic significantly below European average. In the EU, currently around 18 % of people (Eurostat 2010) work part-time. Similarly to the Czech Republic, mainly women have this type of work load in the whole EU. Approximately 34 % of European women and approximately 9 % of men (Eurostat 2010) work part-time. Looking at individual EU countries a clear border between old and new EU countries is visible. The share of persons working part-time is noticeably lower in the transforming economies of the new

member states (e.g. in Bulgaria only around 2 %, in Slovakia approximately 3 %,in Hungary around 5 %). On the other hand, in some old member states the share of persons working part-time amounts even to approximately 25 % (Germany, Austria, Sweden). The Netherlands show the most people employed part-time (almost 50 %) (Eurostat 2010). The cause of low share of part-time employment in the new EU member states, and therefore also in the CR, is primarily a low flexibility and adaptability of the labour markets.

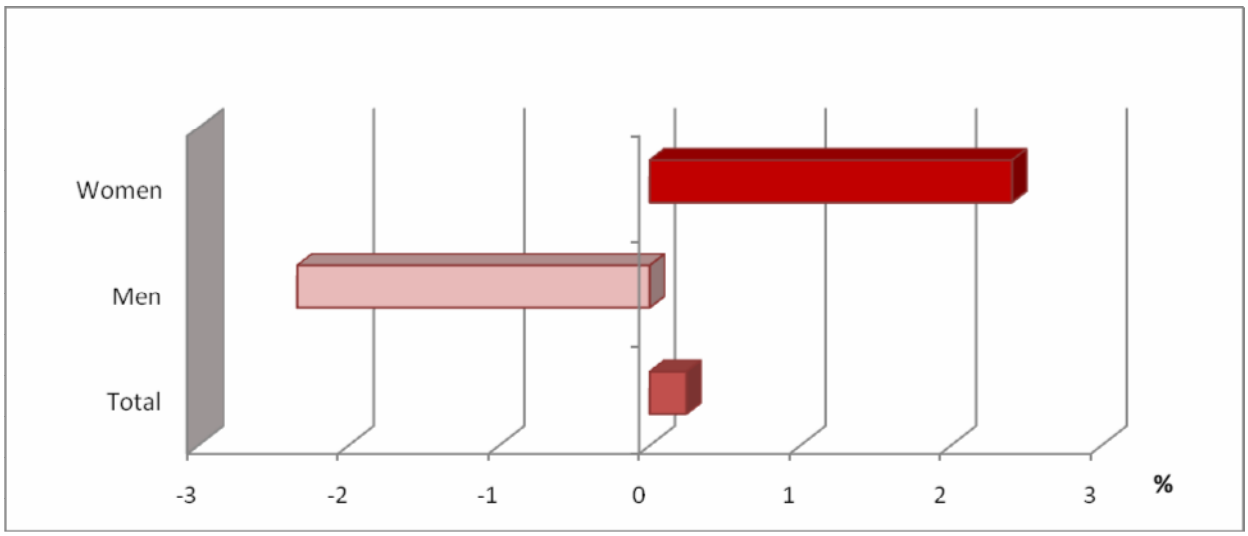
Table 13: *Shares of persons working part-time on the total number of employed people*

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	5.14	4.82	4.86	4.96	4.90	4.91	5.03	5.01	4.92
Men	2.22	2.14	2.19	2.26	2.28	2.12	2.26	2.33	2.23
Women	8.85	8.26	8.31	8.46	8.29	8.56	8.65	8.55	8.49

Source: CSO, NTF own calculations

The development in the years 2000 - 2008 was not really considerable for the Czech Republic. The total share of persons working part-time stagnated and even after the Czech Republic joined the EU no change towards the European average in this area appeared. However, at the same time the share of women working part-time rose and the share of men went down, the changes were, however, very small – see in the following chart showing the change index in the years 2004 - 2008.

Chart 37: *Change index of the share of persons working part-time after the accession to the EU (2004 = 100%)*

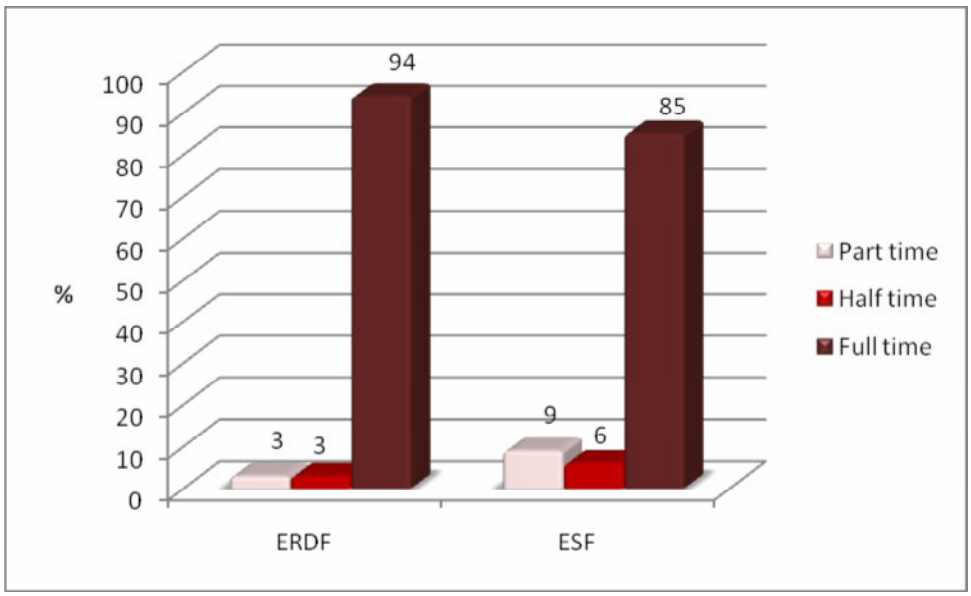


Source: CSO, NTF own calculations

An exact representation of part-time (including half-time) jobs in newly created jobs from SF is not available. The questionnaire survey among beneficiaries, however, confirmed the full-time work

loads as prevailing, which is mainly in ERDF programmes (95 %). In ESF programmes the part-time share is higher (see following chart), which is in relation with the focus of the programmes, including e.g. support to women returning to the labour market after maternity leave.

Chart 38: *Representation of part-time contracts in newly created jobs*



Source: Questionnaire survey

The Highest Attained Education and Part-time Jobs

Another important factor impacting the fact whether people work part-time is, except for sex, also education. The biggest group of part-time working people are people with secondary education and, to the contrary, persons with basic education (primary respectively) represent the smallest share (see following table).

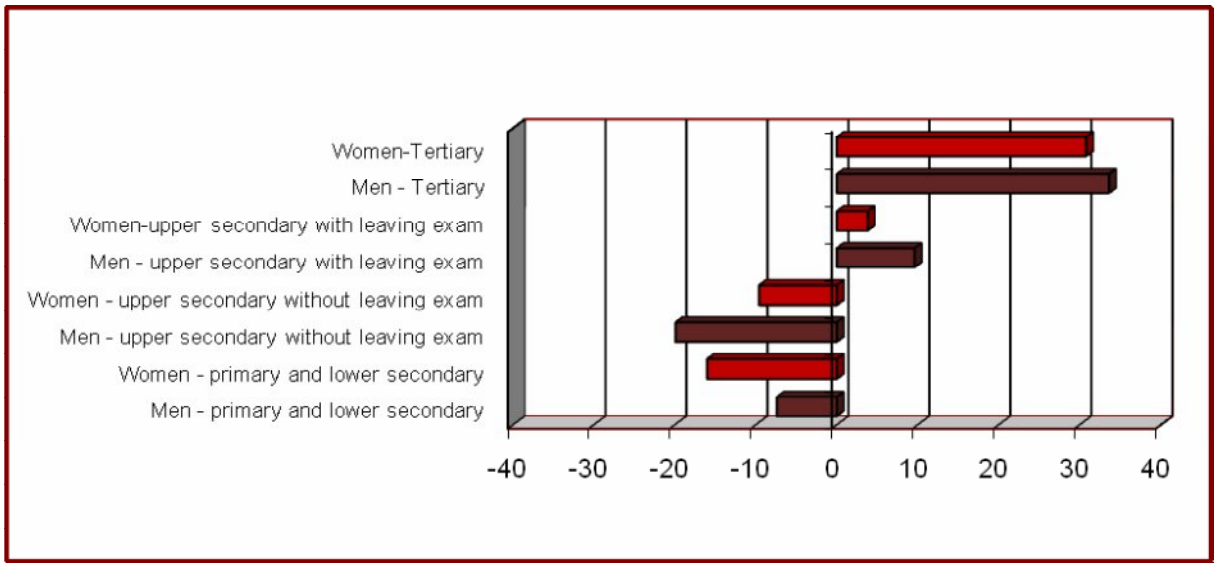
Table 14: *Representation of part-time work according to the highest attained education of the persons*

	2000	2001	2002	2003	2004	2005	2006	2007	2008
Primary	17.3	15.3	13.4	12.6	11.9	12.1	11.1	10.8	9.5
Upper secondary without leaving exam	38.6	38.0	37.1	37.9	36.5	34.8	34.7	33.7	31.8
Upper secondary with leaving exam	34.4	33.7	34.0	34.3	36.2	36.9	36.6	37.2	38.1
Tertiary	9.6	10.9	13.6	14.4	14.6	16.4	16.6	18.1	19.2

Source: CSO

Going out of the following chart, the factor of education noticed a significant development after the CR joined EU. From 2004 the share of people with university degree working part-time grew the most. People with university degree had a 14.6 % share of the part-time working people in 2004 and already 19.2 % in 2008. An interesting fact is in particular the increase in share of part-time working men with university degree. Also in the group of people with upper secondary education with leaving exam went up from 2004. On the other hand, a clear decrease in the representation of less educated people among people working part-time can be observed.

Chart 39: *Change index of the share of persons working part-time after the accession to the EU according to education (2004 = 100%)*

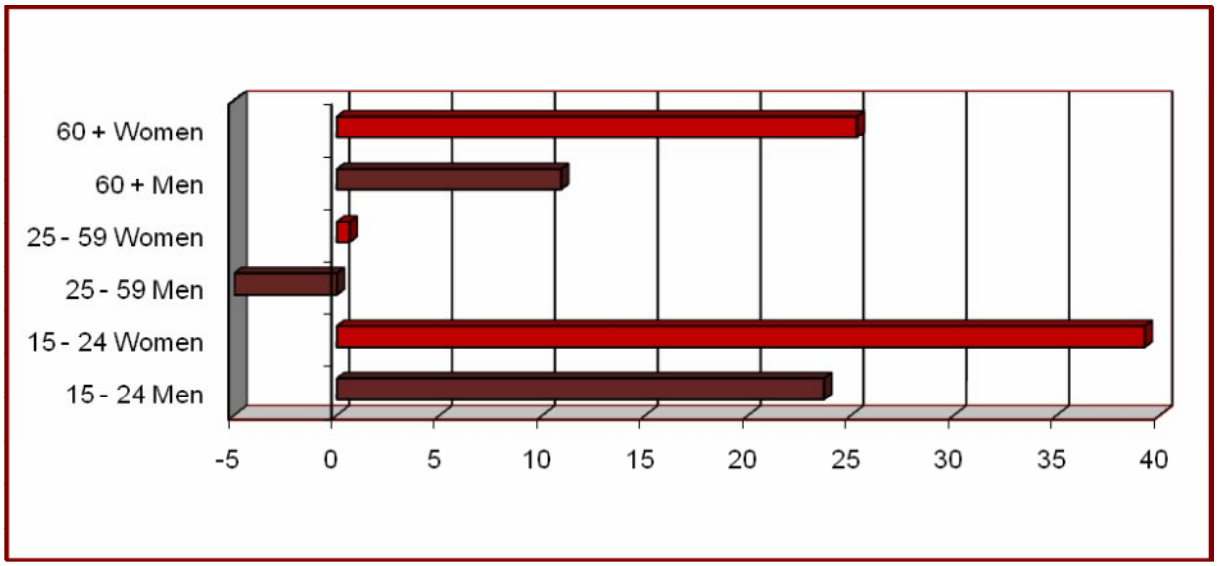


Source: CSO, own calculations

Age and Part-Time Jobs

Another important factor impacting the fact whether people work part-time is age. It is obvious that the highest share of people working part-time is to be found in the age group 25 – 59 years. The following chart suggests, however, an interesting fact that the highest increase in part-time work loads from 2004, which is after the CR joined EU, experienced the age group of 15 to 24 and over 60 years. Part-time job grew in the Czech Republic mainly in the group of very young people and of people in retirement age. The part-time work load represents, in the Czech Republic, obviously mainly a form of earning extra money during studies or in retirement. In the group of women in productive age the part-time work load grew only moderately, in the group of men, to the contrary, it dropped relatively significantly.

Chart 40: *Change index of the share of persons working part-time after the accession to the EU according to age (2004 = 100%)*

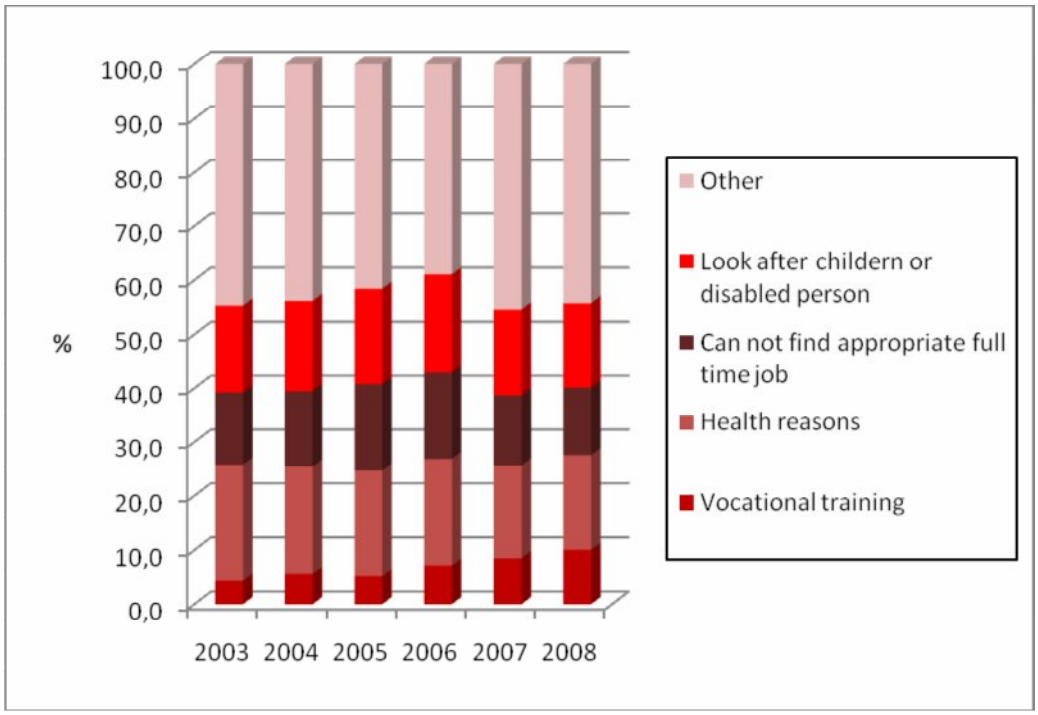


Source: CSO, own calculations

Reasons for Part-time Work

The data stated in the below chart claim that the most important reason for part-time work were health reasons. But their importance went down moderately (from approximately 21 % to 17. 5 %). The second most important reason was in all years a care for children or for a disabled person, its share was at a standstill on the values around 17 to 18 %, whereas directly family care should be the main incentive for part-time work load which can improve incomes of the families with children (against a situation when one of the parents being on parental leave). The third most important reason was a fact that the person was not able to find a suitable job with full-time work load. Between 13 and 16 % of people were stating this reason. The highest increase was observed in the category of people who claimed to be working part-time because of currently being in professional training or attending school education (growth from 4 to 10 %). Cause of this growth could be a total growth of people attending tertiary education in the Czech Republic in recent years.

Chart 41: *Reasons for part-time work in the years 2003- 2008*



Source: CSO

In connection with the existing outcomes of forecasts, assigned questions can be answered:

Question: Do the following factors impact the decision making process of choosing a part-time job: sex, age, education, address, parenthood, distance from the current address?

Answer: An important impact of factors sex, education and age onto the fact whether a person works part-time or not was identified.

Question: Which of the reasons is the main reason for part-time work load: studies, illness, health handicap, inability to find another job, children care, personal reasons?

Answer: The main reasons for part-time jobs in the Czech Republic are health reasons and care for children or a disabled person.

Can any trends in full-time employment be observed? If yes, did these trends strengthen after the CR joined EU?

Answer: The total share of persons employed part-time in the Czech Republic is at a standstill. The stagnation does not appear, however, in all groups of population. The share of educated people employed part-time grows, the share of less educated people goes down. An increase can also be observed in the groups of persons of student and retirement age. The analysis also identifies a decrease in share of men in productive age working part-time.

The representation of part-time jobs among jobs created with the assistance from SF is also low, mainly in ERDF programmes (5 %).

4.10 Factors Impacting Temporary and Permanent Job

In the years 2000 - 2008 the share of people having a temporary job was around 7 % of all employees. Women are employed temporary a bit more often in the Czech Republic, their share increased slightly in the years 2000 till 2008.

The Czech Republic belongs, regarding the share of people employed temporary, among countries with a below-average share in the European comparison. In the EU have currently around 14 % of people a temporary job (Eurostat 2010). Similarly to the Czech Republic, women are in the entire EU employed temporary a bit more often. A temporary job have approximately 15 % of European women and approximately 13 % of men (Eurostat 2010).

The difference between old and new EU countries is not that obvious in the case of temporary jobs, unlike in part-time jobs. Within both groups of countries there are visible relatively big differences. The share of people employed temporary is extremely high in Spain from long-term perspective (almost 30 % of all employees) and from 2002 it almost doubled in Poland up to 27 %, a relatively high share of people have a temporary job also in Slovenia (The Employment Development in the years 2002-2008, CSO). In other new member states the shares of people with a temporary job are similarly low or lower than in the Czech Republic (Eurostat 2010).

Between the years 2000 and 2004, the share of people employed temporary rose moderately, from 2004 it went down probably because of the decrease of unemployment. The share of women with a temporary job increased a little, the share of men decreased a little in the years 2000 – 2008.

Table 15: *Share of persons with a temporary job*

	2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*
Total	6.94	6.74	6.97	7.76	7.67	7.20	7.23	7.16	6.69
Men	6.01	5.91	5.91	6.48	6.23	5.99	5.91	5.69	5.12
Women	8.12	7.81	8.34	9.42	9.53	8.78	8.95	9.09	8.79

Source: CSO, own calculations

Factors Influencing Temporary Jobs

Among the main factors which could influence a fact whether a person has a temporary job and which are monitored by the CSO belong sex, category of employed people (employees, employers, self-employed persons), education and a fact whether the person works part-time.

As already mentioned above, women have a temporary job more often than men. Chart below shows also a lower decrease of the share of women with a temporary job after the CR joined EU than of men.

As for the category of employed persons, a moderate growth of the share of employees with a temporary job can be observed after the accession to the EU. Employees make more than 80 % of all persons with a temporary job in the Czech Republic.

In the following chart a relatively significant growth of the share of people with temporary jobs working part-time (shorter time) after the accession to the EU is obvious. Because the total share of persons working part-time stagnated after the CR joined EU, the increase in the group of part-time workers with a temporary job is obviously caused directly by the growth of this type of work load.

Chart 42: *Change index of the share of persons with a temporary job after the CR joined EU(Change index 2004=100%)*

Source: CSO, own calculations

The below stated table indicates persons with higher education as those who are employed temporary more often. The share of people with basic education having a temporary job is regarding the total share of inhabitants of the CR with basic education (approximately 25 %) relatively low. On the other hand, the share of people with university degree on the total number of people with a temporary job is regarding their total share in the CR (approximately 12 %) relatively high. The

development in the years 2000 till 2008 could not be processed because the shares of people with a temporary job according to education are monitored only from 2006. There were no noticeable changes in the years 2006 - 2008.

Table 16: *Shares of persons with a temporary job according to education (2008)*

	Total	Men	Women
Primary	12.7	10.3	14.5
Upper secondary without leaving exam	35.7	41.2	31.4
Upper secondary with leaving exam	35.7	29.3	40.7
Tertiary education	15.8	19.1	13.4

Source: CSO, own calculations

Going out of the date stated in the table 17 it is obvious that inhabitants of the Czech Republic are rather forced by circumstances to take a temporary job than they would be looking for it intentionally. In 2008, 63 % of people claimed the reason for the temporary job to be their inability to find a job with another type of the contract. A shift, which is in a positive way, can be observed in the past two years, because the share of persons with a temporary job who work this way because they do not want another type of contract increased by approximately 7 percentage points.

Table 17: *Reasons for a temporary job*

	2006	2007	2008
They could not find a job with another type of contract	70.3	66.1	63.2
Out of this – Men	*70.6*	*67.9*	*63.7*
Out of this – Women	*70.1*	*64.7*	*62.8*
They did not want a job with another type of contract	29.6	33.7	36.7
Out of this – Men	*29.4*	*32.1*	*36.2*
Out of this – Women	*29.8*	*35.1*	*37.1*

Source: CSO, own calculations

In connection with the existing outcomes of forecasts, assigned questions can be answered.

Question: Which of the reasons is the main reason for a temporary job: trial period, studies, scholarship, inability to find a permanent job?

Answer: The performed analysis shows that 63 % of the Czech inhabitants are forced by circumstances to take a temporary job because they were not able to find a job with another type of contract.

Question: Can it be stated whether there is a specific type of employers (of the public, private

sector or of a certain branch) who tend to offer temporary employment more than any others?

Answer:

Question: Are there any trends in temporary employment obvious? If yes, did these trends strengthen after the CR joined EU?

Answer: The share of persons with temporary employment stagnated in the past years, it even went down slightly after the CR joined EU. A reason can be the improvement of the economic level and an unemployment decrease in this period. After the CR joined EU, the share of persons working part-time and at the same time the share of persons with a temporary job grew. Concurrently, the share of persons with a temporary job unable to find another type of work contract decreased.

4.11 Convergence in the Regional Labour Markets in the CR

The objective of this section is to identify the diversification rate of the region in the view of the indicators of the labour market and to prove whether the convergence or divergence of these indicators and therefore also of regions took place in the monitored period. The unemployment rate is considered to be the most convenient indicator enabling us to describe regional variability. It was completed also by the indicator of the long-term unemployment rate. To prepare this section data going out of the selection research on work force from the CSO were used.

Unemployment Rate

In the first part of the section the current picture of regional differences in the Czech Republic is indicated by the help of the share of individual regions on the total unemployment rate.

The magnitude of the differences is measured by means of the standard deviation and the variation coefficient. The standard deviation indicates absolute differences in unemployment rates in individual regions. Variation coefficient specifies the relative variability rate while its value does not depend on the total unemployment rate. The same value of the variation coefficient can be reached therefore in two sets of regions whose average value is very different (Blažek, Csank 2007). If there is a decrease in variation coefficient, so called sigma convergence appears.

Another calculation done within this section is so called beta divergence/convergence. Beta convergence occurs if the regions with the highest unemployment rate show the highest absolute

decrease of unemployment. Beta divergence occurs if the regions with the highest unemployment rate show the highest increase of this indicator. Beta divergence/convergence can be found out by means of a Pearson coefficient of correlation between the unemployment rate in the given period and its absolute change in the following period. A positive correlation of the indicators means then the beta divergence, a negative correlation a beta convergence.

The unemployment development in the period 1999 - 2008 in individual NUTS 2 regions is described in chapter 4.3 and partially documented also in the following table (table 1).

Table 18: *Regional differences in the unemployment rate in the Czech Republic in the years 1999, 2004 and 2008*

Regional differences in the unemployment rate in the Czech Republic (CR = 100 %) at the NUTS 2 level									
	Prague	CB	SW	NW	NE	SE	CM	MS	Variation coefficient
1999	46	92	75	153	88	95	111	149	33
2004	47	65	70	158	80	95	118	175	42
2008	46	64	65	178	90	97	112	160	44

Source: Labour Market in CR 1993 – 2008. Prague: Czech Statistical Office, 2009.

From the values of the variation coefficient stated in the table 18 as well as in the chart it is obvious that the relative variability rate of the unemployment rate increased in the years 1999 - 2008. A more significant growth can be observed in the years 1999 till 2002, in the following period the value of the variation coefficient oscillated around values 40 to 45. The values of the variation coefficient imply that no so called delta-convergence appeared in the monitored period – relative differences between the regions were increasing. Here it is possible to refer to the analysis of unemployment in the regional view in chapter 4.3, where the fact is stated that the relatively lowest decrease in unemployment rate occurred in the most problematic regions (mainly North-West and Moravia Silesia) in the years 1999 - 2008.

But the decrease of standard variation points out at the same time to the fact that absolutely the variability decrease happened because the unemployment rate went down in the Czech Republic in the monitored period. However, there was a different speed and rate in individual regions, and this lead to a growth of relative variability. In total, it is necessary to take the fact into account that an increase in relative variability of the labour market indicators (variation coefficient) is not a really serious problem in the view of the decrease of the absolute variability rate (unemployment rate is lower than at the beginning of the period).

So called beta convergence can be observed in the monitored period, which is obvious from the value of the Pearson coefficient of correlation (Table 19) between the value of unemployment rate in 1999 and an absolute change in the years 1999 - 2008. In the regions with the highest unemployment rate there was therefore the highest absolute decrease of the unemployment rate.

Although the so called beta-convergence is as a whole for the period 1999 - 2008 obvious, a more detailed analysis enables us to identify several development stages of differentiation in the unemployment rate. These stages are more closely characterized below, also the development in the period before 1999 is mentioned in short.

Authors Blažek, Csank (2007) define in their study three development stages in the view of differentiation in the unemployment rate at the level of the Czech Republic. *In the first stage between 1990 and 1995* the unemployment rate is very low, the regional differences start to develop slowly, no clear trend of this development can, however, be found.

The second stage belongs according to the authors into years *1996 and 2000*. An increase in unemployment rate at the national level as well as growth of regional differences occur in this period. In terms of this study the period only from 1999 was monitored, therefore the chart displays a growth of the standard variation in the years 1999 - 2000 clearly and the table 19 shows positive correlations between the state of 1999 and a change in the following year which suggests that the biggest increase in unemployment rate occurred in the regions with the highest unemployment rate. Therefore here we speak of beta-divergence. The unemployment grew in the regions Moravia Silesia, Ústí nad Labem and Olomouc the most.

Table 19: *Beta divergence/convergence at the level of NUTS 2 regions in the CR – unemployment rate in the years 1999 - 2008*

Beta divergence/Convergence at the level of NUTS 2 regions in the CR – unemployment rate										
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2008/1999
Pearson correlation coeff.	0.596	-0.427	-0.014	0.098	0.234	0.317	-0.610	-0.978	-0.879	-0.878

Source: Labour Market in CR 1993 – 2008. Prague: Czech Statistical Office, 2009.

The third stage, from 2001 till 2005 call the authors a stagnating one. Even though a moderate increase in variability still appears (2001 till 2002), there is no beta – divergence any more. Values of the Pearson correlation coefficient are either very low or do not indicate a clear trend. In total, the unemployment rate state-wide was first going moderately down (2001 till 2002), and then going

moderately up (2002 - 2004). **From 2004 till 2008, which is after the CR joined EU, can a clear trend of decrease in unemployment rate state-wide be observed**. The dynamics of the decrease grew from 2005, which is indicated also by the decrease of the standard variation in this period (Chart 43). **From 2006, the entrance of so called beta – convergence**, or a period when the unemployment rate goes down the most in the regions with the highest unemployment rate, **is obvious from the values of the Pearson correlation coefficient.** The biggest decrease of unemployment rate occurred in the region Moravia Silesia, Olomouc, Zlín and Ústí nad Labem.

Chart 43: *Development of the variability of the unemployment rate between the NUTS 2 regions in the CR in the years 1999 - 2008*

Source: Labour Market in CR 1993 – 2008. Prague: Czech Statistical Office, 2009.

The above described development of variability as well as beta convergence/divergence are confirmed also by the change index in the table 20, which offers a more detailed view of the individual regions in the monitored period. In the table the growth of the unemployment rate in the years 1999 – 2000 in most of the regions is obvious, it grew the most in the above mentioned most affected regions. In the years 2001 till 2005 there is no clear trend observable – there is an increase in some regions, a decrease or a stagnation in others. From 2005 the unemployment rate obviously goes down in all regions, the biggest decrease is seen in the regions with the highest unemployment rate. **The most important factor which impacted the decrease of unemployment rate is in the monitored period, as already mentioned in chapter 4.5, growth of the economic level supported,**

apart from other things, by the Czech accession to the EU and thereinafter following growth of direct foreign investments.

Table 20: *Change index of the unemployment rate in the NUTS 2 regions of the Czech Republic in the years 1999 - 2000*

Change index of the unemployment rate in the NUTS 2 regions of the Czech Republic (1999 = 100 %)									
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Prague	106	97	91	105	98	88	70	61	48
Central Bohemia	94	84	62	65	68	66	57	42	33
South-West	93	88	74	81	89	78	75	54	48
North-West	104	87	85	84	98	101	95	71	59
North-East	89	81	69	85	87	72	79	62	52
South-East	95	94	83	87	95	93	87	63	49
Central Moravia	109	98	91	89	102	101	79	62	51
Moravia Silesia	111	110	103	114	112	107	92	65	57

Source: Labour Market in CR 1993 – 2008. Prague: Czech Statistical Office, 2009.

Long-term Unemployment

Below there are the same calculations as in the first part of the section, but the long-term unemployment rate was used. **Total trends** described above (beta-divergence between the years 1999 and 2000, then stagnation and from 2005 entrance of the beta-convergence, growth of the relative variability rate in the monitored period etc.), **are identical for the long-term unemployment rate as in the case of total unemployment rate** (see Table 21).

Table 21: *Regional differences in the long-term unemployment rate in the Czech Republic in the years 1999, 2004 and 2008*

Regional differences in the long-term unemployment rate in the Czech Republic (CR = 100 %)									
	Prague	CB	SW	NW	NE	SE	CM	MS	Variation coefficient
1999	30	84	61	192	76	80	113	182	54
2004	40	50	51	192	61	91	123	206	62
2008	36	43	42	224	83	90	105	200	67

Source: Labour Market in CR 1993 – 2008. Prague: Czech Statistical Office, 2009.

However, a higher increase in the relative variability rate can be observed (variation coefficient) and also the value of the Pearson coefficient between the year 1999 and a change till 2008 is lower which proves a lower decrease in the long-term unemployment rate in the most problematic regions. Also the following table indicates that the long-term unemployment rate is in terms of Czech regions

more diversified – Prague shows an even lower share on the total long-term unemployment rate than the share of the total unemployment rate, and the problematic regions (Moravia Silesia, North-west), to the contrary show a high share. The fact **concerning higher regional diversification of the long-term unemployment rate, unlike the total unemployment rate, and concerning stronger long-term unemployment occurrence in the most problematic regions proves this as a serious problem which the Czech Republic is not able to eliminate sufficiently.**

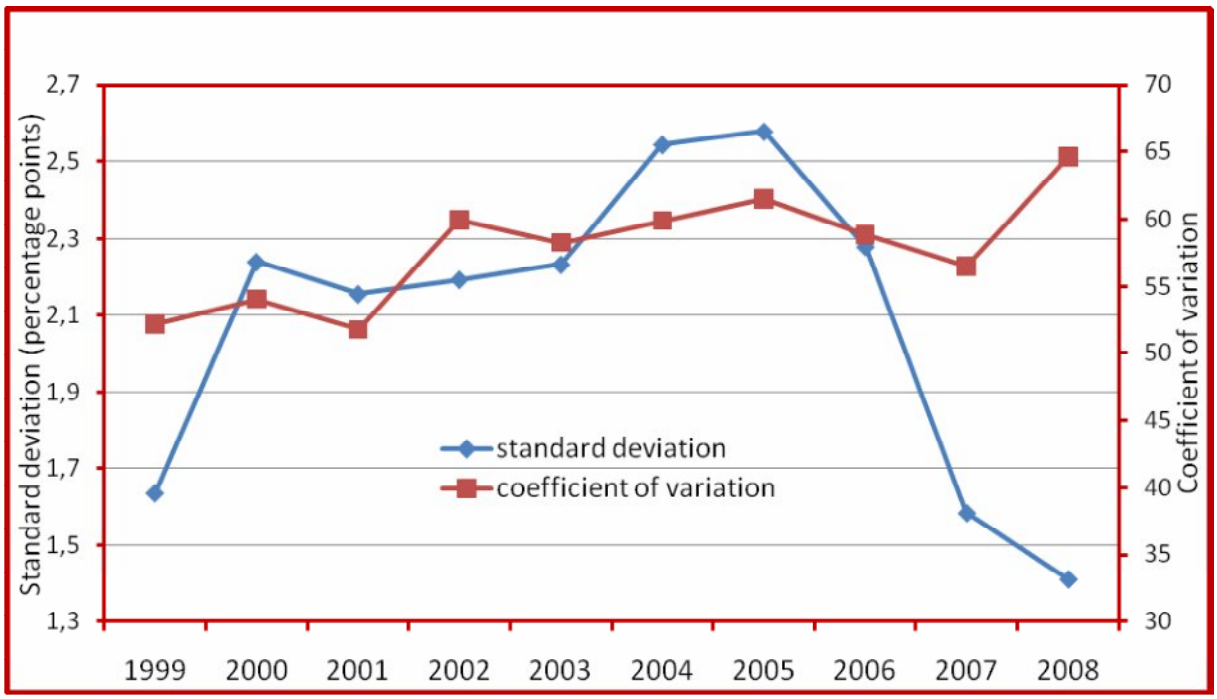
Table 22: *Beta divergence/convergence at the level of NUTS 2 regions in the CR – long-term unemployment rate in the years 1999 - 2008*

Beta divergence/convergence at the level of NUTS 2 regions in the CR – long-term unemployment rate										
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2008/ 1999**
Pearson correlation coeff.	0.920	-0.308	0.139	-0.012	0.446	0.112	-0.783	-0.956	-0.705	-0.561

Source: Labour Market in CR 1993 – 2008. Prague: Czech Statistical Office, 2009.

The following chart displays the development of interregional differences regarding the long-term unemployment rate.

Chart 44: *Development of the variability of the long-term unemployment rate between the NUTS 2 regions of the CR in the years 1999 – 2008*



Source: Labour Market in CR 1993 – 2008. Prague: Czech Statistical Office, 2009.

In connection with the existing outcomes of forecasts, assigned questions can be answered:

Question: What was the diversification of regions (NUTS 2), regarding the indicators of the labour market, before the CR joined EU?

Answer: Last time when the relative variability rate grew were years 2004 and 2005, since that time it stagnates. The absolute variability rate was steadily decreasing from 2005. The seriousness of the diversification problems of the NUTS 2 regions therefore decreased after the CR joined EU.

Question: In which extent are the regions (NUTS 2) currently diversified regarding the indicators of the labour market?

Answer: Within the Czech Republic a relatively high diversification of the regions regarding the unemployment rate can be observed. NUTS 2 regions can in the view of the market characteristics be characterized as follows:

- **Prague with the long-term lowest unemployment rate with a large distance from other regions,**
- **Central Bohemia and South-West benefitting from a good position experienced a high decrease in unemployment and in 2008 showed the, except for Prague, lowest unemployment rates,**
- **diversified, but generally within the CR below-average regions North-East and South-East,**
- **Central Moravia with a slightly above-average unemployment rate,**
- **Structurally affected regions with the highest unemployment rate – Moravia Silesia and North-West.**

Question: Can a decrease (convergence) in diversification of regions (NUTS 2) / an increase (divergence), or no noticeable change be observed?

Answer: Regarding the relative variability rate the diversification of regions (NUTS 2) increased in the monitored period. This increase occurred mainly in the period 1999 - 2002, since that time the relative variability is at a standstill. Since 2006 it is even possible to notice the so called beta convergence which leads to the decrease of regional differences.

Question: What type of convergence is observable between the regional labour markets (NUTS 2)?

Answer: The so called beta-convergence can be observed between regional labour markets

(NUTS 2) in the monitored period as a whole.

4.12 Changes of the Labour Quality in the CR after the Accession to the EU

Three branches in the sector of technologically demanding services which is Communications (OKEČ 64), Computing technology activities (OKEČ 72) and Research and development (OKEČ 73), and also three branches in the sector of technologically demanding branches of the processing industry, which is Production of office machines and computers (OKEČ 30), Production of radio, television and connecting devices and appliances (OKEČ 32) and Production of medical, precise optical and time-measuring devices (OKEČ 33) are pronounced to be highly qualified branches based on the EUROSTAT classification.

The sector of technologically demanding services is closely connected with the development of modern technologies, mainly in the ICT field. In the years 2003 – 2007 the total employment in this sector dropped from 150 thousand of people to 142 thousand of people, which was caused mainly by the restructuralization and by a growing number of outsourced activities of some big companies in OKEČ 64. In the sector of technologically demanding branches of the processing industry the total employment increased in the years 2003 – 2007 from 57 thousand of people up to 81 thousand of people.

Qualification demands on work force are in the technologically demanding sectors still increasing. Regarding the total qualification demandingness of these sectors the share of people with tertiary education (ISCED 5-6) increased in the years 2003 – 2007. The share of people with tertiary education in the sector of technologically highly demanding branches of the processing industry grew by 6 %. This increase was in the sector of technologically demanding services, however, even higher, which is by 9 %. In both case this increase occurred at the expense of people with secondary education. The trend of the employment growth of people with tertiary education can be expected also in the future.

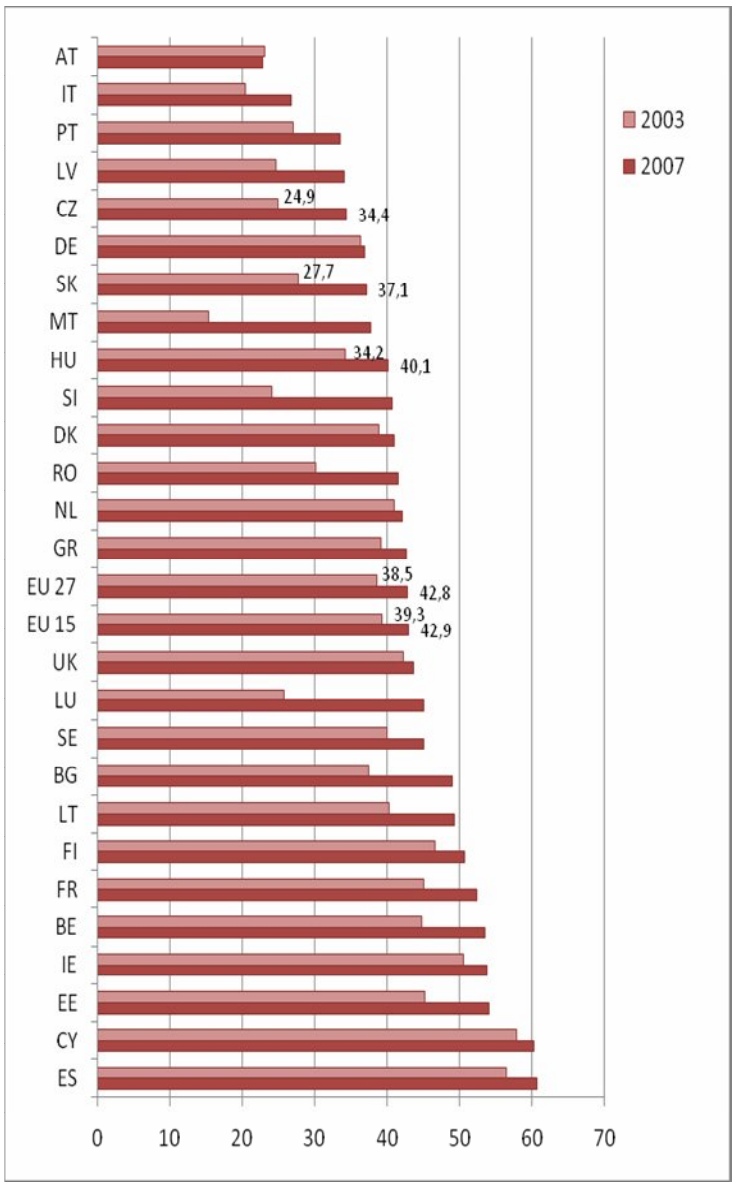
If we compare the education structure with branches of the processing industry, which are considered technologically medium demanding (e.g. OKEČ Production of chemical substances, agents, pharmaceuticals and chemical fibres or OKEČ 29 – Production and repair works of machines and devices not mentioned otherwise), we come to a finding that the number of people with tertiary education grew also in these branches in the years 2003 – 2007, but in a smaller extent (by 1 %).

Compared to the economy as a whole, the share of people with tertiary education employed in both sectors of the technologically demanding processing industry is below-average. The share of persons with tertiary education in the sector of technologically demanding services can, however, be estimated as highly above-average (the difference here in comparison to the whole economy is more than double).

Within the European Union, however, the Czech Republic lies in the employment of people with tertiary education in the technologically demanding sectors behind, it shows one of the lowest shares within EU (together with Italy and Slovakia). In the sector of technologically demanding services, the share of people with tertiary education is higher. The share grew by almost 10 % in the years 2003 - 2007, and even then it remains with a share of 34.4 % below EU average (in further years a favourable dynamics of the sector can be expected, i.e. further increase in the share of persons with tertiary education).

Chart 45: *Share of persons with tertiary education in the technologically medium and high demanding sectors of the processing industry in the years 2003-2007 in the EU (%)*

Chart 46: *Share of persons with tertiary education in the sector of technologically demanding services in the years 2003 and 2007 in the EU (%)*



Source: EUROSTAT (2003a), EUROSTAT (2007b), own calculations

Regarding the remuneration of workers, wages generally are increasing with an increased level of the attained education, which is in the whole EU. Data gained in the international research of EUROSTAT from the year 2002 proved the wages of tertiary educated employees to be roughly half that big in average for the available EU countries in comparison to workers with secondary education. Based on

the data from 2002 and 2006 it can be observed that wage relations deviated significantly in favour of workers who attained at least university degree after five years of study.

Table 23: *Development of an average monthly wage in the CR, according to education*

Education	2002	2006	2009	Average speed of growth
Basic and unfinished	12 070	15 183	16 658	1.38
Secondary without leaving exam	14 409	17 882	20 006	1.39
Secondary with leaving exam	18 514	23 455	26 887	1.45
Higher secondary and lower tertiary	20 431	26 624	30 863	1.51
Higher tertiary and higher	31 835	39 470	46 801	1.47
In total	18 133	22 908	22 491	1.24

Note: 100 % = an average wage of employees with secondary education without leaving exam the given year. Comprises only employees with a week work load of 30 % and higher.
Source: CSO (2003a, 2007a), own calculations.

Going out of the above stated it is clear that the increase of wages was the fastest for the group of employees with higher secondary and lower tertiary education, which is mainly due to the fact that this group of relatively new education categories stabilized its position in the labour market and was under higher employer's demand which affected also a higher growth of wages.

Wages in the technologically high demanding processing industry were within EU in 2006 in average by 9 % higher than wages in the processing industry as a whole. However, the relative wages of employees in the technologically demanding processing industry below in the CR to below-average – employees got wages only by 5 % higher than employees in the processing industry as a whole.

Wages in the technologically demanding services reach higher level in the EU average in comparison with the wages of employees in the technologically demanding branches of the processing industry. The reason for this rests mainly upon the fact that activities in knowledge demanding services are more dependent on qualified labour, unlike industry activities. Wages in the demanding services exceed the wages in the technologically demanding processing industry by 30 % in the Czech Republic. However, the representation of work force with tertiary education is in the technologically demanding services roughly by one third higher than in the technologically demanding branches of the processing industry. The wages are, however, higher only by one fifth.

Higher wages are therefore in some extent connected with a higher education level and with the execution of occupations more demanding on qualification. Branches which are more demanding on qualification therefore offer higher wages in comparison with the branches less demanding on qualification.

But the Czech Republic shows a certain „overpricing“ of work in financial services, a certain underpricing is, to the contrary, to be found in the education, health and social care and culture.

Chart 47: *Comparison of earning levels and number of tertiary educated persons in qualification-intensive sectors in the Czech Republic (2006)*

*Notes: * total employment in the sector = 100 %. Earning data include non-financial entities with 20 or more employees and state institutions of all sizes.*

Source: CSO (2007a), 2nd quarter, own calculations.

Based on the above executed analysis, the assigned questions can be answered:

Question: Are the jobs in branches with high qualification characterized by a high quality regarding qualification, remuneration and sustainability?

Answer: Yes. Qualification requirements in the highly qualified branches are increasing and a similar development can be expected in the future as well. Also the remuneration of workers with tertiary education has a growing tendency, even though the Czech Republic is in the

remuneration of workers in the highly qualified branches below average in comparison with the EU average.

The assessment of sustainability is in the conditions of the Czech Republic not realistic because there are not relevant data which would provide a basis for a relevant assessment of this criterion. In spite of this the sustainability of the jobs in the highly qualified branches can be expected higher in the view of the quality of these jobs.

Question: Can the changes in the employment in the highly qualified branches be observed in a higher extent than in other branches?

Answer: Yes. Although qualification requirements are increasing also in other branches (e.g. technologically medium demanding), they are not in such an extent. The same is valid for the wage – they are gradually increasing also in other sectors, however, not so fast.

5 Conclusions and Recommendations

Conclusions

1. Thanks to interventions from Structural funds, 47 000 gross and 32 640 net jobs were created in the Czech Republic in the years 2004 – 2008. The contribution rate in comparison to the number of jobs created with national assistance (active labour market policy, investment incentives) is approximately one fifth. The most jobs (55.7 %) were created in the tertiary sector of economy. 43.5 % of jobs were created in the secondary sector. Most jobs retained thanks to a support from SF were to be found in the secondary sector (53 %). The most jobs were created in the region Central Moravia (21.1 %) and the least in Prague (5 %). The most jobs were created for people with secondary education (54.5 %). Also jobs retained thanks to a support from SF were filled in by people with secondary education (60.6 %). Regarding age, the most jobs were created and retained for persons aged 25 – 54 years. Share of women employed in the created jobs was 43 %. Share of disabled persons employed in the created jobs reached 4.5 %. 92 % of all projects in total retained created jobs for longer than 1 year.

2. Employment structure in the Czech Republic changed in the period 1999 – 2008 only slightly. Development of the employment structure was in the main features the same before the Czech Republic joined EU as well as thereinafter. The employment structure according to sex, age, education level, economic sectors and occupation (profession) developed and is in all regions of the CR the same with the exception of Prague.

3. Unemployment rate oscillated between 7.8 – 88 % in the years 1999 – 2004 and went down from 8.3 % to 4.4 % in the years 2004 – 2008. The development trends were in the regions of the Czech Republic the same, but the unemployment rate was significantly below average in Prague and significantly above average in the regions North-West and Moravia Silesia. In the Czech Republic there are noticeable differences in the unemployment rate at a regional level. The volume of withdrawn money from SF does not correspond to the unemployment rate in the given regions.

4. Interventions within projects of the Operational programme Human Resources Development were effective (in comparison to the control group). Net intervention effect was therefore proved. Unit cost per creation/sustainability of jobs cannot be specified. ESF assistance is (in comparison to the control group) effective mainly for specific groups – handicapped persons, persons over 50 years and persons with basic education.

Mainly jobs with a lower labour quality (in total three quarters) were created from EU funds.

5. Out of the monitored factors impacting employment level in the Czech Republic (demographic factors, economic subjects, wages and economic growth) the key factor in the monitored period 1999 – 2008 (i.e. before the CR joined EU as well as thereinafter) was economic growth. The other factors impacted employment level only in a very limited extent.

6. Changes in the employment structure confirm that the Czech Republic is approaching knowledge economy, even though the speed of approaching is slow. The shares of people employed in professions and branches demanding on qualification and technology and the shares of employees with tertiary education grow.

7. There is a significant trend of population ageing in the Czech Republic and this following trend of a decreasing share of employees in the lowest age group. A positive trend can be observed in the education where the share of employed persons with tertiary education grows.

8. Forecasts of the work force demand show a growth of work force demand on workers in the sector of services, on workers with tertiary education, on technicians and related professions.

9. Regarding factors affecting full-time and part-time employment, an important impact of the factors sex, education and age was identified onto a fact whether the person works part-time or not. The main reasons for part-time work are in the Czech Republic health reasons and care for children or a disabled person. The total share of persons working part-time stagnates (around 5 %), but is growing in a group of people with a higher education level and, to the contrary, is going down in a group of people with a lower education level.

10. An analysis of factors impacting temporary work load (trial period, studies, scholarship, inability to find a permanent job) showed that almost two thirds (63 %) of the Czech inhabitants are forced to take a temporary job because they were not able to find a job with another type of contract. Share of persons with a temporary job was rather at a standstill in the CR in the past years, and even dropped down a little after the CR joined EU. After the Czech accession to the EU, also the share of persons working part-time and at the same time with a temporary job increased. The highest share of persons with a temporary job is in administrative and support activities and in the areas of real-estates, culture and education.

11. Diversification of regions (NUTS 2) in the view of the labour market indicators was growing in the years 2004 a 2005 for the last time and since that time it stagnates. An absolute variability rate is decreasing gradually from 2005. Seriousness of the regional diversification (NUTS 2) therefore decreased after the CR joined EU. Since 2006 a so called beta convergence leading to a decrease in regional differences in the absolute expression can be observed. Qualification requirements in the highly qualified branches are growing and this trend can be expected also in the coming years. Also remuneration of workers with tertiary education has a gradually growing tendency, even though the wage level of these workers is in the CR in comparison with the EU below average. Sustainability rate of jobs cannot be specified due to lack of relevant data. Despite this fact sustainability in the sectors demanding on qualification can be expected higher. Qualification requirements are increasing also in other sectors, but not in such an extent as in the sectors demanding on qualification.

12. It is important to emphasize that programmes funded from the EU Structural funds are changing context of implementation of policies in the EU member states. Their importance lies not only in larger financial possibilities, but also in the opportunity to include also target groups into interventions and to implement also such activities which are not in the scope of usual policies or there is not a larger space provided to them via these policies.

13. The effects of ESF (or ERDF) onto labour market policy: money from SF brought a larger scope of the active labour market policy, the effects are usually positive, it is more difficult to determine the exact value added.

14. The effects of projects in the OP HRD onto attrition rate from the unemployment records can be determined as long-term. The drop in the risk of unemployment of the project participants is not obvious immediately after the end of the project, but it appears in a longer time and it is clear that participants of projects in the OP HRD are present, in the long-term view, in the unemployment records less frequently than not supported persons.

Recommendations

1. In the view of the expected development of employment level and structure in the coming periods, there is a recommendation to direct more interventions into sectors, branches and occupations where the growth of demand on work force is to be expected (e.g. technical branches and professions). This would, at the same time, mean strengthening of

interventions from existing sectors, branches and occupations requiring low qualification into areas with higher qualification demands.

2. Because of the so far as well as expected development of the employment structure in the coming periods the recommendation can be given to keep paying attention to interventions directed towards persons with low qualification or without qualification.

3. Regarding the further development towards knowledge economy, the assignment is to put bigger stress on higher preferences in the cohesion policy to interventions supporting mainly

   - employment in services
   - employment of persons with secondary and tertiary education in technical branches.

4. In connection with the findings that the most effective interventions focused on employment improvement were projects implemented by the employment offices, which is mainly projects creating jobs, there is a recommendation to create conditions for implementation of a higher number of exactly these projects.

5. We recommend to support interventions enabling more part-time employment, or further similar employment forms in the next periods in order to improve level and flexibility of the employment structure.

6. In accordance with the findings that the diversification of the employment structure in the regions is decreasing, it is recommended to apply interventions with rules given at the national level, but applied by subjects at the regional level, for example by regions (or authorities and institutions established by them etc.).

7. Taking into account the importance of job creation in the labour market policy, we recommend to prefer in a larger extent projects focused on job creation (e.g. by introducing selection criteria with bonifications for creation of jobs or by the increase of their weight in the evaluation of project applications), as well as projects aiming at the sustainability of jobs.

8. It was found out that a relatively important number of jobs is being created in the projects which are not monitored mainly because beneficiaries are afraid they would not be able to retain these jobs. In addition, applicants do not have a reason to inform on the planned or created jobs because they mostly are not rewarded for it in terms of project criteria. It would be appropriate to create e.g. facultative project indicators monitoring jobs.

9. Regarding the uneven regional drawing of money, or missing feedback between the amount of withdrawn money and the state and level of the labour market in the given region, we recommend to incorporate regional aspects into the selection of projects, which is for example by assigning higher weight to specific criteria used in evaluation and selection of projects, while the authorities and institutions with regional scope of activity would keep on setting specific criteria.

10. Year 2008 was the last monitored year in terms of this report; it should be reminded that there was a very positive economic development in the EU and therefore also in the CR till the year 2007. This fact contributed to a total acceleration and facilitation of the process of looking for a job and allowed the enlarging of the scope of labour market policy, at which many unemployed persons participated as a result of unprcedently high expenditures. This positive trend showed in the implementation of projects in the OP HRD (as well as other OP).

11. It is recommended to **elaborate an evaluation of the further development of the effects of cohesion policy onto employment level and structure in 2011**, which would further enlarge and deepen the so far acquired knowledge and in which also data for the period 2009 – 2010 could be used. This way also changes in the time of economic crisis would be reflected.

6 Annexes

Picture 1: *Map of the Czech Republic in the NUTS 2 and NUTS 3 regions*

Table 24: *General unemployment rate in the individual NUTS 2 regions (in %)*

General unemployment rate in the individual NUTS 2 regions (in %)													
NUTS 2	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*Change 1999-2002**	*Change 2002-2004**	*Change 2004-2008**
Prague	4.0	4.2	3.9	3.6	4.2	3.9	3.5	2.8	2.4	1.9	91.4	106.8	48.8
Central Bohemia	8.0	7.5	6.7	4.9	5.2	5.4	5.2	4.5	3.4	2.6	61.6	109.8	48.2
South-West	6.5	6.0	5.7	4.8	5.2	5.8	5.1	4.9	3.5	3.1	74.4	119.3	53.5
North-West	13.3	13.8	11.7	11.3	11.2	13.1	13.5	12.7	9.5	7.8	84.6	115.8	60.0
North-East	7.7	6.9	6.2	5.3	6.5	6.7	5.6	6.1	4.8	4.0	69.3	125.0	60.5
South-East	8.2	7.8	7.8	6.8	7.2	7.9	7.7	7.1	5.2	4.0	82.8	115.3	51.4
Central Moravia	9.6	10.6	9.5	8.8	8.6	9.8	9.7	7.6	5.9	4.9	91.3	111.4	49.9
Moravia Silesia	13.0	14.3	14.3	13.3	14.7	14.5	13.9	12.0	8.5	7.4	102.7	109.2	50.8
CR in total	8.7	8.8	8.1	7.3	7.8	8.3	7.9	7.1	5.3	4.4	83.7	114.0	52.9

Source: http://www.czso.cz/csu/2009edicniplan.nsf/p/3103-09

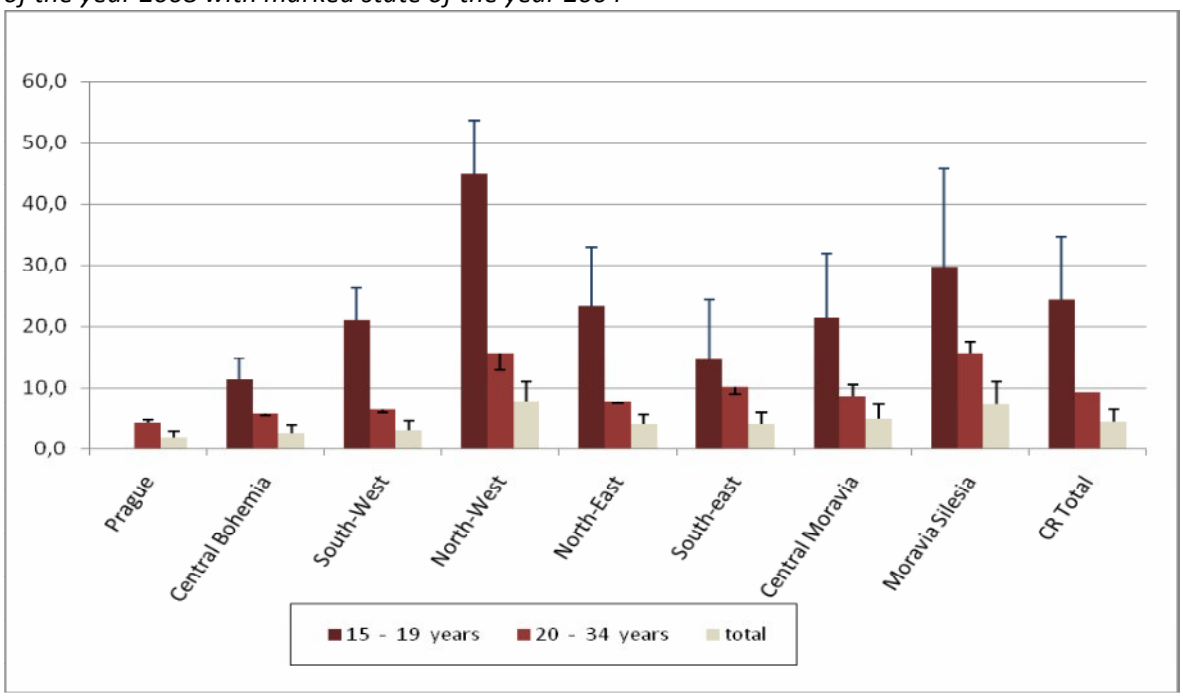
* year 1999, 2002 or 2004 = 100 %

Table 25: *Not employed job applicants (till 31.12. of the relevant year)*

Not employed job applicants								
NUTS 2	*2002*	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*Change index 2004 - 2008**
Capital city of Prague	23 691	25 448	26 727	24 571	21 364	17 363	17 433	74
Central Bohemia	41 761	43 937	44 012	40 751	35 498	29 273	31 220	75
South-West	41 344	43 808	44 072	44 132	38 385	30 968	34 262	83
North-West	90 250	93 861	92 219	88 549	79 873	62 869	59 094	65
North-East	61 696	67 376	67 224	63 694	55 925	44 482	48 331	78
South-East	85 325	89 295	90 738	86 506	75 290	60 441	60 937	71
Central Moravia	69 154	72 391	71 197	65 685	56 788	43 666	43 518	63
Moravia Silesia	101 214	106 304	105 486	96 528	85 422	65 816	57 455	57
CR Total	514 435	542 420	541 675	510 416	448 545	354 878	352 250	68

Source: Ministry of Labour and Social Affairs * 2004 = 100 %

Chart 48: *General unemployment rate in the individual NUTS 2 regions according to age (in %), state of the year 2008 with marked state of the year 2004*



Source: Ministry of Labour and Social Affairs

Table 26: *General unemployment rate in the individual NUTS 2 regions according to age (in %)*

General unemployment rate in the individual NUTS 2 regions according to age									
NUTS 2	*Capital city of Prague*	*Central Bohemia*	*South-West*	*North-West*	*North-East*	*South-East*	*Central Moravia*	*Moravia Silesia*	*CR in total*
Age group	**State of the year 2008**								
15 to 19 years	.	11.4	21.1	45.0	23.5	14.6	21.5	29.7	24.4
20 to 34 years	4.2	5.7	6.4	15.6	7.9	10.2	8.7	15.6	9.4
In total	1.9	2.6	3.1	7.8	4.0	4.0	4.9	7.4	4.4
Age group	**Change index between 2004 - 2008 (year 2004 = 100%)**								
15 to 19 years	59.0	69.8	75.3	80.7	59.7	32.9	51.6	45.7	58.3
20 to 34 years	87.3	105.3	107.0	117.4	105.5	111.7	78.4	88.3	99.6
In total	48.8	48.2	53.5	60.0	60.5	51.4	49.9	50.8	52.9

Source: *http://www.czso.cz/csu/2009edicniplan.nsf/p/3103-09*

* 2004 = 100 %

Chart 49: *General unemployment rate in the individual NUTS 2 regions according to education (in %), state of the year 2008 with marked state of the year 2004*

Source: Ministry of Labour and Social Affairs

Table 27: *General unemployment rate in the individual NUTS 2 regions according to education (in %)*

General unemployment rate in the individual NUTS 2 regions according to education									
NUTS 2	*capital city Prague*	*Central Bohemia*	*South-West*	*North-West*	*North-East*	*South-East*	*Central Moravia*	*Moravia Silesia*	*CR in total*
Education	**State of the year 2008**								
Basic education and without education	9.9	9.4	12.1	29.8	18.0	14.6	16.0	29.6	19.0
Secondary without leaving exam	2.5	2.7	3.2	6.3	3.6	4.4	4.9	6.9	4.4
Secondary with leaving exam	1.5	1.8	2.0	3.8	2.6	3.1	3.8	4.7	2.8
University degree	1.3	1.2	1.1	.	2.0	2.1	2.2	2.3	1.6
Education	**Change index between the years 2004 - 2008 (year 2004 = 100%)**								
Basic education and without education	57.6	54.9	66.4	80.8	89.6	67.2	62.1	73.8	73.1
Secondary without leaving exam	46.5	45.7	54.5	51.1	47.9	47.8	47.6	41.6	47.2
Secondary with leaving exam	41.9	53.3	46.5	56.7	63.2	60.3	50.9	53.3	53.4
University degree	102.9	127.6	62.7	.	112.1	57.9	56.2	63.9	72.8

Source: http://www.czso.cz/csu/2009edicniplan.nsf/p/3103-09

* 2004 = 100 %

Table 28: *Long-term unemployed people (share of not employed applicants looking for a job for longer than 1 year on the total number of applicants), in %*

Long-term unemployed people						
NUTS 2	2004	2005	2006	2007	2008	Change 2004 - 2008*
Capital city of Prague	40.2	37.3	35.2	33.3	29.9	-10.4
Central Bohemia	28.1	30.9	34.6	29.7	18.3	-9.7
South-West	29.1	30.0	33.4	28.6	16.6	-12.5
North-West	51.1	56.9	58.0	52.5	46.6	-4.5
North-East	28.1	30.3	39.5	37.8	27.7	-0.4
South-East	34.4	35.9	39.6	37.3	26.3	-8.1
Central Moravia	44.0	43.3	42.9	46.0	32.0	-12.1
Moravia Silesia	50.7	54.4	53.8	45.5	46.6	-4.1
CR in total	40.2	42.5	44.9	41.1	32.4	-7.8

Source: own calculation on the basis of the data from the Ministry of Labour and Social Affairs

* in percentage points

Table 29: *Volume of withdrawn money in the regions, ESF and ERDF programmes in the programme period 2004 – 2006 (total public means)*

Volume of withdrawn money in the regions ESF and ERDF programmes in the programme period 2004 - 2006						
	ERDF programmes		ESF programmes		In total	
NUTS 2	in mil. of CZK	in %	in mil. of CZK	in %	in mil. of CZK	Share on the CR in %
Capital city of Prague	3 800.2	55.6	3 029.9	44.4	6 830.1	13.5
Central Bohemia	5 912.1	86.2	943.9	13.8	6 856.0	13.6
South-West	4 573.9	79.1	1 207.7	20.9	5 781.5	11.4
North-West	4 075.5	72.7	1 527.3	27.3	5 602.8	11.1
North-East	4 238.2	71.0	1 730.6	29.0	5 968.8	11.8
South-East	6 134.8	79.0	1 631.9	21.0	7 766.8	15.4
Central Moravia	4 521.3	73.8	1 601.8	26.2	6 123.1	12.1
Moravia Silesia	4 301.2	77.2	1 267.9	22.8	5 569.1	11.0
CR in total	37 557.2	74.4	12 940.9	25.6	50 498.1	100.0

Source: MSSF Central (May 2009)

Note.: In the multi-target programme JROP the expenditures are divided by individual Funds

Table 30: *Volume of withdrawn public means in the regions within ESF programmes on the average number of applicants in the years 2006 – 2008 in the respective NUTS 2*

Volume of withdrawn public means in the regions within ESF* programmes on the average number of applicants in the years 2006-2008 in respective NUTS 2	
NUTS 2	*Volume of money in CZK***
Capital city of Prague	161 855
Central Bohemia	29 498
South-West	34 966
North-West	22 701
North-East	34 906
South-East	24 894
Central Moravia	33 377
Moravia Silesia	18 226
In total	33 593

Source: Own calculation based on the data from MSSF Central (May 2009) and Ministry of Labour and Social Affairs

*Only OP of the programme period 2004-2006 included (OP HRD, SPD 3 and the respective part of JROP). In OP HRE no money was withdrawn till the end of 2008.
**On the average number of applicants in the years 2006-2008

Table 31: *Number of persons supported from ESF programmes (OP HRD, SPD 3, OP HRE)*

Number of persons supported from ESF programmes						
NUTS 2	*2004*	*2005*	*2006*	*2007*	*2008*	*In total*
Capital city of Prague	-	-	1 273	2 305	2 265	5 843
Central Bohemia	-	-	2 908	4 398	1 768	9 074
South-West	-	-	4 372	4 459	2 417	11 248
North-West	-	-	3 907	6 472	6 222	16 601
North-East	-	-	3 211	5 874	3 832	12 917
South-East	-	-	5 860	7 576	5 916	19 352
Central Moravia	-	-	4 465	3 892	2 105	10 462
Moravia Silesia	-	-	3 719	5 873	5 110	14 702
Czech Republic in total	-	-	29 715	40 849	29 635	100 199
Out of this OP HRE in total	-	-	-	-	11 243	11 243

Source: Ministry of Labour and Social Affairs

Table 32: *Share of persons supported from ESF programmes (OP HRD, SPD 3, OP HRE) on the total number of persons supported from ALMP (%)*

Share of persons supported from ESF programmes on the total number of persons supported from ALMP					
NUTS 2	*2004*	*2005*	*2006*	*2007*	*2008*
Capital city of Prague	0.0	0.0	60.0	80.2	82.6
Central Bohemia	0.0	0.0	42.9	58.3	45.8
South-West	0.0	0.0	37.9	47.2	39.9
North-West	0.0	0.0	25.1	44.7	53.6
North-East	0.0	0.0	27.1	46.5	44.5
South-East	0.0	0.0	35.4	53.0	54.6
Central Moravia	0.0	0.0	36.2	41.6	34.2
Moravia Silesia	0.0	0.0	30.4	47.2	52.2
Czech Republic in total	0.0	0.0	33.4	49.2	49.7

Source: Own calculation based on the data from Ministry of Labour and Social Affairs

Table 33: *Share of persons supported from ESF programmes (OP HRD, SPD 3, OP HRE) on the total number of not employed applicants (%)*

Share of persons supported from ESF programmes on the total number of not employed applicants					
NUTS 2	*2004*	*2005*	*2006*	*2007*	*2008*
Capital city of Prague	-	-	6.5	14.6	14.0
Central Bohemia	-	-	8.7	16.0	5.9
South-West	-	-	12.2	15.6	7.4
North-West	-	-	5.2	10.9	11.0
North-East	-	-	6.1	14.1	8.3
South-East	-	-	8.3	13.3	10.2
Central Moravia	-	-	8.5	9.6	5.1
Moravia Silesia	-	-	4.6	9.6	9.4
Czech Republic in total	-	-	7.1	12.3	8.8

Source: Own calculation based on the data from Ministry of Labour and Social Affairs

Note: Only available applicants, i.e. applicants capable of entering employment, were included in the calculation

Table 34: *Shares of research workers on the total employment (%)*

	Research and development workers						Researchers					
	1999	2000	2001	2002	2003	2004	1999	2000	2001	2002	2003	2004
EU 15	1.53	1.54	1.56	1.60	1.60	1.59	0.88	0.88	0.90	0.94	0.95	0.96
CR	1.12	1.14	1.11	1.13	1.18	1.28	0.61	0.64	0.62	0.65	0.67	0.73
Poland	0.84	0.86	0.87	0.89	0.93	0.92	0.57	0.61	0.63	0.66	0.69	0.70
Hungary	111	1.18	1.18	1.26	1.24	1.27	0.65	0.73	0.73	0.77	0.77	0.78
Slovakia	1.05	1.06	1.04	0.99	0.97	1.02	0.72	0.75	0.75	0.72	0.75	0.80

Source: EUROSTAT – New Cronos, Science and Technology, till 12. 8. 2007, in: Kadeřábková A. a kol.: Ročenka konkurenceschopnosti České republiky 2006 – 2007. Praha: Linde nakladatelství 2007.

Table 35: *Share of more qualified employees (%)*

	2000	2001	2002	2003	2004	2005	2006
Czech Republic	35.5	36.1	35.8	36.4	37.5	38.8	39.2
Agr. Forestry and fishery	18.1	18.9	19.1	19.4	20.4	20.1	20.3
Mining of mineral resources	19.9	21.6	17.2	22.0	21.0	21.7	19.6
Food and tobacco industry	17.4	18.2	17.4	16.1	19.9	20.3	19.6
Textile and leather manufacturing industry	13.2	14.2	12.1	13.1	16.0	13.9	16.4
Wood processing industry	22.7	23.9	21.0	21.3	23.5	23.9	25.7
Ref. and chemical industry	41.3	43.8	41.6	41.2	43.1	45.4	50.4
Prod. of plastics and non-metallic products	18.6	17.4	17.8	19.6	20.4	22.3	22.8
Prod. of metals and metallic products	20.9	22.0	21.6	23.2	23.6	24.4	23.3
Machine and device production	29.5	31.4	32.7	33.4	33.1	32.6	30.5
Prod. of electr. and optic. appliances	28.8	31.8	30.9	30.6	30.5	31.1	32.8
Production of transport vehicles	25.8	25.9	25.9	26.3	25.1	224.5	25.3
Production of fur., waste processing	14.3	14.7	15.7	17.9	19.2	17.5	22.5
Production of electricity, gas, water and heat	38.0	39.6	39.9	39.4	37.3	41.9	48.0
Building industry	22.7	23.8	23.6	22.4	22.4	25.2	26.1
Sales, catering, accommodation, transport	26.6	26.6	26.9	27.2	28.7	28.6	29.1

Finance, insurance	64.3	68.0	68.6	71.2	73.5	74.3	75.7
Enterprise services	71.4	70.4	70.3	70.2	71.1	74.0	72.0
Other services	58.5	58.7	58.0	58.8	60.1	62.0	61.9

Source: CSO-SRWF

7 Description of Applied Methodology of Data Sources Used in the Study

Applied methodology proceeds from methodological approaches mentioned or used in three main documents:

a) in the Working Document No. 6 of the European Commission *Measuring Structural Funds Employment Effects*

b) in the methodological essay *Impact of the cohesion policy on the level and quality of employment in Poland* issued in December 2008 by the polish Ministry for Regional Development

c) in own works of the authors which dealt on analyses of the development of employment structure in the CR

When working on identification of effects of European cohesion policy onto improvement of the employment level and quality in the CR, indicators were used which can be divided into two groups.

The first group of indicators included all 4 indicator defined in the contract documentation, i.e.:

- number of newly created jobs
- number of retained jobs
- number of beneficiaries who increased their qualification thanks to interventions from EU funds
- number of beneficiaries who were employed thanks to interventions from EU funds.

As for the indicator of newly created jobs the basis was a definition (consulted with respective representatives of public employment services of the CR), which determines a new job as a job newly created at an employer and supported in a form of payment for wage cost or a new job created for self-employment (OSVČ[10]) supported through education or assistance services (e.g. information, consultancy, analytical services).

[10] Person carrying out an independent gainful activity

A retained job is, to the contrary, understood as a job supported through education or retraining and contribution for wage payment cannot be provided.

A beneficiary (of a grant from SF) is understood a subject responsible for securing implementation of projects. Beneficiaries prepare own projects and execute them which is on their own or in cooperation with partners, or they have an external contractor to execute them, or there is a combination of both alternatives.

In the second, larger, group of indicators there are further indicators needed to be able to find out and articulate relevant answers to evaluation questions. For example following indicators were concerned:

- number of employed people
- number of job applicants
- number of persons interested in job
- number of participants in the projects of the active labour market policy
- number of programmes focused on employment support
- number of projects focused on employment support
- expenditures to active and passive labour market policy
- expenditures to interventions for employment support
- speed of economic growth
- employment rate
- unemployment rate

Employees are for the purpose of this study understood all persons who in the reference period (month) worked for remuneration (wage, profit) or have a job. Employed people can be classified from different points of view, here we used COCC deduced from the international classification of occupations ISCO-88, see text below.

Job applicant is a natural person who applied in person for procurement of an appropriate job at the EO, in whose administrative district he/she resides permanently, and who conforms to conditions defined by law for recording him/her in the job applicants records.

A person interested in a job is a natural person who is interested in job procurement and applies for this purpose for recording into records on people interested in employment at any employment

office in the Czech territory. The employment office arranges an appropriate job for the person interested in a job, and can provide a retraining for him/her.

Employment rate represents a share of employed people on the total number of people in the given age group. A low employment rate means not only insufficient usage of economical potential of the country, but also cost in the form of additional expenditures for social security and prevention of a number of negative social phenomenon. The indicator of the employment rate is designed as a percentage share of employed persons aged 14-64 years on the total number of population in the same age group. If the rate is increasing, ability of the economy to generate new jobs and to improve that way a situation on the labour market shows. When elaborating this study, we were finding out the data by the means of the selection research on work forces, or of the methodology standardized for the EU Labour Force Survey.

By the unemployment rate a share of unemployed people on the total number of economically active people (work force) is expressed. It characterizes a situation in the labour market as well as vicariously economic performance. The unemployment rate is expressed based on the data acquired by two methods. The first approach uses the records of individual economic subjects. The second approach, applied in this study, is based on the selection research on work forces. This methodology is internationally harmonized according to principles set up by the International Labour Organization.

Among the main points of view in monitoring and analysis of the structure of the mentioned indicators, there was the view of the monitored period (in principle one year in the period 1999 – 2008), of the region (at the NUTS 2 or region level, in international comparisons also at the country level), of the sector of economy or a branch (at the level of main economic sectors – primary, secondary and tertiary – as well as at the level of NACE classification), of the type of occupation (at the COCC level), of the education level (at the levels of ISCED classification), and for the indicators relating to persons, for example employed persons, also the view of sex and age.

Used NACE classification builds a frame for statistical **data on activities in** many **economic areas** (e.g. in production, employment, national accounts). Comparability of data created according to NACE classification not only at the European, but also world level is enabled by the fact that NACE is a part of a system of statistic classifications created mainly under the auspices of the Statistical division of the United Nations.

COCC was used as a classification used by the Czech Statistical Office, which is deduced form the international **occupation classification** ISCO-88. This classification segments occupations into ten main categories (0 – 9). According to qualification demandingness ten main categories can be divided

into three groups including occupations in the categories 1 – 3 (occupations demanding on qualification), 4 – 8 (occupations medium demanding on qualification) and 9 (occupations not demanding on qualification).

For the classification of education the **international classification of education** ISCED was used. This classification was five-digit. First digit determined the level of education, next to digits the group of educational programmes, or fields of education. A more detailed classification of the educational programmes was done by the last codes of classification. Classification ISCED has 7 levels of education (0 to 6) which can be further internally segmented by A to C.

An informative overview of classification and coding of education levels according to ISCED:

0	**Pre-primary education (without education)**
1	**Primary education**
2	**Lower secondary education**
	2A – level enabling direct access to level 3A or 3B 2B – preparation level for labour market 2C – level for direct access to labour market
3	**Upper secondary education**
	3A – level enabling direct access to level 5A 3B – preparation level for labour market 3C – level for direct access to labour market
4	**Post-secondary non-tertiary education**
	4A – level enabling direct access to level 5 4B – studies with practical orientation
5	**First stage of tertiary education**
	5A – level enabling direct access to level 6 5B - studies with practical orientation
6	**Second stage of tertiary education**

Primary data relating to the used indicators were divided in the view of the period into years before the CR joined European Union (1999 – 2003) and years after this accession (2004 – 2008). In each of these periods primary data relevant (or also available) for the given period were used.

As for the analytical approaches both approaches required in the contract documentation, i.e. *bottom-up* approach as well as *top-down* approach were used.

In terms of the *bottom-up* approach relevant information from beneficiaries of the EU funds support were found out and then analysed.

Relevant information from EU funds beneficiaries were (for the purpose of comparability of the methodology with other countries participating on the project) found out in questionnaire surveys (see attachment) focused on EU funds beneficiaries. When organizing the questionnaire surveys, we used the fact that different groups of persons and organizations (e.g. job applicants, employers, subjects of employment services – employment offices, educational organisations etc.) are among the final beneficiaries, which allowed us to find out the effects of interventions onto employment from the viewpoint of different agents affecting supply and demand in the regional labour market. Also methodological experience gained during works on evaluation of benefits of ESF projects focused onto strengthening of the active labour market policy were used during these works.

During works on the project we used the opportunity to work with Lime Surveys, a tool available to NTF which facilitates creation of on-line questionnaires, data collection as well as evaluation of survey outcomes.

Beneficiaries were included in the questionnaire surveys, several approaches and characteristics were used.

Beneficiaries from selected operational programmes which supported creation of jobs and whose managing authorities monitored these indicators were included in the questionnaire surveys. In the period 2004 – 2006 there were for example programmes OP HRD, IS EQUAL, SPD 3, SPD 2, OP IE, SROP and in the period 2007 – 2013 programmes OP HRE, OP PA and regional operational programmes. Beneficiaries were addressed using the data from MSSF – Central, or from other databases (e.g. DB MONIT). The extent of the respondent sample was defined in the view of the given period for the solution of the task.

In total 4 questionnaire surveys, or questionnaire surveys done for four types of respondents/beneficiaries of SF support, were distributed and thereinafter evaluated. The target groups were:

- Questionnaires for beneficiaries
- Questionnaires for Employment offices (ALMP)
- Questionnaires for Employment offices (ESF)
- Questionnaires for employers.

Within the target group *beneficiaries* 450 beneficiaries of OP HRD, 700 beneficiaries of OP IE, 50 beneficiaries of the European initiative EQUAL, 60 beneficiaries of the SPD 3, 100 beneficiaries of SPD 2 and 500 beneficiaries of SROP. In total we speak of 1860 beneficiaries. We received 1386 responds in total. Within the target group *Employment offices* 74 employment offices for ALMP were addressed, both sections responsible for procurement and sections responsible for procurement ensuring ALMP agenda. We received 198 responds in total. As for the ESF programmes, employment offices with delegated territorial authority were inquired, in total there were 14 employment offices some of which replied repeatedly, 29 responds in total were received. The lowest feedback return was observed, as expected, in the target group *Employers*. In this case, 1380 questionnaires were sent via Confederation of Industry of the CR, only 149 responds returned. However, in total the return rate of the questionnaire survey can be estimated as very high.

Individual directed discussions were done on a selected sample of beneficiaries from Structural funds. For this purpose, employers who created jobs under assistance from Structural funds were chosen. We took the size of the enterprises into consideration (i.e. to have a representation of different categories according to the number of employees), furthermore the sector and also regional viewpoint.

In the *top-down* approach mainly data found out at the national level were used. Taking the thematic focus of the task into consideration, we used mainly information included in the reports and researches of the Czech Statistical Office, Ministry of Labour and Social Affairs and other organizations. From the reports and research studies of the Ministry of Labour and Social Affairs mainly periodical as well as one-time specific reports on employment development in the CR and reports and evaluation studies dealing with existing outcomes of the implementation of operational programmes Human Resource Development (2004 – 2006) and Human Resources and Employment (2006 – 2013) were used.

The basic method applied in acquiring information and data was desk research of all available materials and information related to the subject of the project. Basic sources for desk research were mainly monitoring and evaluation reports from operational programmes, annual and semi-annual analyses on employment and unemployment in professions, branches and regions and reports of the Czech Statistical Office.

In order to calculate net effects of benefits of money from SF all available mentioned data had to be used as well as mentioned questionnaire survey and discussions had to be done.

In chapter 4 there are data presented which describe in detail the effectiveness of ESF projects within OP HRD. We are going out of a database containing almost 640 thousand of respondents – unemployed people and persons participating on any of the offered programmes of the active labour market policy aggregated from data from all EO (for the year 2007).

The effects of projects in the OP HRD were calculated as attrition rate of programme participants from unemployment records. The attrition rate was evaluated in a long-term view, with a distance of 30 - 360 days. This way, short-term, mid-term and long-term effects can be evaluated which is important also regarding different „types" of ESF projects, or their focus and offered tools. The selection complex for evaluation of effects of the OP HRD consisted therefore from:

- unemployed people who participated at and finished any ESF project in 2007 (participants were observed till 30. 6. 2008)
- unemployed people who did not participate at any project (neither ESF nor ALMP) in 2007 (control group was selected by a method of so called pairing with a help of so called propensity score)
- Unit cost for creation and retainment of a job cannot be calculated, ESF projects are very heterogenous and contain a large range of tools. Each project has a different number of these tools. Number of created jobs cannot, therefore, be easily matched with the project budget. What more, project cost differ very much also in connection with different target groups. Additionally, the effect of selection of project participants plays a key role. „Better prepared" individuals (e.g. graduates of other - previous – projects including national ALMP) enter this way some of the projects and activities executed in terms of the project are not that financially demanding, compared to projects which work with the target groups from the very beginning.

Basic data sources were for example:

- main macroeconomic indicators of the CR (CSO)
- employment and unemployment indicators in the CR according to outcomes of the selection research on work forces of the CSO
- information included in the Yearbooks of competitiveness of the CR (own research materials dealing on development and analyses of competitiveness of the CR in the international comparison and also on the analysis of crucial factors impacting this development including focus on employment area)

- information from outcomes of the EUROSTAT research, for example in the fields *Economy and Finance* or *Structural Business Statistics*
- reports, studies and analyses covering employment projection in branches (own materials of the NTF)
- analyses dealing with forecasting of qualification needs in the national and regional labour markets in the CR (own materials of the NTF)
- evaluation reports of operational programmes

Particular information sources which were used are given directly in the text (e.g. under individual tables).

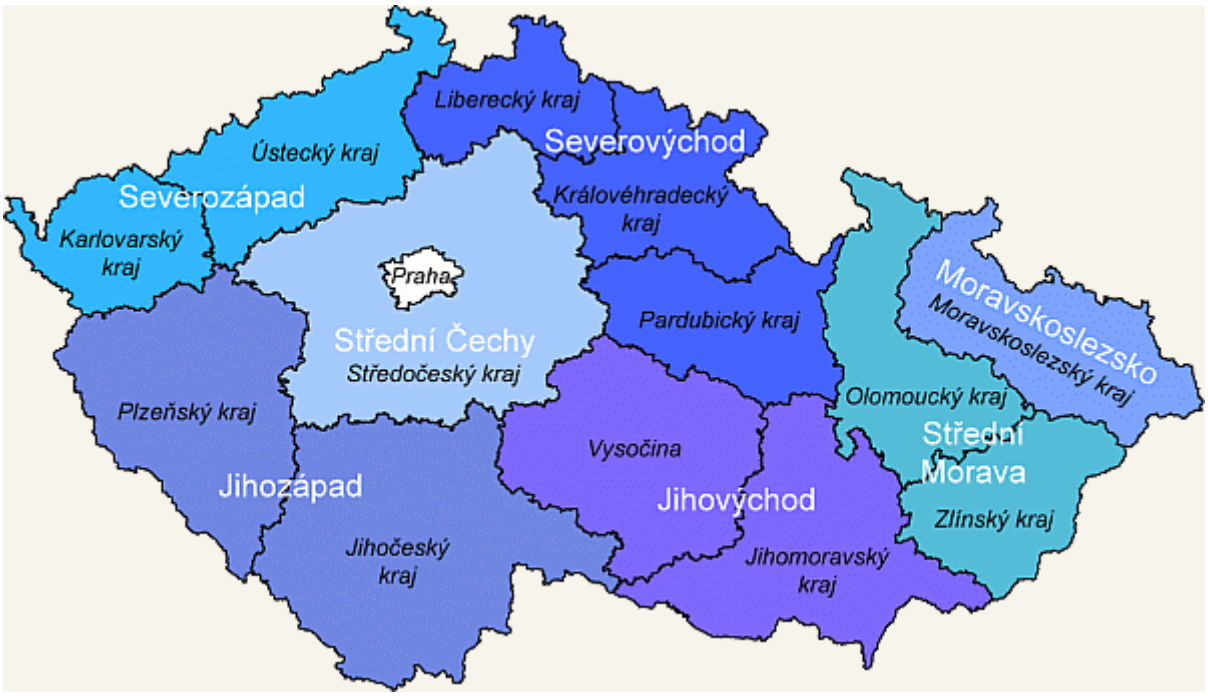
Out of information sources used for comparison of situations and/or of development in the Czech Republic and abroad mainly reports, studies and analyses elaborated in the initiative of the general directorate Employment, Social Affairs and Equal Opportunities of the European Commission were used. Also information collected by work groups delegated by and working with support of the European commission, namely groups working in terms of activity of the European Employment Observatory belong to this category of information. Also works of the European Centre for the Development of Vocational Training (CEDEFOP) covering the development in the European labour market belong to the information sources dealing with situation at the EU level and used in the solution of the task. It concerned for example to summarizing studies *Future Skill Needs in Europe – Synthesis Report* and *Future Skill Supply in Europe – Synthesis Report,* which are describing both the existing state and also the expected development in supply and demand in the European labour.

8 List of Charts

9 List of Tables

10 List of Pictures

Picture 1: Map of the Czech Republic in the NUTS 2 and NUTS 3 regions



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Further Sources

Information for the preparation of this report were provided also directly from competent clerks of these resorts:

Ministry of Labour and Social Affairs of the CR

Ministry of Industry and Trade of the CR

Ministry for Regional Development of the CR

Last, but not least, information from questionnaire survey done by the authors of this report was used for the preparation of this report.

12 List of Shortcuts

ALMP	Active Labour Market Policy
CEA	Classification of Economic Activities
CES VŠEM	Centre for Economic Studies of the College of Economics and Management
COCC	Classification of occupations
CR	Czech Republic
CSO	Czech Statistical Office
CZK	Czech Crown
ERDF	European Regional Development Fund
ESF	European Social Fund
GDP	Gross domestic product
HT	High-tech services
IC EQUAL	Initiative of the Community EQUAL
ICT	Information and communication technologies
IS	Information system
ISCED	International Standard Classification of Education
JROP	Joint Regional Operational Programme
KIS	Knowledge intensive services
MA	Managing Authority
MIT	Ministry of Industry and Trade
MoLSA	Ministry of Labour and Social Affairs

MRD	Ministry for Regional Development
MSSF	Monitoring system of the structural funds
NACE	Statistical classification of economic activities, (acronym from French: Nomenclature générale des Activités économiques dans les Communautés Eur)
NCA	National Coordination Authority – Department of MRD
NOET NTF	National observatory of employment and training of the National Training Fund
NTF	National Training Fund
NUTS	Nomenclature of Territorial Units for Statistics (for the purpose of the EU regional policy)
NUTS 2	Level of individual cohesion regions in the CR (8 in total)
NUTS 3	Level of individual regions in the CR (14 in total)
OKEČ	Clasification of economic activities in sectors
OP	Operational programme
OP HRD	Operational programme Human Resources Development
OP HRE	Operational programme Human Resources and Employment
OP RDMA	Operational programme Rural Development and Multifunctional Agriculture
OPEI	Operational programme Enterprise and Innovation
OPIE	Operational programme Industry and Enterprise
OPPA	Operational programme Prague-Adaptability
RILSA	Research Institute for Labour and Social Affairs
SF	Structural Funds
SPD 2	Single programme document for the Objective 2 (of the NUTS II region, capital city of Prague)

SPD 3	Single programme document for the Objective 3 (of the NUTS II region, capital city of Prague)
SRWF	Selection Research on Work Forces