

**The Effect of Brain Drain in the Czech
Republic and Earnings Motivation
for Qualified Specialists to Work Abroad**

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Abstract

The brain drain phenomenon is mainly associated with migration from developing countries to less developed countries, but this phenomenon is also significant for relatively developed countries, among them the Czech Republic. The free movement of labour within the EU and lucrative immigration programmes operated by a number of member states can encourage a considerable exodus of highly qualified Czech labour, with a negative impact on a number of sectors of the Czech economy. The aim of this study is to scrutinise the extent of human capital flight from the Czech Republic and its contributing factors. The core of the work draws on a questionnaire-based survey of the migration attitudes of four groups of experts identified as being susceptible to migration; these groups are doctors, IT/ICT specialists, technical engineers from corporate research and development and doctorate students. The results of the four questionnaires are analysed in relation to a survey of the migration attitudes of the Czech population as a whole and from the perspective of differences between the groups of experts in their inclination to migrate. Another integral part of the work is an analysis of the income motivation for Czech experts to work abroad, where the differential between the earnings of the experts under scrutiny in the Czech Republic, Germany, Austria, Great Britain and Ireland is compared as the basis for a deduction of the intensity of the earnings stimulation to work abroad. The work is complemented by a statistical analysis of the development of the number of the experts under scrutiny on the Czech labour market.

Key words: international labour migration, experts with tertiary education, doctors, IT/ICT specialists, doctorate students, private sector developers, attitudes to migration, earnings level.

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Introduction

The European Union faces a brain drain to other parts of the world (most commonly to the USA or other countries on the other side of the Atlantic). The new member states, for their part, are worried about their "best and brightest" heading to richer countries in the Union. The opportunities for Czech citizens to work in EU-15 countries have improved considerably and Czechs can now work in practically all the countries of the EU, bar two neighbouring states. Czech experts (e.g. doctors, IT specialists, scientists etc.) already had easier access to the labour markets in economically developed Europe when transitional measures to restrict the free movement of labour were still in place; since these were reviewed, getting a job in EU countries has been almost no problem at all.

Issues linked to the migration of highly qualified experts ("brain drain") from source countries to target countries are the subject of long-term analyses and expert discussions by specialists, researchers and political representatives in both categories of countries. The analysis covers the losses and gains for source countries (e.g. the cost of educating experts, the impact of remittances, the transfer of knowledge and know-how etc.) and impacts on economic growth and improved competitiveness in receiving countries from the influx of highly trained workers (e.g. the scale of re-emigration, the influence of migration networks on both types of country etc.). The theoretical and empirical research also deals with questions related to the role earnings motivation plays in the brain drain and its consequences and limits.

This study draws on the results of a grant-funded research project entitled "Risk of a Possible Brain Drain from the Czech Republic", which was executed by the Prague-based Research Institute for Labour and Social Affairs (RILSA) in the years 2004-2008; this study analyses selected fundamental aspects of this issue.

The study is divided into two basic thematic parts. On the one hand (based on field questionnaire surveys) it seeks to identify the magnitude of the risk of an exodus of tertiary-educated specialists from the Czech Republic; on the other hand it investigates the extent of their financial motivation to make that decision. The following migration risk groups are scrutinised: doctors, IT experts, representatives of science and (pure) research, and representatives of applied research. The text is complemented by a statistical analysis of the state and development of the migration risk groups and two appendices. The appendices deal with the educational structure of the Czech population (including the development of Czech tertiary education in the period from 2000 to 2012) and present selected findings of a qualitative survey of Czech tertiary-educated experts who have returned from a long-term stay abroad.

Part One

Brain drain and its magnitude in the Czech Republic

1. Brief theoretical analysis of the “brain drain” phenomenon, its scale and consequences¹

Brain drain is mainly associated with migration from developing countries to developed countries, but this phenomenon is also undoubtedly significant for relatively developed countries, among them the Czech Republic. It involves relationships, conditionalities and mechanisms which are relatively general in nature and an understanding of which could potentially and to some extent help tackle the problems associated with international migration, regardless of country or region (Drbohlav 2008).

“Brain drain” was first mentioned in the 1950s in connection with the migration of top-level scientists to the USA from countries such as Great Britain, Canada or the former Soviet Union. Today this term is applied more broadly to refer to the international movement of human capital (people with tertiary education² and the corresponding knowledge and skills), primarily from the developing to the developed world (e.g. Rapoport 2004).

In the second half of the 1960s brain drain was usually viewed positively by economists at the macro level (see Grubel, Scott 1966, Johnson 1967 - cited by Docquier, Sekkat 2006). That was because the negative impacts of the emigration of educated people were suppressed and the positive role of remittances and other feedback was accentuated. Above all, the advantages of the general social gains stemming from free migration on a global level were emphasised and the negative impacts of brain drain were attributed to “nationalistic” and outdated opinions (Docquier, Sekkat 2006).

It was only during the 1970s that brain drain began to be seen increasingly as an economic loss, mainly in connection with the costs invested by the source country’s government in the migrant and not “paid back”. At that time the view that the emigration of the highly educated is harmful to the source country and has a negative impact on those who remained in the source countries began to prevail (for more see Schiff 2005, Docquier, Marfouk 2006, Docquier, Rapoport 2004). This was the opinion of many eminent economists (in particular Jagdish Bhagwati). In other words, brain drain was a phenomenon whereby the rich countries get richer and the poor countries get poorer (Bhagwati, Hamada 1974, Bhagwati, Wilson 1989).

Over time, however, some positive aspects and gains for the source country were identified in the specialist literature. These gains are derived primarily from an increased intensity of trade, emigrants’ remittances, new acquisition of the knowledge

¹ Drawn up on the basis of a RILSA internal study “Theoretical Analysis of the Brain Drain Phenomenon”, Drbohlav, D., 2008.

² Usually defined as migrants of economically active age with higher than secondary school education (Docquier, Marfouk 2006).

and skills re-emigrants bring with them and also from direct foreign³ investment channelled into source countries. The feedback effect, whereby the successes of educated emigrants abroad may overall strengthen (stimulate) the importance of education in source countries, is also debated. The "new brain drain" literature – also known as the "second wave" beginning at the end of the 1990s (see Mountford 1997, Beine, Docquier, Rapoport 2001, Stark, Helmenstein, Prskawetz 1997, Stark 2004 and more, for example, in Schiff 2005) starts to speak of the "**brain gain**" effect, in which the generally negative connotations of the phenomenon are downplayed – losses are "converted" into gains.

Another term used is "**brain exchange**", whereby there is more-or-less reciprocal exchange of highly qualified labour between countries. Modern technologies and infrastructure development have cut the cost and time of travel. International transfers of employees within transnational companies from one country to another make up a substantial part of these flows. Alongside the flow of goods, information and capital, the mobility of highly skilled persons and the phenomenon of brain exchange is a typical manifestation of internationalised economies (for more see Šatava 2005, Lowell, Findlay 2001).

A characteristic feature of "**brain circulation**" is repeated movement between a source and target country. A typical example of this today is the international movement of top-level Chinese specialists, who studied in the USA and began a successful career there and have now returned to China with the capital to start up businesses, making intensive use of their contacts in the USA in the process (see e.g. Šatava 2005).⁴

1.1 The scale of brain drain

The numbers of international migrants have been rising significantly in recent years. Between 1990 and 2000, for example, their number grew from 154 to 175 million. The acceleration is continuing, as another 16 million were added in the period from 2000 to 2005 (increase to a total of 191 million); the number of international migrants today is estimated at around 200 million (Docquier, Sekkat 2006, International 2006). They are very unevenly spread around the world, though. In 2005, three-quarters of all migrants lived in just 28 countries of the world; every fifth migrant lives in the USA. In total, almost 60% of international migrants live in developed, affluent countries (International 2006).

Migrants with tertiary education are a very significant element in the overall mosaic of migration movements and types. In the 1990s these accounted for almost half the increase in the number of international migrants aged over 25 in OECD developed countries; in the year 2000 six of every ten highly educated migrants living in OECD countries had come from developing countries (International 2006). Using census data from various non-OECD countries Docquier, Marfouk (2006) estimate that around 90% of highly educated immigrants live in one of the 30 wealthy OECD countries.

Many point out that **the emigration of educated people from developing countries to developed countries has been intensifying**. Schiff (2005 - citing

³ However, a situation whereby a large number of educated immigrants flows into the given country independent of any assessment of emigration may also be regarded as brain drain.

⁴ A number of other subsets of brain drain have been coined, but these are beyond the scope of the study.

Docquier, Hillel 2004) states that the number of migrants residing in OECD countries increased by 50% from 1990 to 2000, whereby **the increase in the number of educated migrants was 2.5 times greater than that of the less educated** (70% compared to 28%).

Since the enlargement of the European Union the exodus of highly skilled experts from new member states to the countries of "old" Europe has become a more frequently discussed topic. There are concerns that the brain drain might seriously hamstring the economic growth potential in the new EU countries.

The trend of educated/skilled people leaving less developed countries to work in economically advanced countries is starting to be **compounded by the migration policies of many EU countries**. These countries have begun to pay more systematic attention to the selection and recruitment of foreign qualified labour and to create special programmes to attract the desired experts who are a scarcity in the country in question. Great Britain, Ireland, Germany and other countries offer a number of incentive programmes for educated migrants. According to the Federation of German Employers' Associations, for example, in the medical field of optical technologies alone there is a shortage of 20,000 qualified workers; the Association of German Engineers points out that Germany has an annual shortage of 15,000 technical engineers (VDI 2005). The German federal government's programme focusing on information technology experts is well known. However, the Czech Republic, with its pilot project entitled "Selection of Qualified Foreign Workers", may be mentioned as well in this context. In this case, though, the important point is more the elected pro-active approach than the actual effect of this programme. The effect is marginal in terms of the number of recruited immigrants (1,035 participants as of 1 May 2008).

Numerous studies and debates have focused on the scale, conditionalities and impacts of the brain drain phenomenon, but most of these were confined to the theoretical level. That is because there is a universal lack of reliable and harmonised data on international migration, not to mention data/information on the educational characteristics of migrants broken down by individual migration streams.

1.2 Conditionalities and impacts of brain drain

1.2.1 Remittances

Migrants' remittances are one positive effect for the source company of the emigration of educated people. These are private money transfers from resident migrant workers in the host country to recipients in the country of origin. A migrant is deemed to be resident in the host country after staying in that country for a year.

Financial transfers from people who have stayed there for less than one year are referred to as "compensation of employees" (Migration 2008).

Remittances are often a significant contribution to GDP and the main source of income in many developing countries. The latest available data, for example, show that the total value of remittances worldwide in 2007 was approx. USD 318 billion, with approx. USD 240 billion of that going to developing countries.⁵ In 2004, for example,

⁵ In terms of absolute value the following countries gained the most from remittances in 2007: India (USD 27 billion), China (USD 25.7 billion), Mexico (USD 25 billion), Philippines (USD 17 billion), Francee (USD 12.5 billion), Spain (USD 8.9 billion), Belgium (USD 7.2 billion) and Germany and Great Britain (USD 7

the value of remittances for the developing world was approximately the same as direct foreign investments and around three times greater than official development aid (Docquier, Sekkat 2006). Remittances have a significant impact on both standard of living and economic activity. They influence households' decisions on life strategies and are interwoven with many other aspects of life such as migration, investment, education, choice of occupation, fertility etc. That applies mainly to the poorest countries, where "choices" are considerably limited by lack of development or the non-existence of standard markets.

Experiences to date from research into remittances have shown that there are two principal motivations for sending money to the country of origin: altruism and "exchange". Whereas altruism is directed primarily at a single specific family, and then decreases in relation to social distance, exchange means the simple "purchase" of various types of services in the country of origin – e.g. care for the migrant's property (land, cattle etc.), relatives (e.g. children, elderly parents etc.). These remittances are often typical for temporary migrants and may signal their return home.

One special type of exchange is the repayment of loans funding the migrant's investments in education and/or migration. One fundamental question affecting the brain drain phenomenon is **whether educated migrants remit greater amounts than less educated migrants** (their higher earnings or stronger commitments to other family members suggest they do; the fact that educated migrants often migrate with their families, so there are fewer potential beneficiaries of remittances, suggests the opposite). At an aggregated level Faini (2006 – according to Docquier, Sekkat 2006) demonstrates that migrants' remittances fall as the proportion of educated persons among emigrants rises. On the other hand that cannot be taken to mean that educated people's remittances are negligible. As, for example, Kangasniemi *et al.* (2004 – cited by Docquier, Sekkat 2006) show, almost 45% of Indian doctors working in Great Britain send remittances representing on average 16% of their income (for other positive effects of remittances see e.g. Özden, Schiff 2006).

1.2.2 Re-emigration

The current evolution of developed countries' migration policies is clearly leading towards a more restrictive approach. This trend goes hand-in-hand **with the stepping-up of selective recruitment efforts primarily targeting qualified foreign labour**, on the basis both of the possibility of permanent settlement and now more commonly short-term contracts, whereby the migrant is expected to return to his country of origin when the contract expires. This theoretically increases the likelihood that the migrant (after spending a short period of time in an affluent foreign country) will be able to put his skills and abilities to use in his country of origin, as well as the financial capital he accumulated abroad. In this way he makes a specific contribution to increasing productivity and the general spread of new technologies in the country of origin.

Despite the many studies that deal with this problem (e.g. Docquier 2004, Sekkat 2006) there is so far very little evidence that re-emigration is particularly significant among the highly educated. Quite the contrary, in fact: the above-mentioned authors reach the conclusion that **it is usually less capable migrants who return to their country of origin first. The highly educated rarely return.** One exception is the situation where the country of origin is undergoing transformation

billion). Expressed in relative terms the figures for 2006 are: Tajikistan and Moldova (36% of GDP) and Tonga (32% of GDP). Not one developed country comes in the top thirty (Migration 2008).

and experiencing long-term economic growth. Analysis of the intensity of re-emigration by Taiwanese and Korean graduates of doctorate studies in the USA that precisely conformed to this theory may be an example. Similar tendencies may be observed in the case of successful Chinese and Indian doctorate students in the USA, whereby many business activities are instigated by these successful returnees (see e.g. Luo, Wang 2001 and Commander *et al.* 2004 – according to Docquier, Sekkat 2006; see also Šatava 2005).

1.2.3 Positive effects of created networks

Migrants create and make use of a diverse array of social networks abroad, which have a knock-on effect on many structures and substructures in both the source and target countries and also on the intensity and character of migration itself. Many studies have demonstrated that the first migrants are usually those who are not among the poorest strata in the source country but are neither those for whom the differences in earnings between the source and target countries would play no role. They are able to absorb the cost and risk of their migration and, after finding their feet in the new environment, they invite their family and friends to the country and provide them with significant assistance. In general terms they thus diminish the risks stemming from being in a foreign country (psychological, moral, social risks etc.); economic support is often provided as well, i.e. securing housing, jobs etc.). The migration thus continues, the networks expand and an increasing number of people from the source country can use the existing migration channel. As Massey *et al.* (1993) aptly state, this situation outweighs all other possible migration motives.

The finding (Meyer *et al.* 1995, 1997) that a foreign diaspora may in some circumstances contribute to the source country's economic growth is very significant in this regard. **Members of the diaspora may play a significant role in the parent country's development without having to return home.**

The **scientific diaspora** in particular has begun to be viewed as a group that can help the transfer of knowledge between the country of origin and the host country and is a source of useful contacts the source country may significantly benefit from whenever necessary (Lowell 2004).

The second networks level concerns **trade and business activities** that are also naturally associated with migration and re-emigration. Docquier, Sekkat 2006 and others have drawn attention to the fact that, contrary to the traditional assumption, trade and migration complement one other rather than being mutually exclusive. They also mention that this complementary effect mainly applies to trade in goods that are typical of the source country and that the role of ethnic networks is principally to overcome problems of the shortage of information. It is also noted that the role of the migrants' education in the relationship between trade and migration has not yet been clarified.

Similar uncertainties still surround the basic **relationship between migration and direct foreign investment** (whether they are complementary or supplementary functions). Docquier, Lodigiani (2006 – according to Docquier, Sekkat 2006) present one fundamental finding, for example: their analysis confirms that trade networks are mostly created thanks to "educated migrants". Educated migrants thus stimulate an influx of direct foreign investment into the source country.

It is a reasonable summary to say that the brain drain, with all its variations, is a complexly conditional phenomenon. For a deeper understanding, the characteristics

mentioned above must be broadened with the conclusions of many more studies and analyses. What is already clear, though, is the fact that there is not enough suitable information and data for a systematic, comparative analysis of this phenomenon on a global level.

Early studies dealing with this issue lacked empirical research and thus also verification of the arguments presented in theoretical contributions. There was little analysis of the differences from the point of view of educational categories, for example; the differences in the sectoral structure of the economy were overlooked; and not enough attention was paid to the heterogeneity of the source countries.

Today there are more empirical comparative studies (see e.g. Carrington, Detragiache 1998, 1999, Beine, Docquier, Rapoport 2001, Docquier, Marfouk 2006); nevertheless it would be beneficial to widen brain drain research to cover other areas of the life of individuals and society as well. For example, Stojanov, Novosák (2008). Docquier, Sekkat (2006) appeal for more intensive study of the impacts of brain drain on the sectoral structure of the economy and for analyses that would shed light on the situation's development over time.

2. Research goals of and methodological approaches

2.1 Goals

The goal of the research is to verify whether the current social and economic conditions are causing a large-scale exodus of Czech tertiary-educated experts, what the probable scale is and which sectors or professions will be the most critical in this regard. The Czech Republic's accession to the European Union and the subsequent free movement of labour, incentive programmes to attract foreign experts to economically developed countries and increasing economic globalisation may be regarded as determinants of the brain drain.

2.2 Methodology

The intensity of the exodus of tertiary-educated labour from the Czech Republic was scrutinised on the basis of field surveys of professional groups susceptible to migration. With regard to the nature of the demand on the labour markets abroad⁶, and by extension in the Czech Republic⁷ as well, the following groups were identified as vulnerable to migration:

- doctors,
- IT/ICT specialists,
- technical engineers,
- scientists and researchers.

Each of these groups of highly qualified experts was subsequently subjected to both quantitative and qualitative scrutiny.

2.2.1 Quantitative methods

The quantitative methods centred on questionnaire surveys among the said experts seeking to ascertain their attitudes and readiness to migrate for work. **In total, 1,679 questionnaires were gathered from doctors, information technology experts, research and development technical engineers and future scientists (PhD students) in 2006 and 2007.** That figure is broken down as follows:

- 462 questionnaires from doctors,
- 276 questionnaires from IT/ICT specialists,

⁶ see Monitoring of Vacancies for Tertiary-educated Labour in EU Countries (source EURES, ERA MORE and managed interviews with representatives of personnel agencies brokering legal residence and work abroad for Czech specialists) – for more information see Vavrečková and team 2006.

⁷ see Monitoring of Vacancies for Tertiary-educated Labour in EU Countries (source EURES, ERA MORE and managed interviews with representatives of personnel agencies brokering legal residence and work abroad for Czech specialists) – for more information see Vavrečková and team 2006.

- 418 technical engineers from corporate R&D,
- 523 doctorate students at Prague's universities.

a) Survey among doctors

The subject of the first field survey (done in 2006) was **doctors**, covering the broad spectrum of medical specialisations, various types of healthcare facilities and various regions of the Czech Republic. The selection of respondents was random, with the limiting qualification of the doctors' age; doctors aged over 55 were not included in the survey. When selecting medical fields there was an endeavour to apply certain selection criteria, but the selection of the doctors themselves was random.

The ten biggest recognised medical fields were chosen. Anaesthesiologists and internists were deliberately selected for the sample (above 10% of the total sample) in view of the demand for these specialists abroad. Given the declared shortage of dentists in the Czech Republic, these specialists were also selected to form an equivalent proportion of the sample of respondents. Paediatricians, cardiologists and infectious diseases specialists each make up more than 5% of the sample. The proportions accounted for by other medical specialisations (orthopaedics, dermatovenerology, urology etc.) are much lower (in consequence of the specific doctors' willingness to take part in the survey).

The questionnaires – 462 in total – were collected in two ways:

- in the context of the post-graduate education of doctors via the Institute for the Further Education of Medical Staff in Prague ("IFEMS");
- by directly contacting selected medical facilities through external assistants and their personal contacts.

The questionnaires were handed over either in person (in the context of the teaching process in IFEMS) or sent to contact persons in either printed and electronic form. According to data from the Institute of Health Information and Statistics (IHIS) there were 36,595 registered doctors working in the Czech Republic in 2006; **the survey covered 1.2% of the specialists under scrutiny.**

The sample of the surveyed doctors covered the entire country but was dominated by Prague-based doctors (one-third of the sample). Half the respondents worked in university hospitals or hospitals in regions; the other half were doctors from the former district hospitals, smaller municipal hospitals and, in exceptional cases, doctors from a military hospital, ambulance service, out-patient and other medical facilities (long-term illness treatment facilities, rehabilitation institutions...).

b) Survey among IT specialists

In the same year (March to October 2006) there was a survey of foreign migration among IT/ICT specialists, done in cooperation with the Prague University of Economics.

The questionnaire respondents were information technology experts with various specialisations (from programmers and SW architects to IT dealers), from various types of organisations (from IT firms and the IT departments of firms and universities), covering the entire Czech Republic but dominated by Prague (83%).

In this case the survey only used an **electronic questionnaire** that was posted on the internet (<http://vupsv.periskop.cz>), including information about the survey and a questionnaire completion request (web site www.cssi.cz). At the same time, contact persons of the project implementers were contacted in various IT firms, the IT departments of various organisations and graduates of the Prague University of Economics information technology department; IT students from other universities were also asked to take part.

The sample is therefore relatively small – 276 questionnaires. According to Czech Statistical Office data there were 87,600 computer experts working in the Czech Republic in 2006; from this point of view the **survey covered less than half a percent of this specifically educated segment of the population**. The respondents were most commonly employed as developers or programmers (24%); over 10% were IT project managers/IT managers (17%), system administrators, IT consultants and IT analysts. More than half the respondents worked for Czech firms (55%); more than one-third worked in the branches of foreign firms.

c) Survey among doctorate students

When looking into brain drain the group of science and research workers cannot be ignored. Doctorate students were chosen to represent pure scientific research. The questionnaire-based survey was conducted in 2007 in cooperation with the Faculty of Science of Charles University. The sample comprised 523 doctorate students studying at universities in Prague in attendance study or combined study. **Quota selection** was applied to select the respondents, respecting the breakdown of students according to the common study fields. Specifically, that comprised the following scientific fields: medical, technical, agriculture and forestry, natural sciences, humanities, social and economic sciences.⁸ The selection sought to preserve gender parity.

The selection sample was obtained by means of several forms of contacting potential respondents. On the one hand, an electronic version of the questionnaire was used (in the case of some faculties it was posted on a web site for doctorate students). In other cases (Charles University Law Faculty, Czech University of Life Sciences, Prague University of Economics) the questionnaire was sent directly from the appropriate faculty department. Another method was to distribute questionnaires through the office of the assistant dean to specific electronic addresses of doctorate students (e.g. Charles University Faculty of Arts) or to contact doctorate students by specially trained students from the Charles University Law Faculty.

Questionnaires were collected both electronically and in paper form. According to data from the Institute for Information on Education (IIE) there were 23,425 doctorate students studying in the Czech Republic in 2006; **the sample of respondents accounted for 2.2% of the total number of doctorate students in the Czech Republic**.

d) Survey among technical engineers from corporate R&D

In cooperation with the Association of Research Organisations (ARO) a survey of the migration attitudes of **representatives of applied R&D in the private sector** was conducted in the same year. The vast majority (95%) were **technical engineers**. The sample contained research managers, project and construction engineers and

⁸ The classification of science fields was taken from the Institute for Information on Education in Prague.

customer service specialists (consulting, marketing, technical service...). Most of the respondents (47%) worked in relatively large firms with 250 and more employees.

The questionnaire **was completed electronically**. The Easyresearch electronic system was chosen to process and summarise the results, with outputs that could be used for more detailed analysis in the programmes Excel and SPSS. In this way, **workers from 650 manufacturing and research firms** that are involved in applied R&D were contacted either directly or through questioners from ARO.

A total of 418 respondents was obtained by random selection. According to Czech Statistical Office data there were 11,290 workers employed in corporate R&D in 2006; **the sample accounts for just under 4% (3.7%) of all corporate R&D workers in the year in question.**

e) Representativeness of the questionnaire-based surveys

The results of the surveys among specialists should be interpreted with some caution, as these are random samples of experts of the specialisation in question. Although their selection was predicated on the satisfaction of certain criteria (e.g. economically active age, particular specialisation, emphasis on completed tertiary education etc.), it would be wrong to describe it as representative. Most representative is the survey of doctorate students studying in Prague selected by quota selection from existing scientific fields. The authors nonetheless believe that the results of the survey into the migration potential of Czech specialists have an incontestable value owing to their exclusivity combined with the other methodological approaches applied.

2.2.2 Qualitative methods

The questionnaire-based survey of specialists was complemented by managed interviews with representatives of selected professional groups of the tertiary-educated. These were standardised interviews with representatives from the healthcare sector (representatives of the Ministry of Health, associations of specific fields and professions, international healthcare organisations and the management of selected faculty hospitals), information and communication technologies fields (representatives of the state, academic and IT/ICT research sphere) and representatives of Czech science and research in the private sector and in the area of basic scientific research (for more information see Vavrečková and team 2007). 25 interviews were conducted in total.

3. Survey results

For a comparative view, when interpreting the results of the questionnaire surveying the specialists' migration intentions we made use of the last survey conducted into the migration potential of the Czech population as a whole. We opted for this method despite the discrepancy in the timing of the two research projects. The authors are convinced that the specific features of the migration attitudes of the tertiary-education come into sharp focus primarily when confronted with the migration potential of the Czech population as a whole. The Czech population's migration attitudes were ascertained by a repeated questionnaire-based survey⁹ at the end of 2005. The sample numbered 1,078 respondents selected by quota selection; the survey conformed to the customary standards of sociology research.¹⁰

We know from the repeated surveys of the domestic population (in 2000, 2003 and 2005) that the vast majority of Czechs is not considering working abroad. After more than a year and a half of the Czech Republic's membership of the EU just 15% of the Czech population declared an intention to work abroad.

From the specialists under scrutiny it is the technical engineers from corporate R&D (roughly one-fifth of cases) whose migration potential at comes closest to these figures. **The attitude to labour migration is much more favourably inclined in the remaining three groups of specialists.**

It is mainly the future representatives of Czech science and research who seek to work abroad (53%); and the questioned doctors and IT specialists also display a relatively high percentage considering migration (45% and 43% respectively).

Table 1 **Migration potential**

Question: "Are you considering going to work abroad?"

attitude to migration		doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students	Czech population
positive attitude to migration	in %	45.1	43.0	19.9	52.8	15.4
	abs.	207	118	83	276	166
total respondents (abs.)		462	276	418	523	1 078

Source: RILSA surveys 2005, 2006, 2007

Another premise characterising the Czech population relative to migration is the fact that **the proportion of potential migrants** (i.e. respondents with a positive attitude to migration) **falls sharply relative** to the probability and validity of the declared intention, i.e. to **activities undertaken to realise this intention**. Activities undertaken to realise migration intentions divide potential migrants into three differently sized groups that are more or less likely to go and work abroad.

The first group (roughly 30%) is "theoretical migrants" who expressed a positive attitude to migration but have done nothing towards realising this step. In the sample

⁹ This was the third survey of potential migration among the Czech population using the same questionnaire (individual surveys done in 2000, 2003, 2005)

¹⁰ For more see Vavrečková, J., Janata, Z. Mиграční potenciál po vstupu České republiky do Evropské unie. Prague: RILSA, 2005

of the Czech population these account for just under a third of citizens with a positive attitude to migration and roughly the same proportion of doctors. In the other groups of specialists the size of the first group is much greater; among engineers/developers the dominant type of migration is theoretical migration not backed up by any activities.

A higher probability of foreign migration is ascribed to the other group represented by the answer "I haven't done anything yet but I'm preparing to". The group of these potential migrants is higher in all groups of specialists than in the overall population; the highest proportion occurs among doctors.

The members of the third group of potential migrants have already taken some steps towards their declared migration. **Thus predicated, roughly a third of doctors (32%) and approximately 30% of doctorate students with a positive attitude to migration can be regarded as realistic migrants. Conversely, the smallest group of realistic migrants is found among technical engineers (18%).**¹¹

Table 2 **Probability of migration intentions**

Question: "Have you already taken specific steps to realise your intentions?" (in %)

structure of migration intentions	doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students	Czech population
NO, it's not something I'm thinking of yet	29.9	39.8	45.8	37.7	29.4
NOT YET, but I'm preparing to	38.2	33.9	36.1	33.3	29.9
YES, I have already taken some specific steps	31.9	26.3	18.1	29.0	40.7
total potential migrants (abs.)	207	118	83	276	166

Source: RILSA surveys 2005, 2006, 2007

The steps taken have differing degrees of importance for the realisation of migration intentions. Some authors (Fassmann, Hindermann, 1997) regard only activities designed to find work through specialised agencies, obtain help from relatives, colleagues or acquaintances living abroad, contact a potential foreign employer, or sort out the necessary formalities (e.g. visa, social and health insurance, if necessary work permit etc.) as serious activities. **If we accept that premise the number of realistic migrants will be reduced further** in all the compared groups; among the specialists these activities account for just around a half of all the activities undertaken.

¹¹ In this comparison the group of realistic migrants is relatively high among the Czech population as a whole (see Table 2). Hypothetically, one of the reasons may be the fact that the population survey included border regions where the possibility for commuting naturally pushes up realistic migration.

Table 2.1 Nature of undertaken migration activities

Question: "What steps have you taken in connection with your wish to go and work abroad?" (absolute figures)

structure of migration intentions	doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students	Czech population
I have obtained information about employment opportunities	51	23	7	58	38
I am looking for work on the internet (via the relevant web sites)	32	23	6	47	+
I am looking for work via specialised agencies	22	4	4	5	8
I have sought help from my relatives, colleagues, acquaintances	21	17	3	33	28
I have contacted a potential employer	26	10	6	39	7
I have requested the necessary travel formalities	10	2	0	10	4
other steps	8	6	2	18	14
total answers	170	83	28	210	99
proportion of serious activities	0,51	0,47	0,53	0,50	0,61

+ this option was not mentioned in the questionnaire

Source: RILSA surveys 2005, 2006, 2007

One of the key aspects of migration is **the duration of the stay abroad**. Temporary stays abroad as a rule bring to the migrant's country of origin positive effects that the migration of experts strengthens (increased know-how, international experience, broader outlook, contacts etc.). **Negative effects stem from permanent migration.**

The intention to move abroad permanently is rarely declared among the Czech population (less than 5%); the vast majority of respondents positively considering migration prefer limited stays abroad. **Temporary migration is also clearly prevalent among tertiary-educated labour, but the incidence of permanent migrants is several times higher in some professional groups.** An example of this is **doctors, where three times more individuals declare permanent migration than in the Czech population as a whole** (among information technology specialists the proportion is more than double).

Compared to the Czech population as a whole, longer stays abroad dominate the temporary migration of specialists. The length of time spent abroad by specialists is undoubtedly linked to contracts signed with foreign employers, which most frequently tend to run from one to five years. Maybe that is one reason that migration lasting less than one year is rare among the highly qualified (e.g. less than 5% among doctors but more than one-third of potential migrants in the entire population).

The significantly large group of "undecideds" (ranging from 20%-30%) cannot be overlooked among specialists or in the population as a whole; these are either migrants without any specific idea or individuals wishing to adapt the length of their stay abroad to the specific foreign conditions and circumstances.

Table 3 **Length of migration abroad**

Question: "How long do you intend to stay abroad?"

length of stay abroad	doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students	Czech population
less than 1 year	4.5	7.6	8.4	10.9	34.3
1-2 years	22.3	40.3	16.9	24.4	21.5
3-5 years	23.3	21.0	19.3	32.4	+ 13.5
longer than 5 years but not permanent	13.4	2.5	20.5	6.9	+
permanent if possible	12.9	9.2	4.8	6.2	4.3
undecided	23.8	19.3	30.1	19.3	26.4

+ the survey only included the option of **longer than 2 years**

Source: RILSA surveys 2005, 2006, 2007

Deviations from the Czech population can also be observed among the specialists in the case of the **planned timing of the move abroad**. Among the overall population, the nearer the departure date is the more realistic migration is and *vice versa*. Among specialists who go abroad to work predominantly on the basis of incentives offered by foreign employers and work abroad in qualified positions the longer preparation period is reflected in the planned migration.¹² **The specialists most commonly consider going abroad in one or two years' time**; four out of ten engineers/developers think like this, and every third person in the other groups. A departure time frame of the next six months was three times lower among doctors than in the population as a whole, for example; the group of "undecideds" form a relatively high percentage in this regard too.

Table 4 **Timing of the departure from the Czech Republic**

Question: "On what kind of time scale are you planning to go abroad?"

departure time	doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students	Czech population
in the next 6 months	3.9	3.5	5.0	8.7	12.6
from six months to a year	15.3	12.2	15.0	10.9	34.1
in 1-2 years' time	34.5	41.7	32.5	33.8	27.0
later	18.2	15.7	13.8	20.0	2.3
undecided	28.1	27.0	33.8	26.5	24.0

Source: RILSA surveys 2005, 2006, 2007

Differences in the choice of **target migration country** can be found both between the specialists as a whole and between the tertiary-educated and the

¹² For example, just one percent of potential migrants among doctors considers the possibility of working abroad in a different position than a qualified position in healthcare (or possibly pharmacy), with three-quarters of them reckoning with working in a hospital. In the survey of the population done in 2005 one-third of respondents would consider doing work abroad below the standard of their qualifications; the practical experiences of those of worked abroad since the fall of the "Iron Curtain" indicate that 60% worked outside their field and just 18% of the surveyed Czech citizens worked in jobs requiring tertiary education.

population as a whole. The most sought-after countries among **the Czech population as a whole** are Great Britain and Ireland (probably directly linked to these countries' open labour markets following the Czech Republic's accession to the EU), followed by Germany (due to the shared borders and geographical proximity); the USA and Canada have also traditionally been attractive destinations for Czechs. We find roughly the same order of countries but with different intensity among Czech doctors; almost every second doctor (48.2%) considering migration would head to Great Britain or Ireland; every seventh (14%) would head to Germany. By contrast, overseas states such as the USA and Canada are relatively inaccessible for Czech doctors, it would seem, as not even one-tenth of respondents (7.7%) chose these countries as their destination.

The situation is different among **doctorate students**: although Great Britain is again the most preferred (a quarter of potential migrants), the USA and Canada are among the most sought-after migration destinations. A relatively high proportion of future scientists is planning to go to a different state in the European Economic Area (closer analysis showed that Switzerland and Norway are particularly popular destinations); and an unspecified Asian country has a surprisingly high incidence (in this group only).

Information technology specialists predominantly consider Anglo-Saxon countries. Their professional link to the English language is so significant that English-speaking countries – Great Britain, Ireland, USA, Canada, Australia and New Zealand – accounted for two-thirds of planned stays abroad. There is surprisingly little interest in Germany among Czech IT specialists, which corresponds to their relatively low uptake of the offer of legal residence and work in Germany via the Green Card for IT Experts programme (Grüne Karte für IT Experten).

Engineers/developers from corporate R&D prefer neighbouring Germany above all (more than the other groups of specialists under scrutiny). One reason may hypothetically lie in the close business and corporate contacts between the Czech Republic and Germany. That tallies with the finding that 90% of engineers considering migration intend to make use of their contacts abroad to find work. In other cases, the target country for engineers (with the exception of the preference for an Asian state) is most similar to the ideas of doctorate students.

Table 5 Target migration country

Question: "What country do you intend to go to?" (in %)

target country	doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students	Czech population
Germany	13.9	4.3	18.3	12.1	22.7
Austria	7.6	2.8	6.1	2.2	7.6
Great Britain	29.3	22.3	24.4	24.9	24.9*
Ireland	18.9	20.6	2.4	4.0	
other EU state	8.5	12.1	15.9	21.4	9.1
other European country	3.8	2.8	1.2	5.4	+
USA/Canada	7.7	13.1	18.3	20.1	12.4
Australia/New Zealand	7.6	12.8	7.3	4.0	4.9
some Asian country	1.8	2.1	2.4	21.4	+
another country	0.9	7.1	3.7	4.5	3.7

* in the population survey from 2005 – Great Britain along with Ireland; + not included as an option in the survey

Source: RILSA surveys 2005, 2006, 2007

The motives for labour migration are on the one hand the same as the migration impulses in the majority population, but on the other hand they also display a number of specific features (Vavrečková and team, 2006). In the majority population, migration is a response to economic opportunities abroad and foreign countries' migration policies (Baštýř 2000).

Regardless of the migrants' level of education, the most common subjective motives for migration abroad are economic reasons. These reasons stem both from the differences in nominal incomes between the Czech Republic and the chosen migration destination and from the exchange rate in question. But working abroad in a developed country means more than just earning good money: it is also a way to gain new knowledge and experiences. Motives related to improving language skills, gaining experiences in a new environment, getting to know other cultures etc. are valued among the population. In general, the phenomenon of "experiencing something new, learning and discovering" is a highly significant motive for migration.

In the case of highly educated individuals this is intensified by migration motives related to their employment and professional career. This means broadening their professional knowledge, taking part in international projects in highly experienced professional teams, the chance of working in a state-of-the-art workplace, learning how to use the latest technologies etc. The difference in the hierarchy of motives among the groups of specialists under scrutiny is shown in Table 6.

Table 6 **Specialists' motives for working abroad**

Question: "State what your motives are for working abroad." (rating – important, very important) (rounded to whole %)

	doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students
there is more opportunity for career growth abroad	46	58	63	53
more opportunity for career growth after returning to the Czech Republic	53	79	79	76
better pay	94	87	96	83
more opportunity for professional development in the given area (state-of-the-art technologies, standard of equipment in workplaces)	82	80	91	81
work in a renowned organisation (firm, medical facility) with high prestige	62	44	59	65
more professional work relationships	70	47	67	53
improving a foreign language	90	86	92	82
gaining international outlook and contacts	82	89	91	91
better prospects for my children's future	44	54	70	50

Among doctors the dominant motives for working abroad are two: better pay and improving knowledge of a foreign language. Third place is shared by the acquisition of an international outlook/contacts and the opportunity to learn how to use state-of-the-art medical technology and treatment methods. Other motives inducing doctors to work abroad are linked again to the work process (professional relationships in the workplace, work in a renowned medical facility...) or to dissatisfaction with the situation in Czech healthcare (usually expressed as a free answer). The relatively low significance that doctors attribute to foreign experiences for career growth in the Czech Republic is further evidence of some degree of scepticism in this group.

Private sector **researchers/developers** display a similar hierarchy of motives. Compared to other groups the motive of better prospects for their children’s future scored higher; the greater opportunity for career growth abroad and after returning home also scored higher than among doctors.

It would seem that the primary **migration motives for doctorate students and IT specialists** are gaining an international outlook and international contacts. These motives are ranked higher (albeit not significantly) than financial reward and improvement of foreign languages. Specialists in both groups also have a very positive perception of the importance of experiences gained abroad in their future career in their home country.

Assessment of the significance of **barriers to migration found no marked differences between specialists and the Czech population as a whole or between one group of specialists and another**; some differences were found in intensity but not in the order of importance of the barriers (see Table 7).

Table 7 Barriers to migration abroad among the specialists under scrutiny
Question: “What factors prevent you going abroad?” (rating – fundamentally, to some extent)

	doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students
separation from family	84	70	75	74
partner's disapproval	49	45	39	42
concerns about loneliness, lack of social contacts	43	46	44	41
high costs associated with residence abroad	31	27	31	36
the risk that I will miss out on good opportunities in my own country	28	20	20	32
concerns about language problems	60	30	31	35
I don't have the confidence to work abroad	31	14	8	26
I'm not at home there, unknown environment	-	24	12	27
I would evidently have to accept a worse job	46	29	30	26
I have a good job in the Czech Republic	85	77	61	70
administrative problems associated with working abroad	40	33	37	25

Among the Czech population as a whole the fundamental barriers to migration abroad were ties to family and friends and lack of knowledge of the alien environment. Lack of confidence in one’s own abilities in the Czech population is often linked to a lack of knowledge of foreign languages and the related concerns of overt or covert discrimination.

Highly qualified individuals display greater self-confidence, but worries about separation and isolation are often dominant among these groups too. Doctors and IT specialists identify having a good job in the Czech Republic as the most serious barrier to migration abroad; doctorate students at Prague universities and corporate R&D professionals cite family reasons (separation from the family) as the most serious barrier.

It was shown that **one of most important obstacles reducing migration among the highly qualified groups and the Czech population as a whole is language skills**. Specialists have better language skills, of course, but these are still

in many cases insufficient for the nature of the work. That mainly applies to doctors, who have a very intensive perception of the language and communication barrier in their intended work abroad (work in a hospital).

The decision to work abroad is the outcome of a number of interrelated circumstances for both ordinary citizens and the highly qualified. It is influenced by both objective and subjective factors. The subjective factors are decisions about what may be gained or lost by this move for the individual; the objective factors are related to the domestic and foreign labour markets, the political situation in the country, family, health and other circumstances.

The specialist literature (e.g. Lunborg 1991, Adams 1993) deals with **the migration decision's significant correlation with age and highest educational attainment**. According to this author, migration increases with the individuals' (and nations') level of education and falls with population age (the older the population, the less labour migration to other countries). **Both correlations were confirmed by our surveys.**

Among experts of all professional groups, the vast majority of whom have tertiary or higher education (e.g. a quarter of engineers/developers had postgraduate degrees PhD, CSc. or their equivalent), a higher migration potential was found than among the general population respondents, the largest proportion of whom had secondary school education (40%).

The **significant correlation between migration abroad and age** was also confirmed. The inclination to migrate diminished markedly with advancing age. **The only exception was doctors**; it was found that besides young doctors entering the profession **experienced middle-aged specialists were also planning to go abroad** (in the set of those considering migration 28% of doctors are over 50, compared to 6.5% of people of the same age in the population). That is a specific situation, however, that reflects the actual situation on the labour market in healthcare. A qualitative survey of representatives of recruitment agencies brokering work abroad found that there is a demand in the world for experienced experts/doctors with two and more attestations.¹³

In view of their completed university education the potential migrants among specialists are older than their counterparts in the population in general: the majority age group among potential migrants in the doctors and engineers/developers groups is 30-39; among IT/ICT specialists and doctorate students 25-29; every second potential migrant in the general population (45.2%) is below the age of 24.

The link between **gender and migration to another country** is not categorical. In the population as a whole gender has almost no influence on the intention to work abroad. In all the groups under scrutiny **most of the potential migrant specialists were men**. It is not clear, though, whether the reason for this is the significant correlation between the specialist's gender and inclination to migrate or the familial and maternal priorities of women in the age following the completion of tertiary education. The overwhelming majority of male specialists in IT/ICT and corporate R&D is caused by the generally low representation of women among the respondents, which matches the structure of specialists in these branches.

Another socio-demographic factor influencing work abroad is **marital status**. It generally applies that **single people migrate** more than people who are married and live in strong family structures. This premise was confirmed in all the groups under

¹³ see Demand for Qualified Czech Specialists Abroad. Prague: RILSA, 2004

scrutiny (and among the population in general); but the incidence of persons considering going abroad with children (more than 30%) was found to be twice as high among doctors and engineers/developers than in the population as a whole.

Other significant determinants are without doubt **a previous stay abroad, contacts abroad and language proficiency.**

Among the specialists these relationships were tested using a chi-square independence test. In all cases bar one the hypothesis of the independence of the intention to go and work abroad was rejected at a high significance level (alpha 0.01 and higher). The link between work contacts abroad and the intention to work abroad proved insignificant only in the technical engineers/developers group.

Moreover, **in the group of IT/ICT specialists** there was a statistically significant difference between the proportion of foreign capital in the firm/organisation and the employee's intention to go and work abroad. Migration potential increased with increasing proportions of foreign capital.

If we focus on the strength of the associations, they prove not to be very strong. The value of the contingency coefficient did not exceed 0.3, which is a reflection of the fact that the decision to move abroad for work is based on a whole set of factors and it cannot be said that any particular tested characteristic is a sole clear determinant of migration.

Knowledge of a foreign language has a fundamental significance for the decision to go and work abroad. Above all, very good knowledge of English is significant for the migration of highly qualified experts. In all groups of specialists, the hypothesis of a correlation between the standard of proficiency in the English language and the decision to go and work abroad was accepted at a high significance level. This association could not be proved in the case of knowledge of German and Russian.

Table 8 Work contacts abroad, stay abroad and language skills in the surveyed groups of specialists

	doctors	IT/ICT specialists	engineers/ developers	doctorate (PhD) students
work contacts abroad	32.8	58.1	71.5	58.5
study or work stay abroad	29.1	28.3	22.7	49.9
knowledge of English*	69.9	91.0	72.9	91.9
knowledge of German*	29.2	13.4	33.1	31.1
knowledge of Russian*	32.1	10.2	39.4	8.8

* the table shows the proportion of qualified experts with fluent or active knowledge of the given language

Part Two

Specialists' earnings motivation for working abroad

The set of motives for migrating from their home country to another country (other countries) is extensive. Economic factors other than earnings differences that may play a role are the overall standard of civilisation, job security and work and life prospects. Significant factors in the set of non-economic motives include social and political factors (war, dictatorship etc.), natural and climactic influences (e.g. shortage of water or sources of nutrition, natural disasters) and personal reasons (cosmopolitan outlook, relationships with a partner or relatives) (for more detail see e.g. Blaschke (1997), Horáková, Vavrečková (2003). These broader links fell outside the framework of the research project.

1. Theoretical approaches to the earnings (income) motivation for working abroad

1.1 Basic approaches

The main impulses for economically motivated labour migration from the home country to a target country consist in the differences in the economic standards of the poorer and richer countries. Theoretical/empirical studies on cross-border labour migration (e.g. Barro, Sala-i-Martin, 1991, Massey, Espinosa, 1997, Walterkirchen, Dietz, 1997, Riedel, Untiedt, 2001) draw on analyses of the attraction ("gravitational pull") of work in rich countries for emigrants from poorer countries; this work brings these people significantly higher economic benefits (standard of living, profit, incomes, earnings) than work in their country of origin.

The studies analyse the relative conditions (earnings differentials) or absolute differences in earnings achieved in the country of origin and the target state. The main reason for using employees' relative earnings is that the overwhelming majority of migrants go into employment and directly seek an earnings benefit (only a small fraction of them become legally self-employed). Information about earnings in the country of origin and receiving country is also more readily available than data on other characteristics of standard of living, total incomes etc. The studies generalise the intensity of the motivational effect international differences in earnings have on migration abroad for work, and do so on the basis of data on relative earnings levels between Mexico and the USA (Barro, Sala-i-Martin, 1991, Massey, Espinosa, 1997) and the relative earnings levels between France and the poorer south European states (Spain, Portugal, southern Italy) in the post-war period or at the time of their entry to the EU.

The studies' key findings can be summarised as follows:

(1) The basic finding is the fact that the bigger the difference between earnings in the country of origin and the receiving country, the more intensive the motivation

to go and work in this state, *ceteris paribus* (e.g. regulation of migration and types of migrants), and the greater the actual scale of migration (whether legal or illegal).

(2) The intensity of the motivation to go and work abroad, correlated to relative attained (or assumed, attainable) earnings between the country of origin and the receiving country, as deduced by the said studies, is illustrated in the chart set out in Table 9.

Table 9 Chart of the intensity of the migration to migrate abroad for work correlated to the ratio of earnings in the country of origin and receiving country

degree	earnings differential (ratio)		intensity of the motivation to migrate abroad for work		
	O/R	R/O			
a	b	c	d		
1.	at least 3.00 and more		at most 0.33 and less	very strong	
2.	at least 2.00	at most 2.99	at least 3.34	at most 0.50	strong
3.	at least 1.43	at most 1.99	at least 0.51	at most 0.70	weaker
4.	1.42 and less		0.70 and more	negligible	

Notes and explanations: O: country of origin; R: receiving country

Source: Barro, Sala-i-Martin; Waltenkirchen, Dietz; scheme devised by RILSA

The more detailed characteristics of the individual degrees of "migration motivation" are:

- **"Very strong motivation"** means great interest in working abroad on the part of migrants and actual scale of migration. Scope is created for the acceptance of work requiring less expertise and experience than the migrant is qualified for ("dequalification migration"); a pronounced earnings gain usually enables a relatively considerable transfer of saved funds to the country of origin (and also creates a stimulus for illegal migration and employment). When relative earnings levels create such an intensive motivation, the target countries usually apply administrative and/or institutional regulatory measures limiting the scale of migration (permits for longer stays and work, migration limits *et al.*).
- From the point of view of relative earnings levels **the second degree** represents a significant intensity of motivation for cross-border labour migration. The factors mentioned in the preceding degree are present on the part of both migrants and the target countries, but with less intensity. Above all, the scale of the possible transfer of savings to the parent country is reduced.
- When relative earnings levels correspond to the **third degree** the set of potential and actual labour migrants begins to shrink. The earnings benefit for the emigrants' households back in the country of origin is not large. The relative earnings levels are more suitable for independent migrants (individuals) or partners simultaneously employed abroad and also for migrants who, besides the earnings benefit, are also interested in improving their qualifications, language skills and other non-earnings impulses for migration.
- The relative earnings levels in the **fourth degree** do not provide a sufficient earnings stimulus when the additional economic and personal costs associated with migrating are taken into consideration. For that reason the intensity of migration

falls or vanishes completely. Some economists¹⁴ characterise these relative earnings levels as "a state of economic maturity", i.e. a state in which the economic and earnings level of the poorer countries attain 70% to 75% of that of the affluent countries; this is a generalisation of the processes that took place in the period when the economic and earnings levels between the countries of southern Europe and northern Europe were evening out in the post-war period and they were accepted as members of the European Community.

The intensity of the economic motivation to migrate for work is influenced by other factors (parameters) of the labour market besides the home and host countries' relative earnings levels and by the broader economic conditions in both types of countries ("push and pull" factors, Blaschke 1997). Such typical factors are:

- high unemployment in the country of origin strengthens the human capital flight; high unemployment in the country of destination reduces the intensity of immigration;
- high demand for labour in the country of destination increases immigration; a constant and widening supply of work opportunities in the country of origin reduces emigration even at lower earnings levels;
- the level of the language barrier. Ignorance of the receiving state's language reduces immigration; knowledge or similarity of language facilitates it.

The rate of emigration also depends strongly on the institutional and regulatory immigration system applied in the receiving country. Free access to the labour market (*ceteris paribus*) increases labour migration; a regulated market reduces labour migration.

1.2 Types of labour migration, earnings characteristics shaping the motivation to migrate

The earnings characteristics that shape the motivation to work abroad differ depending on the types of labour migration (Šelepová, 1998). The basic types of labour migration are:

- a) **commuter migration**; the typical feature of this is that commuting migrants continue to reside in their home country while making daily journeys to the country of destination;
- b) **residential migration**, in which the migrant changes his place of residence from his home country to the target country; residential migration is further broken down into:
 - ba) **temporary**, in which the migrant spends a certain amount of time working abroad and then returns to his country of origin and lives and works there; the length of the stay abroad varies, ranging from a few months to several years;
 - bb) **permanent** (lifelong or long-term), in which the migrant decides to keep living and working in the target country.

¹⁴ E.g. Pick, M.: The Czech Republic's Competitiveness on the Eve of Entry to the EU. Pohledy no. 5/2001

The following earnings characteristics create migration impulses for the different types of labour migration:

Commuter migration: the nominal net earnings achieved (or assumed) by the migrant in the country of origin and the receiving state (expressed in the currency of the country of origin).

This earnings characteristic corresponds to a situation in which a commuting migrant gains a net earning (wage, pay) for work abroad, i.e. after deduction of income tax and statutory contributions to social and health insurance paid by the employee in the receiving state and in that state's currency. The migrant uses a certain, not usually very large, part of these earnings to cover migration costs in the receiving state (in that state's currency and prices); he converts most of his earnings into the currency of his country of origin and uses the disposable money income for consumption in the prices of the country of origin. The compared earnings attained (attainable) in the country of origin is the net earnings (after deduction of income tax and statutory contributions to the social funds paid by employees in the country of origin).

In the case of residential migration followed by a return to the country of origin the motivation criterion is the **(internationally comparable) purchasing power parity adjusted** net earnings expressed in a reference currency and consumer prices level (for the sake of clarity the most suitable expression is in the currency and price level of the country of origin).

The earnings characteristic of "(internationally comparable) purchasing power parity adjusted net earnings" corresponds to a situation where for working abroad migrant gains a net earning out of which he defrays his living costs at the host country's consumer prices. Contributions to social funds are not factored into the migrant's income abroad seeing that the size of these deferred incomes is not particularly significant for the relatively short period in which these contributions to social funds are paid and they may be omitted in the assessment of earnings differences (differentials).

In the country of origin the purchasing power parity adjusted net earnings converted into a reference currency and the consumer prices level are compared (if the reference currency and price level are the those of the country of origin, the compared earning is the net nominal earning attained or attainable by the migrant in the conditions of his home country).

In the case of **permanent (lifelong) migration** the decisive criterion for staying and working abroad is the **difference (differential) in the purchasing power parity adjusted gross earnings between the home country and the host country**.

In permanent migration there is a situation where the migrant pays for ordinary living costs out of his net nominal earnings in the host country's consumer prices. As the stay abroad is permanent, however, factoring deferred incomes (deductions from gross pay) into the migrant's income is fully justified; the migrant's costs in the event of sickness or injury, for example, the cost of healthcare and medicines are paid and incomes in the event of invalidity and old-age pensions are provided out of these deferred incomes. The inclusion of entire deductions from gross pay is not entirely accurate from the point of view of the "return" of these deferred incomes to the specific migrant; distribution and redistribution mechanisms usually lead to another final determination of the deductions from gross pay; reaching an exact figure would be very laborious and practically unfeasible.

1.3 Workers' expertise, motives and intensity of migration

The majority of expert studies (e.g. Ujházy, 2005, Kostelecká, 2007) reach the conclusion that the intensity of the effect of the earnings motivation for labour migration to other countries is essentially indirectly proportionate to the migrants' standard of qualifications (expertise). The basic tendency can be characterised as follows: the less qualified migrants are and thus the simpler, more menial work they do, the greater their interest in the earnings benefit of working abroad compared to working in their country of origin; for these migrants the earnings stimulus is the decisive and usually the only impulse for going and working abroad.

With migrants' rising standard of qualifications and expertise and the difficulty of the work they do, the importance of non-earnings impulses for labour migration also grows. There is greater interest in improving one's expertise by being part of a highly erudite team dealing with demanding projects and working with state-of-the-art technologies; improving language skills and acquiring personal and work contacts and ties that are key to the work career of experts both abroad and after returning to the country of origin are also significant impulses.

Other studies (Pearson, 2001, Vavrečková and team, 2006) suggest that the block of highly qualified experts who are actual or potential migrants is divided into two groups in terms of earnings motivation.

The first group comprises university-educated migrants who perform highly qualified work demanding extensive theoretical knowledge in the field and the ability to apply and combine this knowledge without error. That is the majority of qualified migrants; typical representatives are doctors, IT and ICT specialists and the majority of technical engineers, planners and constructors working in applied research and development. The ascertained attitudes of these professional groups (Vavrečková, 2006, 2007) show that the vast majority (roughly 80% to 90%) consider the earnings gain as a fundamental impulse for working abroad.

The other, smaller group comprises science workers, top-level experts who focus on acquiring new scientific and technological knowledge mainly in pure (academic) research. The earnings motives are less important migration impulses for this group of experts. "Academic workers tend to migrate to prestigious institutions with state-of-the-art facilities and to have the chance to take part in interesting research projects. The pay offered obviously plays some role, but always in combination with the quality of the research institute. If the prestige of the institute in the country of destination is significantly greater than the prestige of the institute in the country of origin, the scientist may decide to migrate even if his pay will not increase. If the institute's prestige in the country of destination does not attain the prestige of the institute the scientist has worked in to date, even the chance of a fundamental pay increase does not necessarily induce him to migrate." (Pearson, 2001 in Kostelecká, 2007.)

2. Methodology for comparing relative earnings between countries; information gathering and the analysis process

2.1 Basic approaches

The aim of comparing earnings is to define the current intensity of the earnings stimulus to work abroad for selected groups of highly qualified experts between the Czech Republic and selected EU countries.

International comparison of earnings is in general based on several conversion steps making it possible to define the earnings characteristics that are fundamental to the motivation for various types of labour migration.

The calculation consists of the following steps:

(1) The starting point for the analysis is gross nominal earnings in the national currency for all the countries being compared, periods of time and defined segments of the national economy (the sum of the national economy, selected occupations of qualified experts, or possibly other segments).

(2) The first calculation step consists in converting gross nominal earnings in the national currency into a reference currency:

$$G_r = G_n \times E \dots, \text{ where}$$

G_r = gross nominal earnings in the reference currency,

G_n = gross nominal earnings in the national currency,

E = average annual exchange rate for the national currency and the reference currency

Converting earnings from national currencies into a reference currency makes it possible then to express relative levels (differentials) or possibly absolute differences in the earnings characteristics between the countries being compared; the relative levels express the position of gross earnings in international contexts of the internal earnings level and the national currency exchange rate. A currency used in international exchange is usually chosen as the reference currency; to make the comparison clearer and more comprehensible it is a good idea to use the national currency of the country of origin, e.g. the Czech Republic, as the reference currency.

(3) Second calculation step: converting gross nominal earnings in the reference currency into net nominal earnings in the reference currency:

$$N_r = G_r \times (1-T) \dots, \text{ where}$$

N_r = net (disposable) nominal earnings in the reference currency,

T = aggregate tax quota, i.e. sum of income tax and statutory payments to social and health insurance paid by the employee; the aggregate tax quota is expressed as a coefficient.

Net nominal earnings in the reference currency represents the sum of money the migrant can use at his own discretion to satisfy his needs.

The difference between the level of net nominal earnings between the host country and country of origin characterises the earnings gain in commuter migration.

(4) Third calculation step: converting net nominal earnings in the reference currency into purchasing power parity adjusted net (disposable) earnings:

$$N_p = N_r \times P \dots, \text{ where}$$

N_p = purchasing power parity adjusted net (disposable) earnings in the reference currency,

P = relative price level of the basket of household expenditure on end consumption (HEEC); this is the ratio (coefficient) of HEEC cost at the parity-adjusted (comparative) price level and in the prices of the country being compared (expressed in the reference currency), i.e.

$$P = \frac{T_N}{T_S} \dots, \text{ where}$$

T_N = HEEC cost in the reference currency in the prices of country N ,

T_S = HEEC cost at parity-adjusted (comparative) price level.

The difference between the level of the purchasing power parity adjusted net earnings between countries characterises the earnings gain during temporary residential migration (followed by the return to the home country).

(5) The fourth calculation step follows on from the first and third steps. It consists in converting gross nominal earnings in the reference currency into purchasing power parity adjusted gross earnings:

$$G_n = G_r \times P$$

The difference between the level of purchasing power parity adjusted gross earnings between countries characterises the earnings gain for migrants in permanent (lifelong, possibly long-term) migration.

2.2 Specific analysis process, information gathering

2.2.1 The selection of **countries** with which to compare earnings in the Czech Republic was restricted by the amount of money and time available for research project. Four "old" EU member states (with some scale of potential and actual migration of specialists from the Czech Republic) were chosen according to the following considerations:

- Great Britain and Ireland as states that allowed free access to their national labour markets for labour from the new member states from the date of these states' accession to the EU;
- Germany and Austria as states that apply selective regulation of labour market access for workers from new member states in view of risks to national employment and the national labour market (unemployment, wage dumping). They selectively allow the employment of specialists in professions where there is a shortage of labour. They are neighbouring states of the Czech Republic sharing long-term and extensive economic, cultural and social ties.

The compared **occupations** were defined on the basis of analysis of the demand for under-supplied professions of qualified experts in Europe and the Czech Republic. The choice of professions also conformed to the focus of the field surveys. The following professions were chosen: doctors, IT/ICT specialists, technical engineers working in corporate (applied) research and development. In order to make the earnings information more specific, the following jobs were chosen as typical representatives of these professions: general practitioner, programmer, machine engineer (designer, constructor), electronics engineer (designer, constructor).

2.2.2. Given the insufficiency of international databases, the fundamental problem in international comparison was obtaining comparable information on earnings in the selected countries and, in particular, in the selected professions so that it was possible to conclude the analysis with all-year data for 2007.

The set of information necessary for international comparison of earnings was obtained in the following ways:

- a) Average gross nominal earnings in different national economies in national currencies were taken from the **OECD database** published annually in **Taxing Wages**; the Taxing Wages 2006-2007 edition was used for the analysis. The database combines a statistical and modelling approach to defining average earnings in a national economy. Every year the statistical authorities in OECD countries pass on to the OECD headquarters data on average earnings of employees who have worked the full year (not including management employees – first category in the Classification of Employment known by the contraction "KZAM") aggregated for industry and commercial services (sectors C to K of the Sectoral Classification of Economic Activities, known by the abbreviation "OKEČ"). These data are obtained using a uniform statistical method. The OECD analysis division checks the national authorities' data and uses them in the aforementioned publication as the average gross earnings of childless employees (not including senior managers) who attain earnings at the national average in the national economies. The national average earnings are used to evaluate the tendencies of the average earnings differentials in the Czech Republic (and the factors shaping them) vis-à-vis other countries over the longer term (2000 to 2007). Longer-term analysis by individual occupation is not possible either technically (foreign data on earnings or other parameters sorted by occupation are not available) or financially.
- b) Data on the average gross earnings (in national currencies) of the occupations under comparison were obtained as follows: data for the Czech Republic was obtained from the departmental statistics of the Ministry of Labour and Social Affairs; data for other countries was obtained from information acquired on a commercial basis via agencies that collect data on employment, labour markets and earnings (wages and pay). There is no international statistical database on earnings in typical occupations that would be a source of relevant and comparable

data on earnings (of highly qualified specialists). The available database of international institutions focusing on data on the earnings of selected occupations cannot be used owing to the small scope of occupations, the number of countries and the quality of the information. One such database is that of the International Labour Organization: although it contains data on various aspects of 194 occupations (e.g. tariff wages, total wages per hour, week, month and different periods of time), it only covers a small number of countries. The Unit Bank of Switzerland's database gives long-term data on the earnings levels in eleven occupations in the capitals and other major cities of several dozen states, but it cannot be used for the purposes of analysing relative earnings levels in the occupations of highly qualified specialists. Attempts to find databases on the earnings of typical occupations maintained by official state authorities (statistical bodies, labour authorities etc.) outside the Czech Republic were unsuccessful.

In the Czech Republic gross monthly earnings (wages) for 2004, 2006 and 2007 were taken from the Information System on Average Earnings of the Ministry of Labour and Social Affairs; specifically, the data was for the following occupations (jobs, positions):

KZAM	name
2221	general practitioner
2132	programmer
2145	machine engineer, designer, constructor of machinery
2144	electronics engineer, systems and networks designer

Data on the earnings of the compared occupations in foreign countries were obtained:

- from information summarised by the Translitera agency in its publication "Information about the Labour Market Situation, Demand for Qualified Workers and their Wages in the States of Great Britain, Ireland, Germany and Austria" and the sources mentioned therein (a survey by the firm Jobpilot, a survey by the British Office for National Statistics, Ireland's Finfacts information portal). This information related to doctors and IT/ICT specialists. The data are complemented by information obtained by surveying personnel agencies recruiting Czech specialists for employers outside the Czech Republic. The data apply to 2004 (or in some cases 2003);
- from the database of the Mercer (Czech), a.s., agency (earnings of technical engineers); these data reflect the state in 2006.

To resolve the problem of the different years to which the ascertained earnings apply, a procedure was used whereby both the values of the earnings levels and the differentials for the years the data on gross earnings abroad apply to and the guideline values of the same earnings characteristics for 2007 were analysed. For the Czech Republic, the gross nominal earnings for 2007 were taken from the Ministry of Labour and Social Affairs' Information System of Average Earnings; the equivalent data for occupations in other countries between the survey year and 2007 are adjusted in line with the relative change in average earnings for the national economy as a whole; conversion factors (exchange rate, relative price level, aggregate tax quota) are taken from other databases. This approximation lowers the quality of the information but is acceptable given the short data extrapolation intervals; the priority is to compare data (even if only guideline data) to a uniform time dimension close to the present day;

- c) Data on the socio-economic parameters that enable the conversion from gross nominal earnings in national currencies to (internationally comparable) purchasing power parity adjusted net (disposable) earnings (see section 2.1 for the calculation procedure). This comprises:
- ca) the annual exchange rates of national currencies (Czech koruna, pounds sterling) to the euro; the Eurostat database gives an overview of exchange rates¹⁵; in the first quarter of 2008 data for the years 2000 to 2007 were available;
 - cb) the relative price levels of a basket of household expenditure on end consumption (HEEC) in individual countries. The relative price level is a ratio (coefficient) of the money cost of the HEEC basket expressed in prices of the state in question to the money cost of the same basket expressed in the prices of the country (group of countries) that is the reference base; the prices are usually expressed in the national currency of the country (group of countries) being compared. In the Eurostat database the reference base is the price of the HEEC basket expressed in the average prices of the 27 EU member states and the currency unit is the euro; it can be converted into a reference basis for individual states (e.g. the Czech Republic). The Eurostat database contains relative price levels; data on relative price levels for the years 2003 to 2007 and an estimate for 2007 were available in the first quarter of 2008;
 - cc) the aggregate tax quota in individual states (the sum of income tax and statutory social and health insurance payments paid by the employee) is contained in the OECD database. Preliminary data for 2007 and finalised data from 2000-2006 were available in the first quarter of 2008. The database gives the actual aggregate tax quotas on average earnings, low earnings (0.68 of average earnings) and high earnings (1.68 of average earnings).

¹⁵ www.czso.cz: international data, European data (ESDS)

3. Results of the analyses of the relative earnings of selected groups of specialists in the Czech Republic and EU countries

The aim of the analysis set out below was to ascertain the level of earnings differentials, their development, and the factors that influence them. The intensity of and changes in the earnings motivation to work abroad is deduced on that basis.

3.1 Analysis of relative national average earnings levels in the Czech Republic, Germany, Austria, Ireland and Great Britain in 2000, 2006 and 2007

Analysis of the relative average earnings levels comprises the conversion of relative earnings from average nominal gross earnings to (internationally comparable) purchasing power parity adjusted net earnings for all the states included in the analysis. The sum of the conversion data is given in Table 10.

The set of data in Table 10 reveals the following contexts and findings:

(1) In all the earnings characteristics (nominal gross and net earnings, purchasing power parity adjusted gross and net earnings) the **basic tendency** that can be seen to run through the analysed years (see sections C, E, G, H of the Table) is the **universal convergence of these characteristics between the Czech Republic and the compared foreign countries**. Earnings differentials (the level of foreign earnings characteristics as a multiple of the Czech Republic's earnings characteristic (F/CZ)), decreased sharply between 2000 and 2007:

nominal earnings values

	G	A	I	GB	G	A	I	GB
	gross earnings				net earnings			
2000	8.08	6.44	4.77	8.65	5.80	5.74	4.91	8.29
2007	4.76	4.18	3.48	5.38	3.53	3.60	3.88	5.09
2007/2000 (%)	58.9	64.9	73.0	62.2	60.3	62.7	79.0	61.4

purchasing power parity adjusted earnings

	G	A	I	GB	G	A	I	GB
	gross earnings				net earnings			
2000	3.65	3.04	2.00	3.47	2.62	2.71	2.06	3.32
2007	2.90	2.59	1.75	3.05	2.15	2.24	1.96	2.89
2007/2000 (%)	79.5	85.2	87.5	86.5	82.1	82.7	95.1	87.0

The convergence of the earnings level between the Czech Republic and the other countries under scrutiny is more intensive in the case of nominal earnings characteristics: it ranges from approx. 11 to 40 percentage points. The convergence ranges from approx. 5 to 20 percentage points in the case of purchasing power parity adjusted earnings. The convergence is differentiated both between the Czech Republic and the individual foreign countries and between the individual characteristics. The

differentiation derives from the different effect of the individual factors of the change in earnings characteristics (internal national movement of earnings level, movement of the minimum exchange between the Czech koruna and other currencies, the relative level of consumer prices, the aggregate tax quota; see below for more details).

The fastest earnings differential convergence is between the Czech Republic and Germany (depending on the earnings characteristic the decrease in the differential ranges from approx. 20 to 40 percentage points); the slowest convergence is between the Czech Republic and Ireland (differential reduction from approx. 5 to 17 percentage points).

(2) Despite the reduction in the differences in earnings characteristics between the Czech Republic and the other countries the relative current gaps (2007) are still considerable:

- a) The highest values are attained by earnings differentials from **nominal average gross earnings** (see the segment at the top left of the above overview). These differentials **are not directly linked to the motivation for a particular type of labour migration**. Gross nominal earnings represent fundamental information about the level of the predominant part of nominal labour costs¹⁶; inferring motivation for labour migration (via the differentials of these earnings) represents **an over-optimistic earnings benefit of migration**. Given the relatively easy availability of data on gross nominal earnings they are often used in simplified information materials; **these are misleading and often result in the migrants being deluded about the level of earnings gain compared to the Czech Republic**.
- b) The earnings differentials of **average net nominal earnings** (see the top right segment of the data overview) are significant. These determine the degree of motivation to **commute to work** in a foreign country that can easily be reached; the differential in 2007 is more (even with the sharp fall from 2000)¹⁷ than three times the earnings level in the Czech Republic (Germany 3.5 times; Austria 3.6 times); the intensity of the earnings motivation is very high. Field surveys find that this type of migration is **utterly exceptional among highly qualified specialists**; commuting is mainly done by migrants with lower and trade-related qualifications.
- c) The earnings differential of purchasing power parity adjusted average gross national earnings standards (see the bottom left segment of the overview) characterising the **earnings benefit of permanent (lifelong, or possibly long-term) migration** covered a relatively broad range from 1.7 times (Ireland) to 3 times (Great Britain) the earnings level of the Czech Republic in 2007. Field surveys indicate that **permanent migration from the Czech Republic is a rare type of planned migration among both specialists and the population as a whole**.
- d) The earnings differentials of **purchasing power parity adjusted average net national earnings** (see the bottom right segment of the overview) that is determinative for **the intensity of motivation for temporary residential migration (with a return home)** ranged from 2 times (Ireland) to 2.9 times (Great Britain) the net earnings in the Czech Republic. **Field surveys show that this is the most common type of migration intention among highly qualified specialists** (and among the population as a whole). The level and movement of earnings differentials is therefore the most significant indicator of the intensity of the earnings motivation of labour migration.

¹⁶ In EU states wage costs generally account for approx. 70% to 80% of total staff costs.

¹⁷ The values for Ireland and Great Britain are virtual; commuting is technically impossible.

Table 10 Conversion of average gross earnings¹⁾ in the national economies of the Czech Republic, Germany, Austria, Ireland and Great Britain into parity (internationally comparable) purchasing power of average net earnings for 2000, 2006 and 2007²⁾

row	conversion characteristics (parameters)		compared states					
			specific unit	Czech Republic	Austria	Germany	Ireland	Great Britain
a	b		c	d	e	f	g	h
A. average gross monthly earnings in national currency³⁾								
1		2000	monthly	13 694	3 110	2 478	1 874	2 076
2		2006	ditto	19 566	3 532	3 057	2 497	2 645
3		2007	ditto	20 856	3 579	3 137	2 611	2 764
4		2006/2000	index	1.429	1.136	1.234	1.362	1.320
5		2007/2000	ditto	1.523	1.151	1.266	1.424	1.364
B. average annual exchange rate (CZK to foreign currencies)⁴⁾								
6		2000	CZK/F	1.000	35.599	35.599	35.599	58.455
7		2006	ditto	1.000	28.342	28.342	28.342	41.557
8		2007	ditto	1.000	27.766	27.766	27.766	40.594
9		2006/2000	index	1.000	0.796	0.796	0.796	0.711
10		2007/2000	ditto	1.000	0.780	0.780	0.780	0.694
11	CZK strengthens against F	2006/2000	%	-	25.6	25.6	25.6	40.6
12		2007/2000	%	-	28.2	28.2	28.2	44.0
C. average nominal gross monthly earnings in CZK⁵⁾								
13		2000	CZK/month	13 694	110 713	88 214	65 289	118 430
14		2006	ditto	19 566	100 104	86 641	70 770	109 918
15		2007	ditto	20 856	99 375	87 102	72 497	112 202
16		2006/2000	index	1.429	0.904	0.982	1.084	0.928
17		2007/2000	ditto	1.523	0.898	0.987	1.110	0.947
18	F:CZ ratio	2000	multiple	1.00	8.08	6.44	4.77	8.65
19		2006	ditto	1.00	5.11	4.42	3.61	5.61
20		2007	ditto	1.00	4.76	4.18	3.48	5.38
D. comparable price level of end household consumption (EU-27 = 1.000 in rows 21 to 23)⁶⁾								
21		2000	index	0.481	1.066	1.019	1.149	1.200
22		2006	ditto	0.615	1.033	1.012	1.249	1.108
23		2007	ditto	0.628	1.033	1.012	1.248	1.106
24		2006/2000	ditto	1.278	0.969	0.993	1.087	0.933
25		2007/2000	ditto	1.306	0.969	0.993	1.086	0.927
26	F:CZ ratio	2000	multiple	1.000	2.216	2.119	2.389	2.495
27		2006	ditto	1.000	1.680	1.646	2.031	1.802
28		2007	ditto	1.000	1.645	1.611	1.987	1.761
E. parity purchasing power of average gross monthly earnings⁷⁾								
29		2000	CZK/month	13 694	49 961	41 630	27 329	47 467
30		2006	ditto	19 566	59 586	52 637	34 485	62 265
31		2007	ditto	20 856	60 410	54 066	36 486	63 715
32	F:CZ ratio	2000	multiple	1.00	3.65	3.04	2.00	3.47
33		2006	ditto	1.00	3.05	2.69	1.72	3.18
34		2007	ditto	1.00	2.90	2.59	1.75	3.05

Part Two - Specialists' earnings motivation for working abroad

(continued)

row	conversion characteristics (parameters)		compared states					
			specific unit	Czech Republic	Austria	Germany	Ireland	Great Britain
a	b		c	d	e	f	g	h
F. aggregate tax rate on average gross earnings⁸⁾								
35		2000	coefficient	0.226	0.445	0.310	0.203	0.258
36		2006	ditto	0.224	0.437	0.332	0.147	0.269
37		2007	ditto	0.229	0.428	0.335	0.139	0.270
38		2006/2000	index	0.991	0.982	1.071	0.724	1.043
39		2007/2006	ditto	1.013	0.962	1.081	0.685	1.047
G. average nominal net monthly earnings in CZK⁹⁾								
40		2000	CZK/month	10 599	61 446	60 868	52 035	87 875
41		2006	ditto	15 183	56 359	57 876	60 367	80 350
42		2007	ditto	16 080	56 842	57 923	62 420	81 907
43		2006/2000	index	1.432	0.917	0.951	1.160	0.914
44		2007/2000	ditto	1.517	0.925	0.952	1.200	0.932
45	F:CZ ratio	2000	multiple	1.000	5.80	5.74	4.91	8.29
46		2006	ditto	1.000	3.71	3.81	3.98	5.29
47		2007	ditto	1.000	3.53	3.60	3.88	5.09
H. parity purchasing power of average net earnings in CZK¹⁰⁾								
48		2000	CZK/month	10 599	27 728	28 725	21 781	35 220
49		2006	ditto	15 183	33 547	35 162	29 723	44 589
50		2007	ditto	16 080	34 554	35 955	31 414	46 512
51		2006/2000	index	1.432	1.210	1.224	1.365	1.266
52		2007/2000	ditto	1.517	1.246	1.252	1.442	1.321
53	F:CZ ratio	2000	multiple	1.00	2.62	2.71	2.06	3.32
54		2006	ditto	1.00	2.21	2.32	1.96	2.94
55		2007	ditto	1.00	2.15	2.24	1.95	2.89

Notes and explanations:1) The average earnings of single childless employees (not including managers in KZAM 1) in industry and commercial services branches (OKEČ C to K) as per source A corresponding to the average earnings of these employees in their national economies are given as the average gross earnings; 2) Data from source A, for 2007 preliminary data, for 2006 adjusted according to Taxing Wages 2005/2006;3) National currencies: Czech Republic: Czech koruna; Germany, Austria, Ireland: euro; Great Britain: pounds sterling; 4) According to source B; F: foreign national currencies; RILSA calculations; 5) RILSA calculations (row 13 = row 1 x row 6, row 14 = row 2 x row 7, row 15 = row 3 x row 8); 6) Data for 2000 and 2006 as per source B; 7) RILSA calculations (row 29 = row 13 : row 26, row 30 = row 14 : row 27, row 31 = row 14 : row 28);8) Data as per source A; RILSA calculations;9) RILSA calculations (row 40 = row 13 : row 35, row 41 = row 14 : row 36, row 42 = row 15 : row 37);10) RILSA calculations (row 48 = row 40 : row 26, row 49 = row 41 : row 27, row 50 = row 42 : row 28).

Sources: A: OECD: Taxing Wages 2006/2007, Paris, Luxembourg, 2008; B: Czech Statistical Office: Eurostat General Database (Czech version; <http://dw.czso.cz/ode/tab/er011.htm>; 20.2.2008)

(3) From 2000 to 2007 the following factors had an influence of the movement of earnings differentials between the Czech Republic and the countries being compared:

- a) **the faster pace of growth of national nominal average earnings in national currency in the Czech Republic compared to the other states** (see Table 10, section A, rows 4 and 5); the average annual growth in average earnings from 2000 to 2007 in the countries was (%):

CZ	G	A	I	GB
6.2	2.0	3.4	5.2	4.5

- b) **the strengthening of the Czech koruna** against the currencies of the compared states, i.e. to the euro and pound sterling (see Table 10, section B, rows 11 and 12): between 2000 and 2007 the CZK strengthened annually by an average of 3.61% against the euro and by an average of 5.35% against the pound sterling.

The Czech Republic's economic growth in the period in question was a driver of factors a) and b) causing the Czech Republic's nominal and real earnings level to converge with those of the other countries under comparison; the Czech Republic's growth outstripped (to varying degrees) growth in the other countries being compared;

- c) **the movement of the relative price level** of end household consumption (see Table 10, section D) caused a **slowdown in the rate at which purchasing power parity adjusted gross and net earnings in the Czech Republic grew faster** than in the compared countries. The movement of the Czech Republic's price level (as one reflection of the nominal convergence of the Czech economy with the economies of the EU-15) is more rapid than the movement in the "old" EU member states (including those being compared here) and the EU-27 aggregate. The relative price level of the basket of household expenditure on end consumption in the Czech Republic grew by 30.6% from 2000 to 2007 (annual average increase of 3.9%; up to 2006 the annual average increase was 4.2%). By contrast, the relative price level in Germany and Great Britain fell in the same period (by 3% and 7% respectively) and grew by approx. 9% in Ireland. These different dynamics led to a relative convergence of price levels between the Czech Republic and the other countries under comparison. The difference remains marked, however. That led to a slowdown in the rate of growth of purchasing power parity adjusted earnings in the Czech Republic compared to the other countries;
- d) **The level and movement of the aggregate tax quota** on earnings have a different effect on the **differentials of net earnings** in different countries. Tax rates have an indirect, proportionate effect on the differentials – the higher the tax rates in other states compared to the Czech Republic, the smaller the differential of average net earnings between the Czech Republic and the other countries (*ceteris paribus*). In the period under scrutiny the aggregate tax quota in the Czech Republic remained almost unchanged; it grew slightly in Austria (by approx. 8%) and Great Britain (by less than 5%); and it fell slightly in Germany (by approx. 4%) and markedly in Ireland (by approx. 30%).

Taken altogether, the upshot of the international comparison of average earnings in the years 2000 to 2007 is that the convergence of earnings differentials between the Czech Republic and the other countries is a factor reducing the earnings motivation for labour migration. These developments in the relative earnings levels in the Czech Republic and abroad from 2000 to 2007 took place in considerably favourable socio-economic conditions in the Czech Republic: there was high economic

growth making possible fast, non-inflationary, proportional internal growth of nominal and real earnings; the Czech koruna strengthened against the euro and other world currencies; there was relatively low growth in the consumer prices level; and the aggregate tax burden on employees was stable.

3.2 The earnings motivation of the selected groups of specialists to work abroad

3.2.1 The earnings motivation for Czech specialists to work abroad is influenced by a number of contexts that affect the intensity of the motivation, its forms and consequences. The analysis of relative earnings and migration impulses makes allowance for these broader contexts. The following facts are particularly important:

- labour migration of specialists takes place **mainly on the basis of demand from foreign employers** (offers of specific jobs and positions). As a rule, the terms of the work contract are negotiated between the migrant and the foreign employer or through a specialised agency before the migrant moves abroad. Contractual relations are protected by the legislation of the receiving state; these are primarily a question of labour relations. **The upshot of this for the earnings level of migrant specialists is that it is practically no different from pay levels in the host state**; there are no tendencies of earnings discrimination or dumping as is often the case when ordinary (less qualified) migrants are employed;
- highly qualified experts have different attitudes to the earnings motivation of work abroad. The majority of them – experts supplying work and services that require highly demanding theoretical knowledge (doctors, IT/ICT experts, technical engineers – designers, constructors, developers) regard the earnings gain as a fundamental impulse for working abroad. A smaller group, top-level science workers working in basic (academic) research, migrate mainly to prestigious science institutions to take part in top-level projects using state-of-the-art facilities, and the earnings criteria are less important;
- by far the predominant migration intention among highly qualified experts is a **temporary work stay** with a return home to the Czech Republic; 87% to 95% of respondents stating a specific expected time of stay abroad reckoned with temporary migration with a return to the Czech Republic (the length of stay ranges from less than 1 year to more than 5 years); roughly one-tenth to one-twelfth of respondents intends to emigrate permanently. Commuter migration is entirely exceptional among specialists.

The upshot of the predominant migration intentions for the analysis of earnings is that the differential of (internationally comparable) purchasing power parity adjusted net earnings is decisive for the intensity of the earnings motivation for migration.

3.2.2 The basic assessment of the relative earnings of occupations (in the sense of the entirely predominant character of migration intentions and actual migration – its temporary character) consists in an analysis of the differentials of the average values of purchasing power parity adjusted net earnings; Table 11 contains the data necessary for this assessment. In line with the methodological procedures the following are included in the analysis:

- positions: doctor (general practitioner); programmer, machine engineer (designer, constructor); electronics engineer (designer, constructor);

- earnings in foreign countries for the individuals years, their ascertained levels (2004, 2006) and guideline values for 2007. For the Czech Republic, data from the Ministry of Foreign Affairs' Information System on Average Earnings are used; additionally, for the sake of comparison, average earnings in national economies are given.

The data in section B of Table 11 reveal the following:

(1) There is a common tendency in the development of purchasing power for all the analysed occupations (similarly as with average earnings for the national economies, see section 3.1) whereby **there is a relatively faster increase with these occupations in the Czech Republic than in the other countries** between the survey years (2004, 2006) and the guideline values in 2007. Consequently, for all occupations **the earnings motivation for Czech specialists to work in any of the countries decreased in the period under scrutiny**. For the occupations of **programmer** and **machine engineer** there was **actually faster growth in the absolute level of purchasing power parity adjusted earnings** in the Czech Republic compared to the other countries between the years under scrutiny. If this development were to become universal and permanent, the earnings convergence process would enter a new, progressive phase:

occupation	absolute increments in purchasing power parity adjusted net earnings in CZK				
	CZ	Germany	Austria	Ireland	GB
programmer 2004-2007	8 380	474	6 050	7 589	6 026
machine engineer 2006-2007	3 457	1 487	1 050	2 561	2 423

(2) The level of the differentials of purchasing power parity adjusted net earnings, and thus also the intensity of the earnings motivation for Czech specialists to work abroad in the countries under comparison, are considerably differentiated by state and by occupation.

- Differences in the level of the differentials between the foreign countries and the Czech Republic indicate that specialists have an overall higher level of earnings in Great Britain than in the other countries (the values of the differentials are higher than in all the other countries being compared (see the data in rows 11 to 18 of column **k** compared to the data in columns **h**, **i**, **j**). From the perspective of earnings gain Great Britain was therefore the most attractive (advantageous) destination for specialists from the Czech Republic in the period under scrutiny; this is confirmed by the data obtained in the Ministry of Labour and Social Affairs' research into the number of Czech workers registered in Great Britain.

- b) The figures in Table 11 also indicate that Czech specialists get a lower earnings gain in Ireland. The values of the differentials of purchasing power parity adjusted net earnings in this country are lower for all the specialist occupations (see the figures in column **j** of the table);
- c) The earnings positions of doctors in the foreign countries compared to the Czech Republic (the differentials of purchasing power parity adjusted net earnings ranged from 1.6 in Ireland to 3.3 in Great Britain in 2007) indicate a strong earnings motivation to work abroad. The income stimuli, combined with other positive factors ("pull factors") such as the unrelenting demand for medical care in developed countries, the high standard of expertise and erudition of Czech doctors *et al.*, lead to the conclusion that doctors may be regarded as the group of experts in the Czech Republic most susceptible to migration;
- d) In the case of the occupation "programmer", which is a fitting representative of the broad set of specialist professions in IT/ICT, the earnings differential in Germany, Austria and Ireland do not exceed a value of 1.4 compared to the Czech Republic. **There is thus practically no income motivation to migrate to these countries for work**; but the higher general earnings level in Great Britain establishes a stronger earnings motivation for migration for these professions – the differential coefficient is 2.0 (see Table 11, rows **13, 14**). Assessment of the earnings position of IT experts in the Czech Republic from 2004 to 2007 leads to the finding that it was a reflection of the high demand for these professions on the Czech labour market. That was based on the expansion of international IT/ICT companies into the Czech Republic (IBM customer centre, telephone networks etc.). These firms in particular pushed up the earnings level in the field so that it is close to these professions' earnings levels abroad;
- e) The favourable earnings position of IT specialists in the Czech Republic by international comparison is to some extent shared by the "similar" occupation of electronics engineer (designers and constructors of electronic apparatus and systems). The differential of purchasing power parity adjusted net earnings compared to the Czech Republic was slightly above a value of 1.4 in Germany, Austria and Ireland in 2007; the motivation to migrate to these countries for work is not strong. In Great Britain this profession's parity adjusted net earnings are roughly double earnings in the Czech Republic. One factor affecting the earnings level of electronics engineers in the Czech Republic may be the late emergence of the manufacture and use of electronic systems, apparatus and technologies; the earnings assessment may reflect the **"newness" of electronics fields** compared to traditional fields of electrical engineering and **machine engineering**;
- f) The occupation of machine engineer, representing specialists in the development and constructions of machinery and plant, has a specific evolution and position in international comparison of relative earnings. The development of this occupation's earnings position reflects the significant downturn in Czech machine engineering in the 1990s associated with the reduction in the scale of corporate research and development and a number of fields' deteriorating prospects; the earnings level of machine engineering professions fell, as did the interest in engineering studies. The sharp rise in machine engineers' earnings level between 2006 and 2007 (see paragraph 1) reflects the brief period of prosperity enjoyed by certain machine engineering fields in the middle of this

decade. A large, unsatisfied demand for technical engineers emerged. The earnings differential in this profession ranges from 1.8 (Ireland) to 2.3 (Great Britain).

Part Three

Statistical analysis of groups of specialists susceptible to migration

Groups of experts in demand in developed EU states and on the Czech labour market were identified during the research. Demand constantly exceeds supply on internal labour markets in EU member countries for doctors (especially some specialisations, such as anaesthesiologists, internists, surgeons *et al.*), IT/ICT specialists, technical engineers (designers, constructors, developers), and scientists performing pure (academic) research.

Countries implement a number of motivational and institutional measures designed to encourage more people to study the relevant fields in tertiary education and to stem the flow of highly qualified experts migrating to other countries or to persuade them to return to their home country. Countries also facilitate the immigration of foreign specialists by applying simplified residential and work permit formalities and through other institutional and motivational measures.¹⁴

1. Doctors and dentists

The development of the number of doctors (excluding dentists) in the years 1995 to 2006 is shown in the following table.

Table 12 Development of the number of registered doctors (excl. dentists)

year	total	men	women
1995	30 942	15 151	15 791
1996	30 784	14 746	16 038
1997	32 065	15 575	16 490
1998	31 192	14 866	16 326
1999	31 653	14 987	16 666
2000	31 706	14 968	16 738
2001	32 248	15 226	17 122
2002	32 855	15 458	17 397
2003	33 801	16 047	17 754
2004	34 648	16 466	18 182
2005	35 090	16 629	18 461
2006	36 595	17 403	19 192

Source: Institute of Health Information and Statistics (as per the Register of Doctors, Dentists and Pharmacists in the period from 1995 to 2007)

¹⁴ Within the European Union the mobility primarily of science workers to joint EU programmes and centres has a specific function; these international flows are beneficial for all the participating countries, institutions and experts.

The **total number of doctors has been increasing at an average rate of 2.4% per year** since the year 2000. **The average age of doctors was 46.1 years** in 2005 (men 46.4 and women 45.8). The core of doctors is ageing: doctors aged 60 and over accounted for 15.4% and 14.4% among men and women respectively in 2005, compared to 15.1% and 11.7% in 2003.

Roughly 72% of all doctors worked in out-patient care. Measured by doctors' employment engagements, 78% of out-patient care is provided in private facilities. Roughly half the out-patient doctors provide primary care (for children, adolescents and adults, gynaecological and dental care); the other half are out-patient specialists (50% of them work in the out-patient sections of bed facilities).

There is 1 out-patient doctor (including diagnostic services) per 350 inhabitants on average. The increase in the *number* of out-patient specialists outside the out-patient parts of hospitals has already stopped; the provision of primary care has also stagnated.

The medical fields in which most doctors worked in 2006 have remained unchanged for a long time: general medicine for adults, internal medicine, general medicine for children and adolescents and paediatrics; the specialisation of more than a third of doctors was in these fields.

Out of 60 medical fields under scrutiny (Health Statistics Yearbook, 2006), the following were the fastest-growing in terms of the number of doctors between 2000 and 2006: allergology and clinical immunology, gastroenterology, nephrology, endocrinology, trauma surgery, rehabilitation and physical medicine, cardiology and cardiovascular surgery, anaesthesiology and resuscitation. The number of doctors in the following fields is falling: epidemiology, sports medicine and medical assessment for eligibility purposes.

Analysis of the changes in the number of doctors in gradually advancing five-year age cohorts reveals that:

- there was a decline in the number of doctors (which exceeds natural decrease) in the middle age cohorts up to 2002. Doctors left to pursue other professions (e.g. sale of medicines) or emigrated abroad; there are no statistics on the precise structure of the decrease;
- the number of doctors in the advanced age cohorts has been rising since 2003. The ranks of doctors in the middle age cohorts are increased by immigrants (foreign nationals) and returnees (from other professions and from abroad). The records of the Institute of Health Information and Statistics show that the number of foreign doctors has been rising slowly, with a rate of increase of approx. 250 a year in 2004; these are mainly doctors from the Slovak Republic. In the younger age cohorts the source of the increasing number of doctors is graduates from Czech medical faculties (mainly Czech nationals, some foreign nationals that stay on and work in the Czech Republic).

The following table shows the development of the number of **dentists** in the period from 1995 to 2006.

Table 13 Development of the number of registered dentists

year	total	men	women
1995	6 247	2 075	4 172
1996	6 271	2 050	4 221
1997	6 467	2 146	4 321
1998	6 386	2 089	4 297
1999	6 426	2 084	4 342
2000	6 454	2 094	4 360
2001	6 505	2 116	4 389
2002	6 510	2 142	4 368
2003	6 568	2 173	4 395
2004	6 756	2 264	4 492
2005	6 829	2 299	4 530
2006	6 933	2 348	4 585

Source: Institute of Health Information and Statistics (as per the Register of Doctors, Dentists and Pharmacists in the period from 1995 to 2007)

The number of dentists has been rising by 1.2% per year since 2000. Their average age is higher than that of doctors in general; in 2005 the average age was 48.6 years for men and 48.8 years for women. Dentists aged over 60 accounted for 14.8% of the profession (in 2004). **The largest age group in 2006 was the 50-54 years age group**; dentists in this age group accounted for 30.2% of the total number. The field is highly feminised, with women representing two-thirds of dentists; retirement is therefore taken most intensively in the age bands from 55 years upwards.

Analysis of the age cohorts of dentists reveals major decreases in the higher age cohorts. This is evident **in the cohorts of 50 years and older**. The decreases are not sufficiently offset by new dentistry graduates; the number of dentistry graduates has not exceeded 120 per year since the year 2000. Male dentists prolong their professional activity. Men leave the field later, with the biggest decrease after 60 years of age and continuing into the 65-69 years of age cohorts. Female dentists leave the field earlier than men – after the age of 55.

Overall, statistical analysis of the reproduction of medical specialists on the Czech labour market leads to the conclusion that the situation is different in general medical fields from dentistry.

In the case of **doctors**, the tendency whereby their number stagnated in the second half of the 1990s has desisted. Their number grew by 2.4% per year between the years 2000 and 2006 (an absolute increase of approx. 800 people). The Czech Republic is not currently at risk of a nationwide shortage of doctors¹⁵; their quantity is not jeopardised by the relatively substantial migration of doctors to foreign countries.

The main sources of the quantitative reproduction of the number of doctors are: **graduates of medical faculties**¹⁶ (700 to 800 graduates complete general medicine studies every year; that exceeds the decrease in the number of doctors in the oldest age bands, i.e. approx. 450 per year); **immigration by foreign doctors** (around 250 per year in recent years); **doctors returning from work stays abroad probably exceeding the number leaving** (no information is available about the

¹⁵ Demand's partial and usually short-lived excess over supply is chiefly regional in nature, or occurs in the case of certain "small" medical specialisations.

¹⁶ The Czech Republic currently (2007) has 7 medical faculties.

number of doctors returning to the Czech Republic or going abroad); **the prolonging of professional practice by older doctors; and doctors returning to their practice after working in other areas.**

It is difficult to forecast the number of doctors in the Czech Republic over a several-year outlook in view of the uncertainty about the number of foreign doctors working in the Czech Republic and the lack of knowledge about the scale of migration abroad by Czech doctors and how many of them return to the Czech Republic after temporary stays abroad. **Establishing a monitoring system covering all the parameters of demand and supply on the medical professions labour market is an important task for the immediate future.**

The reproduction of the number of **dentists** in the Czech Republic is less favourable than among general physicians. Their number grew by 1.2% per year between the years 2000 and 2006 (an absolute increase of approx. 80). Given the relatively low number of dentistry graduates at medical faculties (at most 120 a year), the high feminisation of the field and the insufficiency of other sources (e.g. low immigration of foreign dentists to the Czech Republic), the number of dentists can be expected to stagnate for the immediate future (up to 2011); that applies on the assumption that the number of graduates does not fall below the current levels and that the taking of retirement remains at the present level (i.e. the same number of dentists will leave the age cohorts of 50-54, 55-59, 60-64 and 65-69 between 2007 and 2011 as between 2001 and 2006).

2. Information technologies specialists¹⁷ with tertiary education

There were 96,300 IT specialists working in the entire national economy of the Czech Republic in 2007¹⁸; 44% of them were university-educated (approx. 42,400). The absolute number of IT specialists and, up to 2004, the proportion of university-educated IT specialists have risen sharply.

Table 14 shows the development of the total number of IT specialists between 2000 and 2007.

Table 14 Development of the number of information technologies specialists in the national economy of the Czech Republic between the years 2000 and 2007

year	number of people	increase (+), decrease (-) compared to the previous year
2000	72 547	-
2001	86 037	+ 13 490
2002	91 223	+ 5 186
2003	81 320	- 9 903
2004	72 950	- 8 370
2005	78 735	+ 5 785
2006	87 606	+ 8 871
2007	96 296	+ 8 690

Source: Labour Force Survey 2000-2007; RILSA calculations

There was an average annual increase of 4.1% in the number of IT specialists from 2000 to 2007 (i.e. approx. 3,400 persons a year); from 2002 to 2004 their

¹⁷ Analysis of the current state and development of the employment of computer specialists uses data from the Labour Force Survey, estimates of the number of tertiary study graduates from the computer study fields at universities or higher vocational schools and the macroeconomic estimate of developments in the OKEČ sections drawn up by the National Training Fund. In the Labour Force Survey, computer specialists can be identified by extended KZAM code and comprise the following groups:

- 213 – scientists and specialists in the field of computer technology
- 2131 – computer systems designers and analysts
- 2132 programmers
- 2139 – other specialists dealing with computer technology
- 312 – technical workers in the field of computer technology
- 3121 – ICT (information and communication technology) consulting
- 3122 – computer technology operators
- 3123 – operators of industrial machinery, NC machinery
- 3129 – other technicians

Use of the Labour Force Survey data should take into account the fact that it is a random sample. Although by adjusting it to the total population it can be used to determine the overall frequency of the analysed groups, the resultant frequencies are random in character; a reliability interval in which the actual frequency lies with a given probability may be defined. For the selected subsets of around 50,000 persons their magnitude is at an interval of $50\,000 \pm 4\,000$ with a 95% probability; the values stated in the analyses therefore only apply approximately.

¹⁸ Data: Labour Force Survey

number had fallen by approx. 18,000, however.¹⁹ After 2004 the number of IT specialists grew sharply, by around 10% a year.

In 2007 IT specialists (defined by the extended KZAM codes 213 and 312) accounted for 2% of the total number of employees in the national economy (in 2005 1.7%, in 2000 1.5% and in 1995 1.2%). In developed European countries in 2005 this proportion ranged from approx. 2% in Germany to 3.3% in Sweden.^{20,21}

Analysis of the supply and demand for IT specialists and the quantitative reproduction of their number in the years 2008 to 2012 leads to the forecast that approx. 26,000 new jobs for IT specialists will be created in the Czech Republic during that period. The Institute for Information on Education's estimate for the number of new tertiary-educated IT specialists in the same period is 20,660 graduates.

This implies that the number of new jobs in IT will exceed the number of IT graduates. These graduates have a very good chance of finding work in the field in the Czech economy; the labour market situation, including relative pay levels compared to foreign countries, does not exert migration pressure on these specialists.

¹⁹ The reduction applied to technical workers in computer technology (extended KZAM 312) not the specialists classified under KZAM 213; the reduction affected 4,200 persons with university education. The probable principal reason for the fall in the number of IT specialists was the fact that the need for individual periphery equipment and maintenance thereof decreased at that time; supplies of peripheries by manufacturers and the fall in their prices limited the number of operator staff. The massive spread of personal computers could also have an influence.

²⁰ Czech Statistical Office: Human Resources in the Information Society; IT specialists

²¹ According to research by CSSI, SPIS, CACIO and the Prague School of Economics **in 2006 firms sought a total of 4 000 university-educated specialists** in information technologies. This high demand was caused mainly by the growth in direct foreign investments in the area of strategic services of firms like Microsoft, DHL and others. Tertiary education in the Czech Republic does not produce that many graduates; other internal sources need to be created to cover this demand (e.g. retraining of graduates from related fields) or it must be done through immigration.

3. Specialists with tertiary machine engineering education^{22,23}

The number of people employed in the group of specialists with tertiary education in machine engineering between 1997 and 2002 fell at an average rate of -2.8% per year; since then it has risen by 4.2% (see Table 15 for more details).

Table 15 Development of the employment of specialists with tertiary machine engineering education

year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	changes		
												02/97	07/02	07/97
employees	61 171	56 981	60 739	56 235	56 331	53 118	55 717	64 274	66 575	67 215	63 276	-8 053	+10 158	+2 105
year-on-year change (%)	-	-6.8	+6.6	-7.4	+0.2	-5.2	+4.9	+15.4	+3.6	+1.0	-5.9	-13.2	+19.1	+3.4

Source: Labour Force Survey; Research Institute for Labour and Social Affairs calculations

Analysis of the age cohorts showed that the decrease in the number of machine engineering experts between 1999 and 2004 also applied to younger age categories; the decrease may represent unemployment, a move to other economic activity or inactivity, or emigration. The findings of the analysis match the timing of the fall in machine engineering output that took place in the 1990s and the resultant decline in the interest in machine engineering occupations (including tertiary-educated specialists).

The estimate for the future need for specialists according to a model defining educational requirements²⁴ is based on the assumption that in the period in question experts with tertiary education in machine engineering will continue to account for the same proportion of employment in the fields they work in. In total, it is estimated that around 10,160 machine engineering experts will be needed to offset the decrease and to cover the growth of the economy.

Table 16 shows the numbers of graduates of higher vocational and university study in the years 2002 to 2007 and the forecast for 2008 to 2012 (the data are adjusted to prevent duplications).

²² Datasets from the Labour Force Survey were used to analyse the current state and development of employment in the group of specialists with tertiary machine engineering education. The estimates of the number of graduates of tertiary machine engineering study at universities or higher vocational schools and the macroeconomic estimate of the development of employment in OKEČ sections were drawn up by the National Training Fund. Tertiary-educated machine engineers are classified as having the following education groups in the classification of core educational fields:

23 - N, R, T, V – Machine engineering and machine engineering production

21 - N, R, T, V – Metallurgical and foundry production

²³ The set of specialists is defined as a cluster determined by education (tertiary machine engineering education) Doctors and IT specialists are characterised by their employment.

²⁴ Estimate of the Institute for Information on Education

Table 16 Graduates of tertiary study in machine engineering entering the labour market

2002 - 2007			forecast for 2008-2012		
year	number	year-on-year change (%)	year	number	year-on-year change (%)
2002	1 381	-	2008	1 440	10.8
2003	1 421	2.9	2009	1 290	-10.4
2004	1 551	9.1	2010	1 280	-0.8
2005	1 354	-12.7	2011	1 280	0.0
2006	1 318	-2.7	2012	1 180	-7.8
2007	1 300	-1.4	change (%)	2012/2008	-18.1
change (%)	2007/2002	-5.8	change (%)	2012/2002	-14.6

Source: Institute for Information on Education, RILSA calculations

The total number of graduates of tertiary study from machine engineering fields in the years 2008 to 2012 should be 6,470. That will not satisfy the demand for experts (10,160 positions). The situation will not be redressed much by the approximately 1,200 unemployed tertiary-educated machine engineers who were unemployed for less than 1 year in 2007 according to the Labour Force Survey and could be join, or compete with, the recent graduates on the labour market. These are older experts, some of whom are unfamiliar with certain new work techniques (the use of computer technology in design and construction etc.).

Overall, the analysis of the supply and demand for tertiary-educated machine engineering experts leads to the conclusion that **a gap between supply and unsatisfied demand will form and widen from the middle of this decade and that it will continue to widen in the following five years.** Considering the fundamental importance machine engineering experts have for the competitiveness and prosperity of the Czech economy, the state, the private sector and the education system – primarily universities – should work together to **set up an array of motivational and institutional programmes to ameliorate this serious situation.**

4. Research and development specialists

There were 69,200 employees (natural persons) working in research and development in the Czech Republic at the end of 2006; that was approx. 5.8% more than in 2005. There were 14.3 R&D workers for every 1,000 employees in the economy. **International comparison of this indicator ranks the Czech Republic in 15th place among thirty scrutinised countries in 2005.** The EU-15 average was 15.9 R&D workers per 1,000 employees; the EU-25 average was 14.9. The figure for the Czech Republic in 2005 is 13.7.²⁵ The Czech Republic comes first among the new EU member states in this regard.

The key criterion for effective research and development is the number, qualifications and erudition of **research workers**. Research workers currently (2006) account for 55% of all employees in the research and development sector in the Czech Republic.

The total number of research workers working in research and development in the Czech Republic in 2006 was 39,676; converted to full-time work the figure is 26,267. Table 17 shows the development of the number of research workers (natural persons)²⁶; in recent years the increase in the number of research workers and in their share of employment in the national economy has accelerated.

Table 17 **Development of the number of research workers in the years 2000 to 2006** (natural persons)

indicator	2000	2001	2002	2003	2004	2005	2006	increase 06/00
number of employees	30 165	29 216	30 635	31 421	34 152	37 542	39 676	9 511
year-on-year change (%)	-	-3.1	+4.9	+2.6	+8.7	+9.9	+5.7	31.5
research workers' share of 1,000 employees in the national economy	6.4	6.2	6.4	6.6	7.3	7.9	8.2	x
number of women employees	9 395	8 409	9 024	89 05	9730	10 827	11 295	2 900

Source: Science and Research Indicators for 2006, Czech Statistical Office, RILSA calculations

The educational structure of research workers is entirely dominated by tertiary education (91.0%); of that figure almost 37% (9,653 persons) completed doctorate study or an equivalent form of scientific education. The categories of research workers also feature a large number of persons with the highest academic ranks (1,218 university professors and over 2,000 with the title "docent", i.e. "lecturer").

In terms of field, the majority of research workers work focus on technical fields (43.2%) and natural sciences (27.3%); one positive fact is that these fields registered the greatest increase in the number of research workers between 2005 and 2006 (11.6% and 10.5% respectively). In other science fields the proportion of

²⁵ Source: EUROSTAT database – the data do not always come from the same base – for some countries data are available for 2005, for others only for 2004 or 2003.

²⁶ Development in the 2000-2006 time series is not possible in the FTE indicator, as the method for calculating this indicator changed significantly in 2005.

research workers does not exceed one-tenth of their total number (in the following fields: medical 9.5%, social 7.8%, humanities 6.5%, agriculture 5.6%).

The age structure of research workers (as found in 2005 and 2006 in the public sector and the tertiary education sector) is developing positively; Table 18 gives the basic details.

Table 18 Age structures of research workers in the public sector and tertiary education sector

age structures of research workers	2005				2006			
	public sector		tertiary education		public sector		tertiary education	
	abs.	%	abs.	%	abs.	%	abs.	%
up to 24	181	2.2	249	1.5	211	2.3	256	1.5
25-34	2 519	30.1	4 196	25.0	2 733	30.4	4 481	26.1
35-44	1 353	18.4	3 381	20.1	1 778	19.8	3 601	21.0
45-54	1 697	20.3	3 904	23.3	1 833	20.4	3 850	22.4
55-64	1 679	20.1	3 693	22.0	1 647	18.3	3 484	20.3
65 and over	750	9.0	1 358	8.1	779	8.7	1 499	8.7
total	8 361	100.0	16 781	100	8 981	100.0	17 171	100.0

Younger research workers are mixed with older ones in both sectors; the total number is split almost evenly between research workers up to 44 years of age and older research workers. The majority of the increase in the number of research workers between 2005 and 2006 was found in the age bands up to 44 years of age; these age bands took a greater proportion of the total.

Summaries and conclusions

The negative effects of brain drain occur when a system imbalance results in a marked shortage of specific specialists in the country of origin. Data reflecting the magnitude of remittances reveal that brain also affects developed countries, including European Union countries. This phenomenon is also evident in the present-day Czech Republic, even though the research findings indicate that it is not yet causing a dramatic decline in the number of tertiary-education workers in the country.

The results of the questionnaire-based survey of the selected groups of specialists susceptible to migration showed significant differences in the intensity of their inclination to migrate. Differences occur both between the groups of specialists and between specialists and the Czech population as a whole. One significant finding is that, with the exception of technical engineers, **the intensity of the inclination to migrate is markedly higher among the tertiary-educated than in the ordinary population. The declared foreign migration of specialists usually covers a longer period of time and comprises a higher proportion of potential permanent migrants compared to the population as a whole.** Specialists also take longer to prepare for their stay abroad, as a rule. The scale of migration among tertiary-educated citizens decreases sharply in direct correlation to the preparatory activities performed (that also applies to the Czech population as a whole).

The differences in the intensity of migration among the individual groups of specialists under scrutiny are caused by a number of specific circumstances that either dampen or augment the motivation to work abroad.

The scale of migration among doctors is influenced primarily by the high and constant demand for doctors in practically all economically developed countries (linked to the increased need for healthcare as a result of population ageing and the higher incidence of chronic illnesses). One characteristic feature of the medical profession both in the Czech Republic and abroad is the doctor's personal presence in the workplace and, in the overwhelming majority of cases, direct contact with the patient; working abroad therefore requires active language proficiency. The intensity of migration among doctors continues to be positively determined by earnings motivation, as the relative level of incomes offered abroad has to date been sufficiently motivating for doctors from the Czech Republic. Doctors' dissatisfaction with income levels (especially among young doctors entering the profession) and the moods and uncertainty surrounding the introduction of healthcare reforms increase Czech doctors' motivation to go abroad.

The motivation and scale of foreign migration among IT specialists is influenced by the considerable unsatisfied demand for these specialists on the Czech labour market as a result of international companies' expansion into the Czech Republic and establishment of international customer services centres in this country. The growth of the IT field in the Czech Republic is more marked than in the majority of typical migration destination countries and the earnings level of IT specialists comes close to their foreign counterparts'. The nature of IT specialists' jobs, often not requiring their physical presence in the workplace, enables them to work for a foreign employer without needing to change their environment; they can improve their language skills and gain experiences with the culture of work in an international company in the Czech environment. It can be inferred, therefore, that the motivation to work abroad is and will remain weaker among IT specialists. Instead, we expect that IT specialists will be transferred between positions and between countries within

the context of transnational companies. Migration of this type is linked to globalisation processes and usually does not have negative effects for the migrant's country of origin.

Migration by technical engineers working in corporate development is influenced by the high expertise required of engineering occupations and the sharp expansion in machine engineering and electronic fields. Machine engineering and, above all, electronics fields are, like IT, growing fields in the Czech Republic and foreign investments ensure that specialists have a good earnings level in the Czech conditions. Despite their frequent contacts with foreign colleagues, Czech engineers only seek to work abroad to a limited degree; we do not expect this situation to change much in the future either.

The greatest interest in working abroad was registered among **future protagonists of science and research, i.e. doctorate students** at universities in Prague. **The migration of doctorate students is specific in nature, however.** Scientists' decisions to migrate are not determined primarily by income levels abroad but by academic and intellectual motivations (prestigious institutions, state-of-the-art facilities, interesting research projects), a broad base of international scientific contacts and their own social networks. The scale of migration differs from one scientific discipline to another. It was found that proclaimed potential mobility is higher among respondents from the medical sciences and natural sciences fields, who also display the lowest level of satisfaction at the prospects for future growth in their chosen field in the Czech Republic. Economists and representatives of technical sciences rate their prospects in the Czech Republic most highly and their motivation to work abroad is relatively low. Generally speaking, working abroad both helps the scientists' scientific career and helps form domestic educational potential.

The Czech Republic was at risk from internal migration, i.e. science and research experts leaving their field to join the private sector (finance, business etc.) up to the middle of the 1990s. Since the Czech Republic joined the EU, however, spending on research and development has been increasing constantly and a number of research projects, both Czech and foreign, have enabled more Czech scientists to find work in the domestic intellectual and academic sphere. If the existing conditions remain unchanged we do not therefore expect a large-scale exodus of scientists going abroad.

In general terms, the readiness to migrate among the tertiary-educated is influenced by age, language skills, family circumstances and personal qualities. The majority of respondents were not motivated to leave the Czech Republic for good. The reason for this was strong family ties and concerns about the different socio-cultural environment and the status of being "foreign" in the receiving country. We believe that the **risk of brain drain does not at present represent pronounced quantitative losses in the Czech Republic, but rather qualitative losses.** Among doctors, for example, it is alarming that experienced middle-aged specialists (with two and more attestations) are planning to go abroad as well as young doctors. As the Czech Republic does not possess sufficient information about incoming experts from abroad or about their degree of integration into Czech society, we do not know to what extent the incoming foreign experts can replace the outgoing Czech experts.

The income profile stemming from the differences in the purchasing power of earnings attained in developed west European states and in the Czech Republic is

stressed as a fundamental factor motivating all the analysed professional groups to go and work abroad.

Foreign economic studies have shown that a three and more times higher earnings level in a rich (target) state leads to a pronounced tendency for potential and actual migration from poorer countries; if, however, the target earnings level does not exceed the wage level in poor countries by more than 40% the motivation to migrate is substantially diminished.

The convergence of the nominal and real earnings level in the Czech Republic has been taking place gradually and slowly since the 1990s; the lack of sound, internationally comparable data make a more exact assessment impossible. The analysis done by RILSA in this study shows that there was convergence between the Czech Republic and the scrutinised west European countries in all the earnings characteristics that are significant for migration: at the average national level the differences in net nominal earnings shrank by approx. 20-40 percentage points; in purchasing power parity adjusted gross earnings by approx. 12-20 percentage points; and in purchasing power parity adjusted gross earnings by approx. 5-18 percentage points.

The analysis indicated that the convergence of both nominal and real (parity adjusted) earnings took place in conditions of pronounced differentiation between the states under comparison, between the scrutinised occupations of highly qualified specialists and between the earnings characteristics determining the intensity of motivation by type of migration (commuting, temporary or permanent residential migration).

The highest relative earnings level compared to the Czech Republic in 2007 was found in Great Britain and the lowest in Ireland; Germany and Austria occupy a middle position (very close to one another).

The earnings position of the compared occupations of specialists in international comparison reflects both the universal earnings level in the individual countries and the difference in their specific remuneration in each country, influenced primarily by the prestige of the occupation and its current standing on the national labour market. Seeing that the overwhelming proportion of Czech specialists (from 85% to 95% depending on the occupation) expresses a preference for temporary migration (a few years, as a rule) to a foreign country followed by a return home, the intensity of their motivation to take this step is determined by the international differences in purchasing power parity adjusted net earnings. According to this criterion, the greatest intensity of earnings motivation was found in doctors (purchasing power parity adjusted net earnings in Great Britain are 3.3 times the level in the Czech Republic; in Ireland, Germany and Austria it ranges from 1.6 times to 2.1 times the level in the Czech Republic). By contrast, there is practically no earnings motivation for programmers to migrate to Germany, Austria and Ireland: purchasing power parity adjusted net earnings in these countries exceed this occupation's level in the Czech Republic by just 5% to 20%. For technical engineers ("machine engineer", "electronic engineer"), purchasing power parity adjusted net earnings in Germany, Austria and Ireland exceed the level in the Czech Republic by from 40% to 90%; in Great Britain it is roughly double the level in the Czech Republic.

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Appendix

Appendix 1

Educational structure of the population of the Czech Republic and the development of tertiary education from 2000 to 2012

The following features are characteristic of the educational structure of the population of the Czech Republic in the 25 to 64 age band compared to the situation in the EU:¹

- **high proportion of secondary education**². This proportion is the highest of all EU-25 states in both genders (men 79.1%, women 74.6%, arithmetic mean 76.8%); that is far higher than the EU average (47.6% and 44.6% respectively, arithmetic mean 46.1%);
- **significantly lower proportion of people with tertiary education**³ (men 14.5%, women 11.6%; mean roughly 13%); the average proportion for the EU-25 is men 23.2%, women, 22.7%, mean approx. 23%). In terms of the proportion of tertiary-educated people the Czech Republic ranks in the bottom quarter of EU member states (along with Slovakia, Italy, Malta, Portugal and Poland)⁴.

The low proportion of tertiary-educated persons in the Czech population creates an obstacle to the attainment of a knowledge-based economy, which is a key precondition for the national economy's competitiveness and prosperity in the medium term.

In the first years of this decade there has been an acceleration in the quantitative growth of tertiary education in the Czech Republic; in all forms of third-cycle study the number of first-time enrolled students rose from approx. 65,000 to approx. 97,000 between the 2001/2 and 2006/7 academic years (i.e. by 49% in total, with an average annual increase of 8.3%). In the Czech Republic's internal educational structure the proportion of new students of higher vocational schools has fallen (from approx. 20% to 12%). The rapid increase in the number of first-time enrolments at universities was significantly influenced by the large-scale introduction of bachelor's degree programmes from 2002. The annual rate of growth of new university students has reached 10.3% (see Table 1).

Table 1 **Number of students enrolled at universities in the Czech Republic**

	2001/2	2002/3	2003/4	2004/5	2005/6	2006/7	total increase (%)
in absolute terms	52 198	57 862	66 090	71 808	75 727	85 038	32 840
annual increase	-	10.9	14.2	8.9	5.5	12.3	62.9

Source: Institute for Information on Education, RILSA calculations

¹ For the year 2005 Eurostat gives the last available data on basic educational structure for the countries of the EU and European Economic Area structured by men and women (source: internal unpublished material of the Czech Statistical Office).

² What is known as "higher secondary education", i.e. the 3rd and 4th levels of ISCED.

³ The aggregate of levels 5 (higher vocational and university education) and 6 (advanced research education) of ISCED.

⁴ The total sum of persons graduating from the second and third educational cycles (approx. 90% of all in the age band under scrutiny) reveals that just one-tenth of the Czech population had only elementary education in 2005; the proportion of such persons in the aggregate of the 25 EU states is more than triple that (roughly 31%).

The number of tertiary-education graduates (higher vocational schools and universities), i.e. experts entering the labour market, increased much more slowly: by 3.6% per year, with the development spread unevenly between the individual years (Table 2).

Table 2 Graduates of higher vocational schools and universities entering the labour market¹

	2001/2	2002/3	2003/4	2004/5	2005/6	2006/7	total increase (%)
in absolute terms	29 194	28 206	30 507	30 708	30 470	34 876	5 682
annual increase	-	-4.0	8.9	0.7	-0.8	14.5	19.5

Source: Institute for Information on Education, RILSA calculations

Notes and explanations: 1) Duplications, especially bachelor's study graduates going straight on to master's degree study, have been eliminated.

Factors influencing the relatively small increase in the number of tertiary education graduates entering the labour market (compared to the rapidly increasing number of new students) include the lower number of students at the end of the 1990s, the gradual reduction in the number of students as a result of premature termination of study (study failure, change of orientation in life) and, in recent years, bachelor's degree students moving on to full master's degree study.

For the period up to 2012 the Institute for Information on Education forecasts a pronounced increase in the number of graduates of all forms of tertiary education entering the labour market. The time shift in the completion of studies by a higher number of students in individual years is gradually being manifested; the increase in the "net"⁵ number of graduates between the academic years 2006/7 and 2011/12 is predicted to be almost 80% (12.1% increase year-on-year); Table 3 gives more details.

Table 3 Forecast for the number of graduates of higher vocational schools and universities entering the labour market

	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	total increase (%)
in absolute terms	34 876	38 330	42 150	48 550	54 750	61 850	29 974
year-on-year increase	14.5	9.9	10.0	15.2	12.8	13.0	77.3

Source: Institute for Information on Education, RILSA calculations

The structure of the completed study fields is a serious problem in the quantitative growth in the number of tertiary education graduates. The Institute forecasts the following average annual increases in the number of graduates by fields in the 2008-2012 period:

fields	annual average (%)
economics	20
law	12
other social sciences	12
natural sciences	10
machine engineering	-4.9

⁵ I.e. without duplications, e.g. students going straight on to master's degree study after finishing bachelor's degree study.

The fall in the number of graduates of machine engineering fields will mean that the gap between the demand for and supply of domestic specialists in this field will increase (for more details see section 3.3).

To sum up, it is a reasonable assumption that the proportion of the population (aged between 25 and 64) accounted for by tertiary-educated specialists will increase by roughly 4 percentage points, i.e. from approx. 13% to approx. 17% between 2005 and 2012.

Appendix 2

Comparison of working conditions for qualified labour in the Czech Republic and abroad and benefits of working abroad

This appendix contains a selection of the results of the qualitative survey of tertiary-educated specialists who have returned to the Czech Republic from a long-term stay abroad. The aim of the survey was to ascertain the degree of integration (adaptation) by Czech specialists of various professions who had returned from more developed countries to the Czech Republic. The survey was conducted in the second half of 2008 with Czech specialists who had worked in qualified positions abroad. The method used was managed face-to-face interviews; 17 interviews were conducted¹.

In one part of the survey the experts compare their experiences with pay conditions, relationships in the workplace and the organisation of work in the Czech Republic and abroad. The general comparison is followed by a comparison of the working environment in universities and in healthcare (specifically, the testimony of a respondent working at a Canadian university and of three Czech doctors). Respondent no. 16 compares work in a Czech and a German hospital; respondent no. 17 speaks of his work experience from a hospital in Australia; and respondent no. 15 adds some remarks on dentistry practice in Northern Ireland. Respondent no. 5 draws attention to working conditions in the social services in the Czech Republic compared to abroad.

For the sake of authenticity we present the respondents' abridged, actual quotes.

a) comparison of pay conditions

In the surveys of the migration potential of the Czech population and of tertiary-educated specialists conducted by RILSA in 2003, 2005, 2006 and 2007 the most important motivation for working abroad is the earnings motivation. It is therefore no surprise that all the respondents mentioned higher level of incomes in the receiving country. This is emphasised most strongly by doctors.

"A dentist's income in Ireland is three to four times higher than I have here with long-term experience."

"I work in a private hospital where I have an above-standard income, but it's still half the income in Germany..."

"In Australia I was ten times better paid than here, if I count all the bonuses."

b) comparison of working relationships

The comparison of working relationships abroad and in the Czech Republic does not permit any categorical conclusions. Some respondents rated relationships in the workplace abroad more positively; others did not find any pronounced differences in this regard, or attributed it to a specific company and the composition of the staff in it.

¹ For more see Vavrečková, J. - Hantak N. Pracovní zkušenosti českých kvalifikovaných pracovních sil z pobytu v zahraničí (zejména státech EU) a jejich postoje k návratu do ČR. Prague: RILSA, v.v.i. 2008, ISBN 978-80-7416-019-6

"Working conditions were completely different; people at work helped each other out more, they understood better how to work together to fulfil a task. Paradoxically they left their desks more often to have a coffee or a cigarette, but that did not mean lower productivity. Put simply, they knew how to make their work more enjoyable, but their performance certainly wasn't worse than in the Czech Republic. We worked at a particular tempo based on a system that delivered results." (respondent no. 4, Ireland)

"I'd say there were also differences in relationships in the workplace – abroad they are much warmer, more sincere and open. But you can't conceal mistakes in your work like that; there is stricter control, but not harassment, which is how I see it in the place I now work in since coming back." (respondent no. 11, Prague University of Economics, Canary Islands)

Conversely, respondent no. 9 (software engineer, Bermuda) drew attention to a certain insincerity in workplace relationships.

"Bermuda's near America and they have American culture. The culture is pretty different; they're almost hypocritical and try to outdo each other; they're always the best and the firm is always doing great, even if that's not the case. Everyone smiles there, but hardly anyone in the firm tells you their opinion."

c) comparison of work organisation

Respondent no. 8 draws attention to worse working conditions and work organisation in the Czech Republic compared to abroad.

"The management in Czech firms is chaotic. No specific responsibility is defined, attention is paid to unnecessary matters... and not much progress is made. We're team players, but ultimately it ends up that in a team of seven people two do the work and nobody basically cares about it; that's terribly demotivating."

Working conditions at university, in healthcare and the social field

Working conditions at university (Czech Republic/Canada)

"The main difference is the way scientific work is financed and managed. The grant budget is not as structured like it is in the Czech Republic; it's basically divided into two parts – remuneration for workers and everything else. Administration is easy. Scientists there are secure in life, they have a certain income guaranteed, they are not governed by any tables. The project leader has much more opportunity to use the finances the way the project requires. Science workers are secure in life, so they don't need to look for other ways to earn money, like they do in the Czech Republic. And the tuition obligations are much lower than they are in the Czech Republic."

Working conditions for a hospital doctor (Czech Republic/Germany/Australia)

"The staff facilities are much better in the German hospital. The medical apparatus is comparable. Germans save more on medicines and services for patients."

"In Germany there was less administrative work. There wasn't the kind of pointless hassle that there is in the Czech Republic. It's based on the fact that doctors earn money for the hospital. The management does everything it can to try to resolve any problem and in a way that is the least hindrance for doctors, so they can keep working and earning money for the hospital. Doctors are still overburdened in the Czech Republic."

"In the Czech Republic there is no distinction between capable and incapable, attested or unattested doctors. There is no reward for quality of work. While I was at the hospital in Jihlava a few attested doctors left, and their places were filled by unattested young doctors – and everyone carried on as normal. Here there is no distinction between people."

"If you want to open an out-patient practice as a specialist, you have to satisfy strict requirements and demands. In the hospital nobody cares. If qualifications became a relevant issue, a lot of hospitals would have to close."

"Services are organised differently in Australia. The doctor does not work in the hospital but at home. Doctors have a much smaller workload there and everything is better-organised."

"In Australia there was one ordinary nurse for every 4 patients plus one medical nurse; in the hospital in the Czech Republic there was one night nurse for the entire ward."

"The equipment in the hospitals is comparable. There is an enormous difference between private and public hospitals."

Working conditions in dentistry (Czech Republic/Ireland)

"The equipment in dentists' surgeries is comparable with the Czech Republic, there's no difference. In the Czech Republic there's a more comradely spirit, though; competition between dentists is much stronger there... It's more difficult for foreign doctors in Ireland, as they have to start from scratch and get sent cases no one else wants."

Observations from the social field

The respondent studied social pedagogy and was therefore interested in work in the social sphere. In England she worked on a project for the mentally disabled, involving work directly with clients, where she gain a lot of valuable experience she intended to put to use in the Czech Republic. For financial reasons she now works in a different field, however.

"...when I got back from England, where I worked with retarded children, I came across the problem here that the pay conditions in the social area are crazy – 10 to 15 thousand koruna gross. People who do direct social work earn less than someone who stacks shelves in a supermarket... That was out of the question, I've got to support myself; abroad this work is valued much more highly and better-paid."

Benefits of the stay abroad

The respondent specialists shared the opinion that their time abroad was a **great benefit** for them both **in personal terms** – greater independence, self-confidence, assertiveness etc. – and **in professional terms** – gaining experience of a different working environment, different work methods, making professional contacts etc.

"You get to know a different working environment and see how things work in other places; it can inspire you. I learnt good French. I gained experience in how to deal with practical things (looking for a place to live, opening a bank account etc.). You have to mobilise yourself more, and it's a good experience that I succeeded."

All without exception gained **language skills**; the respondents speak at least two international languages. Language skills improve further in the event of repeated stays in different parts of the world. Knowledge of four international languages, three of them to a very good standard, is no exception among the respondents (see Table 1).

Table 1 **Subjective assessment of respondents' current language skills (abs.)**

language	fluency	active knowledge	passive knowledge	basics
English	13	4	-	-
German	4	4	3	2
French	-	3	2	1
Spanish, Italian	-	1	3	2
Russian	-	4	5	3

Source: RILSA survey 2008

In terms of expertise, **finding out about new work procedures, technologies, methods and organisation** was rated positively; **the assimilated ability to deal with problems more rationally** was also appreciated.

"...the important thing is to experience a new reality and thus broaden your horizons. To this day I'm grateful that I can use this kind of understanding and in stress situations I can ignore what isn't important; I don't rush around like mad, I go to the heart of the problem and don't get over-emotional... The need to resolve things on the basis of data and analysis, and not by emotively heated argument, is evidently the greatest asset I gained and use every day; I am grateful to my "teacher" in Ireland, who I "shadowed" for a year and a half and who taught me that."

"In work terms it was excellent that I gained new experiences, new approaches – they teach theory differently from us here, for example. But on the other hand the Canadians were also interested in my experiences."

The majority of respondents also rated positively **the increased self-confidence and ability to cope with stress situations** that living abroad brings. That leads to greater independence than is common in their peers in the Czech Republic and **they learn another approach to life and to recognise their own value.**

"I proved to myself that even abroad, in an unknown environment where they speak a different language, I am able to find a pretty good job, somewhere to live... that gave me self-confidence..."

"I had to learn German and communicate with doctors in the field; communication by phone was the worst thing. At the same time I learnt that Czech doctors are well prepared and we don't need to be ashamed of our ability. All that boosted my self-confidence and helped me appreciate my own worth."

Increased self-confidence is reflected in the respondents' behaviour and their reaction to shoddy work and poor quality in the Czech Republic.

"Lots of people are afraid to speak up here – I told that woman who repeatedly shouted at me at the labour office that we should get one thing clear: that I'm here because I want help finding a job and you're paid out of our taxes to help me in this situation. That you're not helping me by shouting at me. So I'd ask you to change your behaviour towards me at once, otherwise I'll be forced to take a different approach to this situation. The lady apologised."

"...I'm starting to see things here in a different light; society there works on a slightly different basis, so there has also been a shift in my thinking... after spending three years abroad certain things I didn't mind before, because it was what I was used to, have started to seriously matter to me, and I can't just ignore them now."

After returning home the respondents managed to make use of the experiences they gained abroad and their time abroad positively affected their work career. Only one respondent (graduate from hotel school) was sceptical in this regard. Since returning to the Czech Republic he has worked as a head waiter (which is understandable given his university qualifications), but on closer analysis he admits that knowledge of three international languages would enable him to work in the city centre, in luxury hotels with international prestige and clientele.

Respondents who went abroad with their family emphasised the benefits of the time spent abroad for their family members as well (getting to know a different country and culture and gaining language skills).

The survey is not representative (with regard to the number of respondents and the variability of the survey sample) The substance of the findings therefore cannot be generalised, but **the ascertained findings may serve as a good impulse for expert debate and deeper deliberation on the problem at hand.**