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DEVELOPMENTS IN EDUCATION AND INTERNATIONAL MIGRATIONS IN NEW MEMBER STATES OF THE EU

Abstract: The paper examines the development of education systems and international migrations in selected new Member States. The countries are Estonia, the Czech Republic and Slovakia. The paper focuses on various elements in the development of education systems making people able to cope with competition on global labour markets. The outcomes of these developments largely regulate the supply of labour and consequently its international demand. Some statistics on international migration and integration of migrants in global labour markets are presented. The aim of this paper is to raise questions about relevant issues to be paid attention to in studies focusing on education and international migrations rather than to try to give any straightforward solutions.

Key words: education system, international migration, new Member State, EU, OECD, labour market, globalisation.

1. INTRODUCTION

The new Member States of the EU have experienced rapid and dramatic developments particularly in the 1990s but also in the 2000s. The change has gone through all societal sectors in response to the challenges of market economy and globalisation. In this paper, education systems and their development are the main topic, and labour markets are considered as global platforms for the mobility of human capital, that is, for the migrations of educated and skilled and less skilled labour. The three countries have been selected as examples of especially rapid development in Europe. The countries are Estonia, the Czech Republic and Slovakia. Developments have not been similar in all new Member States; in spite of the trends that are more or less common to all, every country is unique. Estonia, the Czech Republic and Slovakia serve as examples of

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sufficiently different Member States in a phase of dynamic development to give various perspectives to this study. Estonia is a country in the Baltic Sea Region in a dynamic phase of development while the other two are examples of those in Central Europe.

In this paper, education is seen as a condition for international migration of labour force creating, maintaining and renewing opportunities for migrations by making labour force able to cope with competition on global labour markets. While not going deep into the problem of the definition of globalisation, I start by referring to the editors' note on human mobility and globalisation presented in a book on globalisation (Kultalahti *et al.*, 2009, pp. 13–16): 'Globalisation may also be seen as a selective process differentiating the migration options of various ethnic, professional, educational and other population groups'. This note aptly defines the starting point of this paper; globalisation implies various processes, of which developments in education and human mobility are among the most important. It also refers to a strong interrelationship between these processes.

The paper is divided into two parts: (1) the development of education systems and (2) the development of international migrations, both immigration and emigration, in the selected three Member States of the EU. In the first part the development of education systems in the 1990s and 2000s will be described and analysed using mainly national, EU and OECD reports, documents and statistics. The aim is to identify similar and different trends in terms of the development of education and global competitiveness of the labour force. In the second part international migrations will be analysed by using data bases of the national, EU and OECD statistical offices. Emigrants' and immigrants' educational attainment, labour force participation, unemployment and matching of the education and job requirements of the emigrants from and immigrants to those three countries will be analysed. The focus is on whether the developments in education are reflected in international migrations. In addition to statistical findings the aim is to bring into focus relevant questions and research problems concerning international migration and the imbalance in the supply of and demand for labour.

2. DEVELOPMENTS IN EDUCATION

The development of education systems in the three countries under scrutiny has been different. Attention will be paid to the following aspects of education: changes in education (institutions, attainment, lifelong learning) and bridges between education and the labour market. These issues are closely related to international

human mobility and globalisation. Therefore in this paper the relationship between education and the labour market is investigated by focusing on the mobility and integration of educated labour force.

2.1. Changes in Education

The 1990s was a period of reform of entire societies and education systems were among the top priorities. In the mid-1990s the figures of investments in education were biggest and after the basic investments the expenditures declined. Estonia used 25.5% of its government expenditure for public education in the period 1995–1997 and the Czech Republic 13.6%,[1] while for the same purpose the developed countries invested about 10% of their respective expenditures (UNDP, 2000, pp. 194–195). These percentages reflect the different sizes of economies, both in absolute and relative terms. This explains the small figures in the developed countries, and also some of the differences between the then transition countries.

In Estonia the education system went through fundamental changes after the restoration of the independence at the beginning of the 1990s. In the 2000s, higher education was under reorganisation and the development reflects particularly the structural changes needed to meet the demands of global economy and culture, while it also characterises the fragmentation and competition of the Estonian higher education landscape; demographic pressure and economic difficulties challenged the renewal of the education system. As for higher institutions as such, the Estonian higher education landscape is diverse (see Rummo-Laes, 2007, p. 48; ECA, 2010, pp. 17–21).[2]

A problem concerning participation in education is the increasing gender imbalance in higher education, particularly in Estonia. Women account for a major proportion of the total number of students admitted to academic institutions and also of graduates, both in absolute and relative terms. The same tendencies appear on all levels of higher education. The increasing gender imbalance is also linked to the large number of students, particularly boys, leaving school before completing even their basic education. A similar tendency is also seen in lifelong education and in all adult education (see Randoja, 2009, pp. 81–83).

The recent economic recessions in the 2000s have caused problems. The following citations illuminate the situation. Rummo-Laes (2007, p. 45) concludes that there is stratification and a deepening contrast, related to the economic problems in the mid-2000s, between school standards and the values prevailing in society. This contrast is an essential reason for discontinuing education. The

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[1] Data refer to the most recent figures available during the period 1995–1997 (UNDP, 2000, pp. 194–195). No corresponding figures available for Slovakia.

[2] On Estonia's state and private professional higher schools see e.g. http://www.hm.ee/kogumik2009/en/ (SE, 2006, pp. 87–88).

Estonian Human Development Report (ECA, 2010, pp. 18–21) states that vocational education is not able to sufficiently produce qualified workers to meet the needs of the economic structures; actually the greatest weakness of the Estonian education and research system clearly lies in the problem of compatibility of the educational content with the needs of the people and the labour market. The other problems and weaknesses to be seen in the Estonian education policy are according to the report a danger that the companies necessary for future growth fields will leave Estonia or not come to Estonia, and brighter people may leave the country. In addition, quantitative educational indicators – which are good in Estonia – do not sufficiently reflect weaknesses in the quality of higher education resulting, from the point of view of the labour market, in so-called 'formal over-education', and the participation of adults in lifelong education lags behind the indicators for successful countries. Due to these and other reasons a risk exists that valuable human resources will be lost through discouragement and emigration.

The Czech and Slovak Republics had their basic institutions in common until the split into two independent states at the beginning of the 1990s. In this millennium, the Czech Republic shows an upward trend**;** the emphasis has clearly been on the public universities, which is reflected in steady growth in the 2000s. The same emphasis also appears in the number of student enrolments and graduates from the tertiary education level (OECD, 2009, p. 49). The review team reports both positive steps in developing study opportunities in tertiary education and persistent weaknesses concerning access and equity. Although the public funding devoted to student support is relatively modest, positive steps have been taken in housing support, scholarship programme for low-income students and in the social support system (see OECD, 2009). Weaknesses appear in the weak integration of planning, policy and analysis between the systems of secondary and tertiary education and in the form of student support. The report (p. 15) lists, among others, the insufficient internationalisation of study at most schools as a weakness manifesting itself in minor use of foreign literature in their original foreign languages, and in poor interaction between foreign students, few in number, and their Czech peers.

In Slovakia the developments followed somewhat different trends in the period 1995–1997; in relative terms, primary education received more and secondary education less resources than in the Czech Republic. The problem concerning the allocation of resources between the educational levels, compared to the corresponding figures in the Czech Republic, is probably related to differences in the internal structure of the secondary education in the countries. In Slovakia only about half of the students in secondary education attended grammar schools and specialised secondary schools that are the main sources for tertiary enrolments in the country. For this reason, according to the Slovak Ministry of Education in the 1990s, enrolments in non-vocational schools should rise at the expense of shorter

vocational secondary programmes (Čaplánová, 1999/2000).

As for the higher education system, Slovakia has undergone fundamental changes since the fall of the iron curtain. Several new universities have been established, others were merged from existing institutions. The number of students more than tripled by the late 2000s. However, in spite of this enormous expansion Slovakia's share of the population with tertiary education reached only 58% of the EU-25 average. The rapid expansion with the focus on student numbers and consequent institutional grants has implied other problems too, such as increasing drop-out rates, particularly in technical and natural sciences, lack of sufficiently differentiated qualification profiles and discrepancy between the distribution of graduates and demands of the labour market (see Jensen *et al*., 2008, pp. 13–34).

The relationship between investments and developments in the education systems, and skill formation is complicated. Skill formation does not only depend on the material resources available but also on the consensus, values and other intangible resources needed in the development of knowledge and know-how. In addition, in the earlier phases of the development, smaller resources may lead to a greater relative change, sometimes even to a greater absolute change. It is reasonable to assume that the impulses based on social multiplier effects promote the development more than the available material resources alone give reason to expect. The figures concerning the resources undoubtedly set certain limits to the development, yet they easily also lead to excessively straightforward interpretations.

In the following, a few figures on educational attainment will be presented by referring to Eurostat statistics.[3] The share of population having completed at least upper secondary education has grown steadily in each country. Given the different education systems the figures are not completely comparable between countries. The general trend is quite informative as is also the high level of the percentages.[4] As for tertiary education, there are more essential differences between the countries. In Estonia the emphasis has particularly been on tertiary education; 30% of the population aged 15 to 64 in 2009 had tertiary education.[5] In Slovakia and the Czech Republic the corresponding figures were less than 15%. In all three countries the trend is upward.

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[3] The indicator of educational attainment shows the percentage of the adult population (25–64 years old) that has completed upper secondary education. The indicator aims to measure the share of the population that is likely to have the minimum necessary qualifications to actively participate in social and economic life. It should be noted that completion of upper secondary education can be achieved in European countries after varying lengths of study, according to different national educational systems (see http://www.stat.ee/29938; Eurostat, 2010, http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home, Statistics Database.).

[4] Source: Eurostat, http://www.stat.ee/29938.

[5] Source: Eurostat (2010), http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home

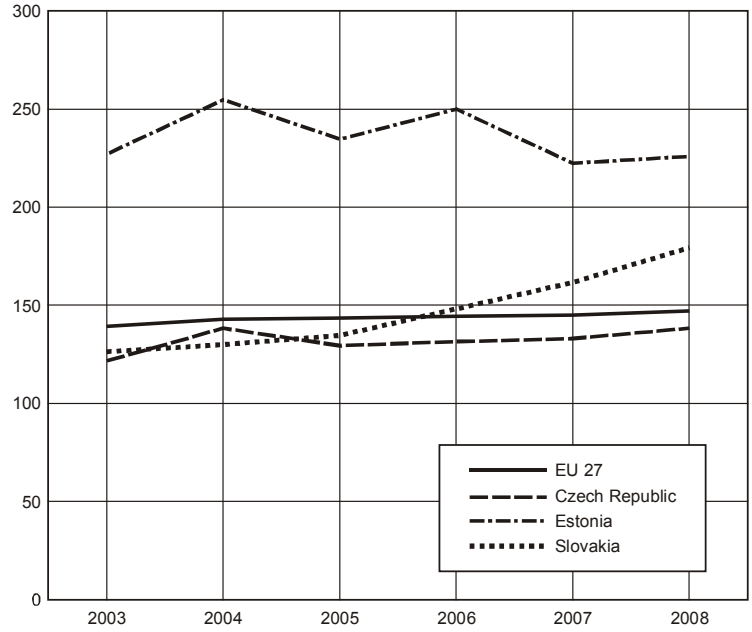

Fig. 1. Tertiary education graduates (women per 100 men)
Source: Eurostat, http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=educ_itertc&lang=en

Differences between women and men are surprisingly great; in the EU27 there were about one hundred and forty-five female graduates per one hundred men in 2003 and the curve shows a slow but steady growth during the entire observation period up to 2008 (figure 1). There is a strikingly great difference between women and men in Estonia; the greatest ratio is 250. There is probably no simple explanation for gender differences. Studies indicate that the most pronounced gender difference in achievement is the advantage of girls in reading. On average girls read more and enjoy reading more than boys. The result is consistent across countries, different age groups, survey periods, and study programmes (EACEA P9 Eurydice, 2010). However, the differences between countries shown above indicate that there are other factors in cultures and local circumstances underlying these differences. For example, a report of the Statistical Office of Estonia (SOE, 2001, pp. 25–26) concludes that:

> […] the educational environment at the upper level of the basic school – the syllabi and the (predominantly female) teachers' teaching style – does not take much account of gender differences. All this leads to a high rate of dropouts particularly among boys. […] Drawing conclusions on the basis of various figures without considering the background information may be very precarious.

For the labour markets the situation is different, the process is continuous and accordingly, the assessment of the benefit cost ratio is continuous.

Lifelong learning is another indicator reflecting people's desire to have command of their own lives. Naturally, this kind of desire for knowledge and skills is

also likely to make a migration decision easier. In this connection lifelong learning is considered to cover all purposeful learning activity undertaken on an ongoing basis with the aim of improving knowledge, skills and competence. The EU-27 data by Eurostat concern both formal education, i.e. part of formal education programme, and non-formal education and training (see Eurostat, 2010, pp. 269–276). The great majority of the respondents in the survey participated in non-formal education and training and most of the education and training was job-related, the main reason being to improve their career prospects (64%). Getting knowledge or skills relating to interesting subjects (51%) and getting useful skills/knowledge for everyday life (30%) were also common reasons.

The share of those aged 25 to 64 having received education or training in the four weeks preceding the EU Labour Force Survey is fluctuating but a rising trend is obvious in Estonia whereas in the two other countries the changes are only minor (figure 2). The year 2002 showed an exceptionally large share in Slovakia, coming down to the lowest value a year later. The Czech Republic and Estonia belonged to the group of Member States having high proportions of training enterprises and high intensity in continuous vocational training (CVT) courses. Slovakia was among the other Member States having high rates of training enterprises but relatively low intensity in CVT courses (cf. figure 2).

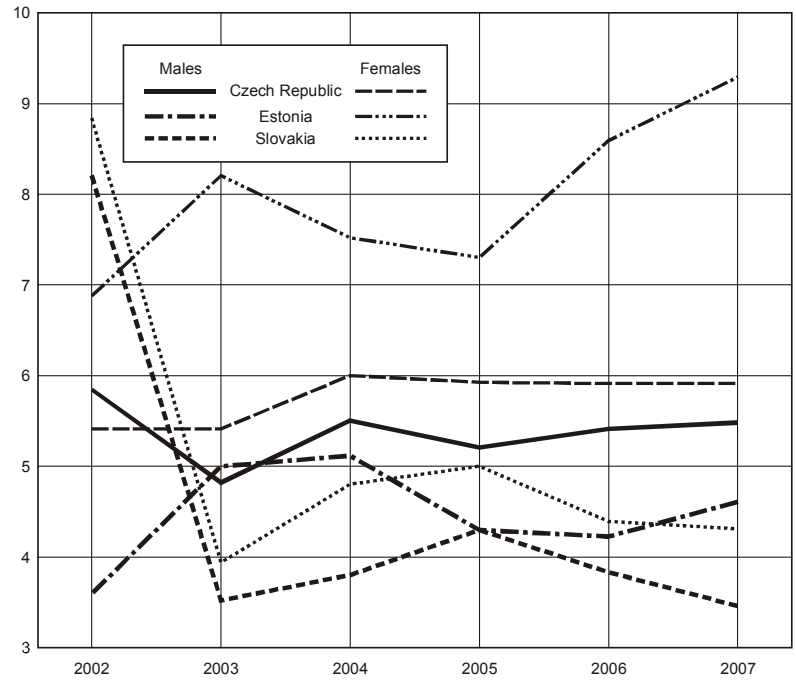

Fig. 2. Lifelong learning by gender, % of those aged 25–64 years in selected countries
Source: Eurostat, http://appsso.eurostat.ec.europa.eu/nui/setupModifyTableLayout.do

Due to different education and training systems comparisons between genders in each country are probably more reliable than those between the countries. Figure 2 sheds more light on the recent trends in lifelong learning by gender in the three countries under scrutiny. In these countries females are more active than males, as in all EU-27 countries. Again, in Estonia the difference between males and females is the greatest; the rise in the share of those receiving education or training is primarily based on increased activity among females. In Slovakia the most recent years reveal a decline of both males' and females' activity.

As noted above, the reasons for differences between countries and genders are many and varied. The values prevailing in societies, developments in education systems, access to education and others explain much of these. One thing which has not yet been discussed is the role of benefits and costs as a motive for developing education systems on the one hand and participation in education on the other. An individual's and family's cost-benefit ratio often differs from that of the labour market or society as a whole (cf. Čaplánová, 1999/2000). For example, access to education and motivated studies profit both individuals and the labour markets. However, the reasons for improving educational opportunities are different, the labour markets wish to improve their competitiveness, workers wish to earn better incomes and have better working conditions. In practice, individuals and families are likely to pay attention to *immediate* and *expected* benefits. Participation in education is usually a long-term investment for an individual; a certain number of years are needed before there can be any return. The immediate benefits may be minor or non-existent, which undermines motivation to participate in education, particularly among those with meagre resources. An interesting question is whether the gender differences presented above reflect motives related to immediate and expected benefits.[6]

2.2. Bridges between Education and the Labour Market

Education systems give labour force basic chances to compete locally and globally for jobs, and by the same token they create conditions for the mobility of labour force from one job to another, from one locality to another and from one country to another. However, knowledge turns into skills only through experience and practice, and that is why cooperation between education and the labour market is needed both before students' graduation and while they are entering the labour market. Bridges between education and the labour market are essential. The Eurostat yearbook 2010 refers to these bridges by stating that 'learning is no longer given weight only in the area of education; it is also seen as a critical factor

[6] Cf. figure 1 above and the discussion concerning the empirical findings.

in areas such as employment and social security policy, economic performance and competitiveness' (Eurostat, 2010, p. 269). Cooperation between the sectors of education and the labour markets is emphasised. While there are many ways for this cooperation[7] in this paper another type of activity is selected to serve as an example of bridges between education and the labour market. In the following, the R&D sector in the three Member States and the EU-27 as a whole will be scrutinized from this point of view and some comparisons with Japan and the USA will be made.

The R&D sector has great relevance both in educating, practising and enhancing the progress of innovative thinking and improving the competitiveness of an economy. For example, the EU has put great emphasis on the development of research and development. According to the EU R&D 'comprises creative work undertaken to increase the stock of knowledge of man, culture and society and to devise new applications' (Eurostat, 2010, p. 584). It is a question of a strategy to become the most competitive and dynamic knowledge-based economy. Special measures are needed because, in terms of R&D investments, the EU still lags behind Japan and the USA. That is why the EU created the European Research Area in 2000; i.e. a unified area all across Europe which should promote researchers' mobility and interaction, share and use knowledge effectively, develop strong links with partners around the world etc. Country-wise this obviously implies, among other things, an increased international migration of people working in S&T (science and technology) occupations not only between the EU Member States but also globally to other regions. Barriers to migration are tempered by increased resources, knowledge and transferable skills.

Figures 3–6 show trends in the development of R&D in the 2000s from various perspectives. The increase in expenditure on R&D as a share of GDP in the EU-27 has been modest as a whole but between the Member States there are great differences (figure 3). Of the three countries under scrutiny the Czech Republic and Estonia have put emphasis on this sector but Slovakia, instead, has notably lagged behind in the development. As Jensen *et al.* (2008, pp. 17–18) mention, the Slovak Republic has not given R&D its prioritised attention. The average spending on R&D is noticeably low when compared to that in the EU-25, as well as are the average growth rates. However, the Report (Jensen *et al.,* 2008, p. 18) also sees a more optimistic side in these developments; government investment, while low in relative terms, has significantly improved in absolute terms and the conditions may improve rapidly in the future. In spite of significant differences between the countries, all of them are under the EU-27 average.

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[7] For example in Germany apprenticeships play a prominent role in skill formation, around two-thirds of each cohort spend two to three years of human capital accumulation jointly in school and with an employer (Tåhlin, 2007, p. 50; Dustmann and Pereira, 2005, p. 24).

Fig. 3. Gross domestic expenditure on R&D (% share of GDP)
Source: Eurostat (2010, table 12.1)

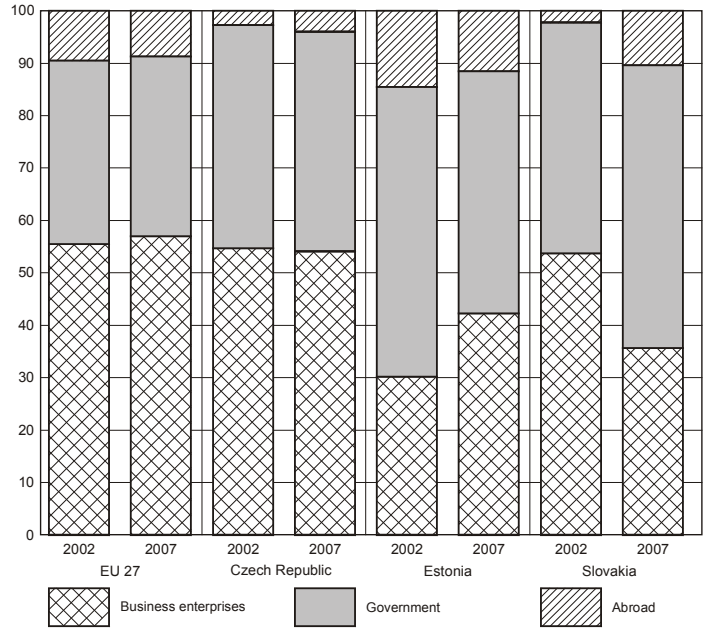

Fig. 4. Gross domestic expenditure on R&D by source of fund
(% of total gross expenditure on R&D)
Source: Eurostat (2010, table 12.3)

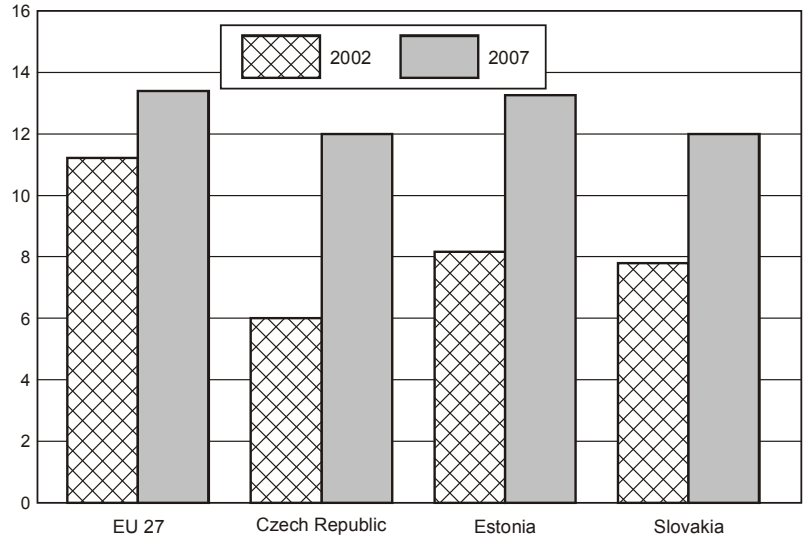

Fig. 5. Science and technology graduates (tertiary graduates in science and technology per 1,000 persons aged 20–29 years)
Source: Eurostat (2010, table 12.5)

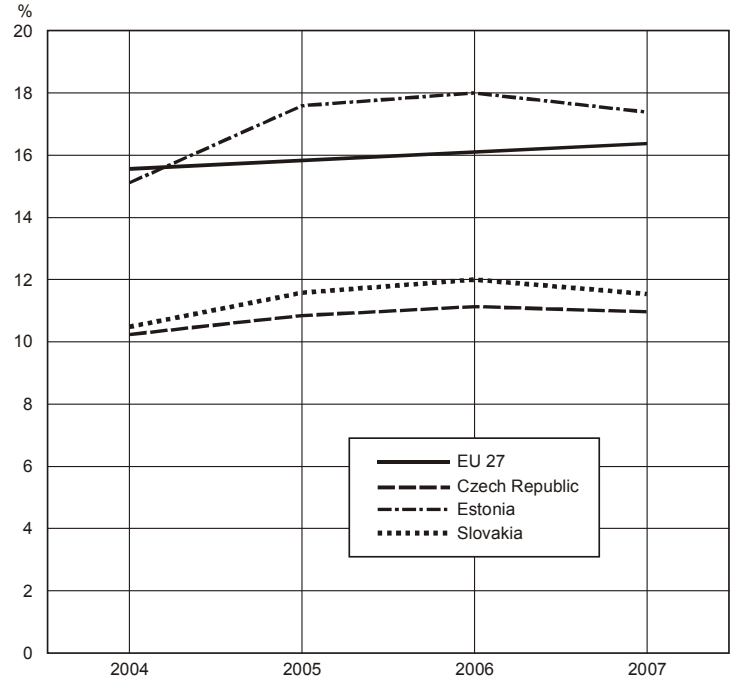

Fig. 6. Human resources in science and technology: people who have a third level education and work in a S&T occupation
Source: Eurostat (2010, table 12.7)

In the EU, gross domestic expenditure on R&D (% of GDP) lags behind that in Japan and the USA (Eurostat, 2010, table 12.2). In Japan this ratio is more than three, in the USA 2.5 and the EU-27 under two. Paying attention to this difference the Lisbon Strategy sets a goal for the EU to increase its R&D expenditure to at least 3% of GDP by 2010. The modest expenditure in the EU-27 is particularly due to the weak role of the business enterprise sector. So the EU states that 'Policy-makers in Europe have tried to increase R&D business expenditure so that it is more in line with the ratios observed in Japan or the United States' (Eurostat, 2010, p. 584). As for the roles of government and higher education sectors, there are hardly any differences between these major economic regions. More recent development (2009) shows that the EU is slowly advancing towards its 3% R&D target but still there is a widening gap between the EU and its world competitors. The reason for this is notably weaker business R&D investment (European Commission, 2011, p. 3). As for the growth of the R&D investment from 2000 to 2009 Estonia is among the top two countries with Portugal in the EU (more than 100%), the Czech Republic is ranked in a country group of 15% to 50%, while Slovakia is in a group remaining at the same level or decrease over the period 2000–2009 (European Commission, 2011, p. 49).

Although the situation in the EU as a whole is quite unsatisfactory, with the exception of a few Member States, business enterprises are still major investors when compared to funding by government and from abroad. More than half of all investments on R&D in the EU-27 are those of business enterprises; in the Czech Republic the situation is quite the same (figure 4). Slovakia followed this pattern in 2002 but 5 years later the share of business enterprises had declined and that of government increased. Estonia differs from these two countries in favour of a greater government share and to some extent also in that of foreign investments. Gross domestic expenditure on R&D by source of funding sheds light on the position of the countries in the global markets. As for the long-run economic development, investments in R&D by business enterprise sector are essential. A particularly dominating share of government funding in R&D might refer to a too weak business enterprise sector in a country to be able to invest itself or to attract funding from abroad. Naturally entrepreneurial or sectoral structures and many other factors are also involved.

In the long run the development of R&D expenditure in the new Member States under scrutiny reflects the profound societal structural change which was necessary after the collapse of communism in the early 1990s. The then stock of enterprises was unbalanced with no relevance to meet the demands of the global markets. There was no reason to expect any noteworthy investments from the business enterprise sector in research and development. Resources were to be obtained from all quarters in the country or abroad. In these circumstances governmental measures were obligatory. Estonia serves as a good example. When looking at the development of expenditures in Estonia in the 1990s it can be seen that in absolute

terms, the government funds increased their financing most, but in relative terms the growth of the productive enterprises' funds, the R&D institutions' own funds and foreign funds were largest (SOE, 2000, table 19). The R&D financing continued to grow and almost tripled from 1998 to 2004, the increase being strongest, in absolute terms, in the business enterprise sector. More specifically, while this sector's expenditures on R&D accounted for only 20% of the corresponding total expenditures in 1998, it was 39% in 2004. The growth in the business sector's expenses during the same period was more than five times greater than that of the total R&D financing (SE, 2006, pp. 90–93). The figures reflect the privatisation process and the development of the market economy.

The share of the graduates in science and technology among people aged 20–29 years increased modestly in the EU in the 2000s (figure 5). The proportion of graduates with tertiary education has grown from about 11% in 2002 to 13.5% in 2007. The growth has been particularly strong in the countries under observation; in Estonia from about 8% to 13%, in Slovakia from 8% to 12%, and in the Czech Republic from 6% to 12%. Estonia almost reached the average level of the EU-27 in 2007. Hence it is not surprising that the stock of highly educated people in the science and technology sector is in relative terms even higher than in the EU on average (figure 6) but even so it is still on a much more modest level than in the most advanced Member States (see Eurostat, 2010, table 12.5). In the Czech Republic and Slovakia the development has been similar and in both countries human resources in this sector clearly lag behind the EU average.

Finally, what are the potential conclusions concerning the development of education in terms of global competitiveness of labour force? The conditions for the mobility of the labour force are basically based on the national economies, particularly on their rapidly developed skill formation processes. That is why it seems reasonable to assume that, in spite of their certain shortcomings (see above), the capability of the education systems to produce internationally competitive experts for global markets has improved tremendously in the 1990s and the 2000s.

3. INTERNATIONAL MIGRATION AND LABOUR MARKETS

At the very outset it is important to note the complexity of international migration; it is a matter of flows of people and also implies intertwined processes having various impacts on migrants and the countries of origin and destination.[8] As Jonkers (2011, p. 1) summarises, immigration plays an important role in helping developed economies to maintain and improve their standards of living while

[8] For analytical approaches to research on international migrations see Kultalahti (2006, pp. 19–54), for the case of Estonia particularly pp. 43–48.

their societies are aging; highly skilled immigrants provide rare skills and boost innovation, low and middle-skilled immigrants perform work for which few native workers are available. These demands remain even in times of economic downturn. By the same token, one must not forget that it is not only a question of immigration but also of emigration. One way to understand this is to see international migration as circular, defined as 'a continuing, long-term, and fluid pattern of international mobility among countries that occupy what is now increasingly recognized as a single economic space' (Newland *et al*., 2008, p. 2). Furthermore, circular migration involves several categories in terms of durations of sojourns, goals of migration and backgrounds of migrants: 'Current patterns of circular migration fall into several categories: seasonal migration; non-seasonal low-wage labour; and the mobility of professionals, academics, and transnational entrepreneurs' (Newland *et al*., 2008, p. 1). What is important from the point of view of this paper is that international migration is not only a matter of either the country of origin or destination, instead it is often important, and also of a great use, to both of them.[9] Keeping this reciprocal character and use of international migration in mind, this paper is confined to emigration and immigration, more specifically international migration and education providing labour force with skills competitive on global labour markets.[10]

In the following, international migration and labour markets will be discussed by focusing on the following issues: migrants' educational attainment, labour force participation, unemployment, and how educational background and employment of international migrants match. In these issues the question is, with the exception of the first mentioned, about the integration of immigrants into the labour market of the new host country. Basically the issues are considered to reflect globally the performance of education systems in the countries of origin. This is not the whole question; many other factors are involved in the country of origin and destination. However, in the paper this limited emphasis is for practical reasons.

Migrants' educational attainment gives an interesting starting point to discuss the relationship between education systems and international migration. By so doing emigration can be analysed and explained in many ways. One way is to focus

[9] E.g. the following effects of international migrations can be mentioned: circular migrants' augmented human capital to both of them; streams of remittances to the country of origin; positive correlations between the share of foreign direct investment in a developing country and the number of that country's graduates present in the investing country; the more high-skilled emigrants from one country live in another, the more trade occurs between those countries; a recent estimate suggested that about half of skilled emigrants return, usually after about five years (see Newland *et al.*, 2008; UNDP, 2009, p. 77).

[10] When talking about global labour markets it should be kept in mind that in spite of spreading globalisation, or because of it, territoriality and external borders are not disappearing. E.g. there are observations on a growing territoriality and strengthening external borders of the EU (see Vitale, 2011, pp. 17–27). This trend has obvious impacts on the numbers and structures of immigration flows from outside the EU.

on the performance of education systems, in which case emigration can be seen as a demand for educated workers on global labour markets or it can equally well be explained by a weak supply of jobs or poor working conditions in the country of origin. The question may also be of the timing of educational attainment; education may be partly or entirely obtained in the country of origin or after emigration in the new host country. The statistics used do not reveal this and anyhow explanations using aggregate statistics and general information always neglect some essential intervening mechanisms which would clarify the relationships. If one accepts this starting point, statistics like those presented in this discussion give interesting and hopefully useful angles from which to observe education and international migration.

For a start, there are special characteristics in the countries under scrutiny making them different examples. The change in Estonia has been one of the most radical due to its former status as a Soviet republic. Estonia has been resolute in her progress towards a market economy resulting in the peculiarities of migration fields in the country. A strong polarisation serves as an example. The change in some north-east towns was enormous due to the emigration of ethnic Russians and the changed status of the Russian minority remaining in the country. This polarisation can also be seen in regional development and internal migration. The development in the Czech Republic and Slovakia has to some extent differed from that of the former Soviet republic of Estonia. They both belonged to the socialist bloc and were dominated by the Soviet Union, but they never suffered the same 'colonial politics' as did Estonia. In the Czech Republic and Slovakia, the split of the former Czechoslovakia has been reflected both in internal migration and international migration between these countries (see Kultalahti *et al*., 1999).

Table 1. Immigration to OECD countries and emigration rates by country of birth 2000–2002

Country of birth	Education of immigrants in OECD countries			Emigration rate[a]
	primary (%)	secondary (%)	tertiary (%)	
Estonia	26.6	36.6	30.6	12.2
Czech Republic	22.6	51.6	23.7	3.5
Slovakia	40.7	45.5	12.9	8.2

[a] Emigration rate is the stock of emigrants from a country at a particular point in time expressed as a percentage of the sum of resident population in the country of origin and the emigrant population (UNDP 2009, p. 209).

Source: UNDP (2009, Statistical annex, tables A and C, pp. 206–207). In the UNDP report immigrants are presented as foreign-born international migrants in OECD countries by country of birth. Percentages do not add up to 100% as those whose educational attainment levels are unknown are excluded. Educational attainment levels: primary – less than upper secondary, secondary – upper secondary or post-secondary non-tertiary, and tertiary. Data are based on 2000–2002 censuses.

Table 1 focuses on the emigration rates by country and educational attainment of immigrants in the OECD countries from the three countries under observation. Emigration has been, in relative terms, greatest from Estonia (emigration rate 12.2) and smallest from the Czech Republic (3.5). It is important to note that emigration rates present data on migrant stocks, not the annual (or periodic) flows of migrants between countries (UNDP, 2009, p. 206). In other words, when looking at the stocks one does not know how each year (or period) has contributed to the result seen at a certain point of time.[11] This is particularly important to note in the analyses covering rapidly changing periods, such as those since the early 1990s in the new Member States. For example, Estonia's international migration in the 1990s was characterised by Russian emigration from Estonia.

The educational attainment of international migrants sheds more light on emigration from the three countries. Two noticeable trends emerge from the distributions between the countries (table 1); the highly educated emigrants to the OECD countries dominate international migrants from Estonia, and those with secondary education particularly from the Czech Republic but to some extent also from Slovakia. Demand for immigrant workers is certainly involved (e.g. the strong automotive industry both in Slovakia and the Czech Republic). On a general level one might also emphasise the adaptation of the education systems to global mobility of labour force, whereupon Estonian tertiary education and Czech secondary education emerge.[12] Another explanation is to refer to the role of working conditions, wages and supply of jobs matching the qualifications of job-seekers. Probably all these elements are involved.

Table 2 approaches this issue from another point of view; labour force participation of immigrants in the OECD by sex and education is in focus. These indicators are more closely related to the education systems and labour market of the country of origin than education as such. There are great differences in the labour force participation rates between the countries, and between both genders and educational groups. Labour force participation rates are measured as shares of those employed and unemployed of all immigrants from a certain country in the OECD; by the same token the measure also reveals the proportion of inactive immigrants, i.e. students, retirees and others. The three most obvious trends emerge in table 2: first, immigrant men from all three countries are more active than women in their labour force participation; second, the immigrants from the Czech Republic are the most and those from Estonia the least active; and third, activity increases along with more advanced education. A more detailed

[11] Statistics based on the OECD data basis (DIOC) suggest that a great majority of immigrants in the OECD countries from the three countries had, in the turn of this millennium, stayed in their host country more than 10 years, i.e. they emigrated from their countries of birth before the collapse of communism.

[12] For Estonia see ECA (2010, pp. 18–21), for the Czech Republic see Jensen *et al*. (2008, pp. 13–44).

examination of the table reveals that differences between men and women are smallest among the immigrants with tertiary education. Only about one out of four immigrant women with primary education is active in working life. Not surprisingly, higher education clearly strengthens immigrant women's chances of going out to work.

Table 2. Labour force participation rates of immigrants in OECD countries by country of birth, sex and educational attainment 2000–2002 (see table 1)

Country of birth	Labour force participation rates of immigrants in OECD countries[a]					
	primary education		secondary education		tertiary education	
	men	women	men	women	men	women
Estonia	34.7	28.8	47.7	36.3	53.0	49.3
Czech Republic	44.3	25.2	67.8	52.4	73.0	71.0
Slovakia	41.3	24.6	64.2	54.6	70.3	68.8

[a] Emigration rate is the stock of emigrants from a country at a particular point in time expressed as a percentage of the sum of resident population in the country of origin and the emigrant population (UNDP 2009, p. 209).

Table 3. Unemployment rates of immigrants in OECD countries by country of birth, educational attainment and sex (see table 1) 2000–2002

Country of birth	Unemployment rates of immigrants in OECD countries					
	primary education		secondary education		tertiary education	
	men	women	men	women	men	women
Estonia	12.5	18.0	13.7	13.9	6.6	8.2
Czech Republic	32.2	29.2	11.4	10.4	3.3	4.0
Slovakia	39.3	31.0	10.6	11.1	3.1	4.8

Education also contributes to a smaller risk of becoming unemployed (table 3). Among the immigrants in the OECD countries from the Czech Republic and Slovakia, primary education is related to exceptionally high unemployment rates (30% to 40%) but these rates plummet among the immigrants with secondary education and even further among the most highly educated. What is rather interesting is that among the immigrants from Estonia in the OECD the unemployment rate depends less than one might expect on the level of education, particularly among men. The differences between genders and education are also noteworthy; while immigrant men with tertiary education from all three countries have lower unemployment rates than women, gender differences are not as consistent as at the lower educational levels.

The OECD statistics[13] also enable the study of employment and unemployment rates among immigrants with tertiary education by field of study around the turn of the millennium. The statistics do not cover all OECD countries; only sixteen such countries of residence are included. Given this restriction, some interesting results emerge. The average unemployment rate of all immigrants with tertiary education is 10.9% among the immigrants born in Estonia, 4.5% among those from the Czech Republic and 3.4% among those from Slovakia.[14] A more detailed examination by fields of study reveals some interesting differences between educational fields. Regarding Estonia, the major successful fields of study were education; arts and humanities; and science, whereas social sciences; health and welfare; services; and engineering, manufacturing and construction contributed, in relative terms, to a high unemployment rate.[15] Correspondingly, successful fields of study for those from both the Czech Republic and Slovakia seemed to be education; engineering, manufacturing and construction, and health and welfare, while the unsuccessful ones were agriculture and services. The following fields show up differently: arts and humanities is a successful field of study among the immigrants from Slovakia but not from the Czech Republic, whereas social sciences, business and law, and science are successful among immigrants from the Czech Republic but not from Slovakia.

When trying to explain these results one should keep in mind first, that these comparisons are made in relation to the average of each immigrant group by country of birth not between these countries, second, that studies may have been undertaken in the country of birth, in the country of residence or in both, third, that only some of the OECD countries are involved. Given these restrictions, it seems obvious that immigrants in the OECD from the Czech Republic and Slovakia have benefitted from their joint history implying many cultural and other features in common; the statistics show that both of these countries have a majority of immigrants from the other country. An example of similar features on the labour market making it easier for immigrant workers to integrate into the neighbouring country is the automotive industry. The Prague Post of 29th June – 5th July 2011 released a news item on the tough competition with Slovak car-manufacturing: 'The Slovak automotive industry has muscled its Czech competitor out of the world's top spot for cars produced per 1,000 inhabitants'. The news refers to the fact that both countries have similar strong industries. Given that the Czech Republic has a majority of its immigrants from Slovakia and vice verse, these

[13] http://stats.oecd.org/Index.aspx?lang=en# – Migration Statistics – Database on immigrants in OECD Countries (DIOC).

[14] Database on Immigrants in OECD Countries (DIOC) concerning e.g. those in the USA, is inadequate for the purpose of this article because immigrants from the Czech Republic and Slovakia are categorised as being born in the former Czechoslovakia.

[15] A field is considered successful or lucky if immigrants with studies in such a field have an unemployment rate which is below the average level of all immigrants having the same country of birth.

industrial similarities have very likely contributed to the low unemployment rates of immigrants in both countries already at the turn of the millennium.

Table 4. Labour market outcomes of the native-born and foreign-born by country of residence

Labour market outcomes	Estonia		Czech Republic		Slovakia	
	2000–2004	2005–2009	2000–2004	2005–2009	2000–2004	2005–2009
Employment/ population ratio						
Native-born men	64.8	69.0	..	74.2	..	67.5
Foreign-born men	70.2	75.1	..	74.0	..	71.7
Native-born women	57.8	63.8	..	57.0	..	52.7
Foreign-born women	59.1	68.8	..	54.4	..	49.7
Unemployment rate						
Native-born men	11.9	8.7	..	5.2	..	11.5
Foreign-born men	13.0	9.6	..	7.7	..	10.4
Native-born women	10.1	6.3	..	7.7	..	13.7
Foreign-born women	13.1	8.4	..	12.6	..	15.4

Source: SOPEMI (2011, Estonia p. 277, the Czech Republic, p. 273, Slovakia, p. 319).

Recent statistics on the labour force participation (employment/population) of *immigrants in the countries under observation* reveal something about the development of the labour markets in this millennium. Table 4 includes comparisons between the native and foreign-born employment ratios and unemployment rates. Estonian statistics are available both for the first and second half of the 2000s; the Czech and Slovak statistics concern only the latter half. Hence comparisons between the countries over the entire decade are not possible, but even so the Estonian statistics reflect the development in an interesting way. The general trend in Estonia can be seen as an adaptation to global challenges; the employment/population ratios and unemployment rates improved both among the native and foreign-born in the 2000s. As for the employment ratio, the position of the foreign-born, good even earlier, improved further in the late 2000s and the differences between men and women among the native- and foreign-born diminished.

The statistics for the late 2000s reveal no major differences between the countries but one difference emerges; while in Estonia the employment ratio is higher among both the male and female foreign-born than in the corresponding groups of the native-born, in the other two countries the trend is not seen. Additionally, the employment ratio is higher among both the native and foreign-born females in Estonia than in the other two countries (table 4). These findings are obviously

related to general cultural and religious values being more favourable to women's remaining at home in eastern and southern Europe than in northern and north-eastern parts of Europe. What is interesting is that the phenomenon can also be seen among immigrants.

Table 5. Over-qualification rates of native and foreign-born populations (Censuses and Population Registers, Population 15+, Circa 2000)

Specification	Over-qualification rates (percentages)			
Country of residence	total	native-born (A)	foreign-born (B)	B/A
Czech Republic	5.8	5.6	9.6	1.7
Slovakia	26.9	26.9	24.5	0.9

Source: SOPEMI (2007). The report uses two different sources for the data (Survey Data and Censuses and Population Registers); percentages differ depending on the source used, but the general trend remains the same (SOPEMI, 2007, p. 137). Data for Estonia not available.

One of the most interesting questions concerning immigration and the labour market is, in addition to the employment and unemployment rates, how well the educational backgrounds of migrants match the skills required in their jobs in the host countries. An OECD report (SOPEMI, 2007) analyses this issue and finds interesting results although the analyses are limited due to the scarcity of the data. The data concern the period 2003–2004 and focus on the problem of *over-qualification* of both native and foreign-born populations, i.e. a worker has a higher education than his/her job requires.[16] The report examines over-qualification with a normative-type measure based on the correspondence between level of education and qualifications for the job held. One of the key findings of the report is that immigrants are more over-qualified than the native-born in the OECD countries. However, the differences between all OECD countries are great, ranging from the very lowest percentage (5.8%) in the Czech Republic to the highest (26.9%) in Slovakia (table 5). The high over-qualification in Slovakia suggests that education and the needs of the labour market are not well matched (cf. table 4). The problem of over-qualification concerns particularly the foreign-born populations in almost all OECD countries, but seems to affect the countries of southern Europe (Italy, Greece and to a lesser extent Portugal and Spain) and some countries of northern Europe (Norway and Sweden) more seriously (SOPEMI, 2007, pp. 137–138). The report evinces several arguments for this phenomenon. First, in southern Europe, immigration is a recent phenomenon, and consists of workers who are willing to accept unskilled jobs upon arrival in the hope of later advancement. Second, for material and sociological reasons immigrants are more willing to accept jobs for

[16] On different approaches to the over-qualification problem, see SOPEMI (2007, p. 135).

which they are over-qualified. Third, legal and regulatory aspects (e.g. work permits, and access to citizenship) may limit job opportunities, particularly temporarily at the beginning of their stay.

It is not easy to draw a straightforward conclusion about the adaptation capacity of the education systems and the labour market to global challenges in terms of international migration. Conclusions can at best be various notes on their developments simultaneously with growing globalisation. The first note emanating from the above concerns emigration and the education/skills of emigrants; Estonia seemed to be a sending country particularly for highly skilled people at the turn of the millennium, which may indicate an imbalance between the education system and jobs available or it may indicate a great demand for the skills produced in the country. In the case of circular migration the development may prove to be beneficial for Estonia in terms of augmented human capital (see above; Newland *et al.*, 2008, pp. 1–2). Pungas *et al.* (2011) recently researched the intentions of the Estonian emigrants to Finland to return to their home country. They found that the level of education is not directly related to the inclination to return. More important was over-education (over-qualification) in the host country and to some extent also vocational education. Education in the host country seemed to improve the prospects for social integration – and obviously to lessen intentions to return. The results do not undermine the role of education in circular migration, or international mobility in general, but emphasise its complexity. Taking into account the smallness of the Estonian population, economy and the recent history of the nation, the migratory indicators used above were well in accordance with global challenges and revealed no surprising trends.

The statistics presented above showed that in the Czech Republic the emigration rate was low, labour force participation rates on a medium level and unemployment rates among highly educated immigrants in the OECD low, over-qualification rates of the foreign-born in the Czech Republic were low. Thus, most of the indicators were satisfactory when compared to the OECD countries. In Slovakia, the over-qualification rates both among the native and foreign-born were relatively high. As among the emigrants from the Czech Republic, tertiary education contributed to the Slovakia-born emigrants' low unemployment rates and primary education to notably high unemployment rates.

4. DISCUSSION AND CONCLUSIONS

Global challenges apply to needs to develop education and labour markets. Successful responses to these challenges have positive impacts on the balanced development of international migration improving the conditions for economic and social growth. For example, positive feedback from emigration in the form

of circular migration of medium and highly-skilled people increases the human capital available both in the countries of origin and destination; increasing seasonal and temporary migration basically gives positive economic impulses in the home country. As mentioned above there is also evidence on the growth of trade between those countries, as well as of direct investment from the host country, just to take a couple of examples. One might assume that the less cultural and other ties between the countries of origin and destination there are the stronger the role international migrants play in increasing trade between the countries and direct investment from the country of destination. So, for example, trade and investment between Estonia and the Nordic Countries, particularly Finland, are based on cultural and historical ties rather than migration. Whereas major migration streams between a culturally and otherwise distant African and European country could be expected to bring those countries closer even in terms of economic interaction.

There is no straightforward relation between education, labour markets and international migrations; many intertwined mechanisms are involved. Hence there are no explicit explanations for the relationships of such phenomena at aggregate levels, and more detailed analyses and different types of databases would be needed. A logical consequence is that a study of their relationships at this general level cannot be deductive in such a way as to end up with unambiguously verifiable conclusions. However, such a study on an aggregate level may bring into focus relevant questions and research problems.

The three new Member States of the EU offer an exceptional and almost experimental opportunity for this type of approach. Most of the societal developmental processes broke down or at least fundamentally changed two decades ago. Entirely new directions were taken in nearly all sectors and fields of society and such profound changes followed that took several decades if not a century in the old Member States. The pressure for change came from transforming socialism into a market economy on the one hand and the challenges of globalisation on the other.

The starting points of the three countries under scrutiny were not the same. Estonia was forced to start from the greatest need for change; in some sectors the country had to start more or less from the very beginning. For example, launching new education systems and institutions necessitated thorough organisational reforms and investment, reflected in the greatest shares of GDP among the three countries. A very rapid development characterised all three countries but the emphases on various sectors varied. In relative terms, Estonia emphasised tertiary education, the Czech Republic secondary and Slovakia primary education in the 1990s when measured by investment shares. Not surprisingly, the stock of those with tertiary education in Estonia exceeds the corresponding shares of the other two countries. The same trend concerns emigrants.

Another trend emerges in a comparison of education between genders; the Czech Republic gains most points in equality between men and women. In Estonia the difference is the greatest in favour of women's domination in tertiary

education and lifelong learning. The difference is universal raising the question whether men are more eager than women to have immediate benefits by dropping out of education and going for better paid work in some other country? The especially wide gap between Estonian men and women makes one consider it exceptional because Estonia emphasises equality in access to education. Whatever the reasons, the results presented above call for further questions and analyses of the problem. A high over-qualification rate in some OECD countries, e.g. in Slovakia, is another problem emerging both among the native and foreign-born populations which raises the question whether the country's education system is properly geared to respond to national or global demands for labour.

At least a few questions, in addition to those above, can still be mentioned. For example, how to develop education systems so as to adequately motivate all population groups to participate in education? Another demanding issue to be resolved is education and a suitably balanced supply of and demand for skills in spreading and intensifying globalisation. Apart from individual profits and problems, the question largely reverts to the competence of the national labour market to derive benefit from the international mobility of both less and more skilled migrants.

Education and international migrations have been in the focus of serious debates and numerous analyses but their relations as responses to the challenges of globalisation have seldom been properly dealt with. This paper can be considered as an attempt to raise relevant research problems and policy issues concerning these relations rather than as an attempt to propose solutions.

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