Migration of 'Knowledge Workers' in the Baltic Sea Macro-Region Countries

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Abstract: *The article studies the priorities of the strategic framework for Europe 2020, the trends and problems of human resources due to increased mobility, the emergence of new conditions of migration processes, and increasing the total requirements for competence in the Baltic Sea region. Specifically, a comparative analysis of the demographical and labour migration processes taking place in Latvia, Lithuania and Estonia was carried out. The huge migration of highly skilled labour force has had a negative impact on the innovative and socio-cultural potential of the Baltic States—in Lithuania and Latvia, and to some degree in Estonia. It has also negatively affected the efficiency of the countries' economy. This could be considered as the consequence of a loss of investments that could have otherwise been used to maintain and further develop the education system. It is shown that the traditional structure of higher education does not correspond to the requirements laid down in the Europe 2020 strategy.*

Keywords: *Baltic Sea macro-region, EU policies and strategies, human resource and Strategy Europe 2020*

1. Introduction

In this work *the conceptual model of macro-region* is applied to study the processes of transforming the social and political space in the Baltic Sea region (BSR) into a unified whole. The first part of this article outlines the conceptual principles of our model and the main geo-economic aspects of the Baltic Sea macro-region with aspects of the ‘knowledge triangle’—science, technology, and innovation. The second part examines the different social and economic spheres within the limits of the model through European territorial migration process. The third part examines Estonia’s university reform as an illustrative experiment to solve the emerged problems through political decisions. The conclusion indicates further research into migration and labour processes in the Baltic Sea macro-region.

The aim of the article is to highlight the trends and problems of human resources due to increased mobility, the emergence of new conditions for migration processes, and studies the increasing of the total requirements for competence in the Baltic Sea macro-region.

In the rapidly changing economic situation, the common problems and challenges that the Baltic region is faced with are best tackled on the regional level—within the European Union according to the ‘EU Strategy for the Baltic Sea Region’. The strategy of the Baltic Sea region is part of the overall strategy of the European Commission ‘Europe 2020: A strategy for smart, sustainable and inclusive growth’ (EC, 2010). As a young field in EU policy-making, macro-regional cooperation is a precondition for further development and this macro-region strategy can be viewed as one of the priorities of the strategic framework for Europe 2020.

Maria João Rodrigues (2010, p. 16) has pointed out the minimum of three strategic factors of the sustainable development model of the European Union. These three factors are: the pattern of consumption and production resulting from ecological balance; ageing trends that undermine the social protection systems in the EU countries; and the financial system undermining the conditions for the long-term investment which is necessary to ensure sustainable transition to a knowledge-intensive low-carbon economy (green workplaces).

Knowledge and innovation for growth became one of the three main areas for action in the Lisbon Strategy: a partnership for growth and employment, which places science, technology and innovation at the heart of EU policies. This concept was announced at the Lund conference in July 2009 during the EU

Swedish Presidency as priority responses to the grand challenges of the present financial-economic crisis (*Lund Declaration*, 2009, p. 1).

This study of the integration of the Baltic States macro-region into the European socio-economic and technological space makes use of a model that is based on the representation of the Baltic region as an environment in which open innovative systems direct their 'knowledge triangle' and socio-economic structures towards sustainable development. The trajectory of this system development has been affected by two groups of forces: one involves forces which deflect the development from the sustainable trajectory, while the other represents forces that push the development towards the sustainable trajectory. Extreme resource depletion is a factor that limits the development. Among the resources we can see also the people of the Baltic rim states. Usually, when depletion increases, the rate of consumption of resources is reduced and the society begins to increase investments to renew the resources as can be seen in the example of knowledge-intensive economy and development of green growth with workplaces policies of the European Commission (EC, 2010). However, when resource depletion concerns also people, the situation is largely different, especially when human capital, which should become a subject for intensive economical growth or introduce structural changes in economy (young people with higher education), flows out of the region.

The first volume of the annual *Political State of the Region Report*, published in 2011, is an attempt to provide a comprehensive overview of the political and economic developments in the Baltic Sea region. In order to achieve this goal, the report identifies and analyses important trends within the countries of the region and within several specific thematic areas (*Political State of the Region Report*, 2011). In the conclusion to this first report, one of the authors said about the reporting period of 2010–2011 that “the only way to develop the region and to establish a framework for binding and sustainable regional co-operation is to convince all Baltic Sea riparian states of its benefits and to feed it with concrete policies and stronger political, economical and environmental commitment” (Etzold, 2011, p. 90).

Today the fiscal strength of the states in the Baltic Sea region is sufficient to upgrade competitiveness and reanimate the long-term Europe 2020 Strategy as a process of smart, sustainable and inclusive growth.

2. Labour migration processes in the Baltic countries of the EU

Europe needs sustainable economic growth and in the course of this process investment and higher competitiveness are in order to exit the present economic crisis, summarises Hans Brask, director of the Baltic Development Forum in foreword to the ninth *State of the Region Report of Baltic Sea* (2012). As the report says, the key question is not as simple—the main question is the predominance of structural changes in the global economy and especially how these changes will affect the relationship between the underlying patterns of competitiveness and the economic outcomes that they lead to.

Country-specific challenges exist in the economies of the Baltic countries (Estonia, Latvia and Lithuania), which are emerging from the enormous financial crisis. Tobias Etzold (2012) in his conclusions of the second *Political State of the Region Report: Dilemmas and Coherence in the Baltic Sea Region* argues that “[f]rom a broader European perspective, the EU countries in the BSR have in fact a lot to offer and a change to position themselves at the *top of Europe*” (*Political State of the Region Report*, 2012, p. 71).

This socio-economic process has given good results in the Baltic Sea Region at large and all the southern Baltic States (Estonia, Latvia and Lithuania) are making a positive and meaningful impact today through the development of the common market, but migration from these three countries has had negative impacts on the countries involved in pan-European processes. The causes of these migration processes lie in the increasing globalisation of the economy. Economic and socio-cultural globalisation and European integration increases the mobility of the population and favours citizens’ choice. The international migration of highly educated people can be regarded as a mechanism for diffusing knowledge and rotation of scientific personnel which promotes research and development of educational systems in recipient countries.

For the country of origin, the migration of highly qualified personnel to a country with a more efficiently coordinated social system means losses in productivity and financial resources of the educational system. The migration of teachers, qualified researchers and students results in the loss of potential profits from educating the highly qualified personnel who migrate out of the country. Consequently, the educational system also loses its effectiveness in providing the country with professionals that stay within their home country. The negative consequences of the migration process could be both exhaustion of human resources that lead to lower productivity and underdevelopment as well

as reducing the tax base and reducing investments in education (Čekanavičius & Kasnauskienė, 2009).

The migration processes of highly skilled personnel and the side effects of this process on the development of an innovative economy must be examined also within the macro-regions. Within the boundaries of our model, the migration process is often a flow which originates in the emergence of differences in the socio-economic potential between the countries—the state of origin and the state of choice.

Statistical analyses show that Latvian and Lithuanian migration (as seen in Tables 1 and 2) are beginning to change from a short-term economic migration to a long-term one, because of family reunion processes and rapidly developing social networks. In both countries the approximately 20 per cent unemployment rate has proved a major economic problem in recent years (2009 and 2010). Recently published final census figures (January–March 2011) estimate that there are 2.074 million people in Latvia (*Population Census*, 2011). The Central Statistical Bureau of Latvia has calculated population gender and age structure on 1 January 2011, and the obtained information shows that at the beginning of 2011, the population of Latvia was 2,074,605.

In comparison with the number of population published prior to this date (based on the Population Register data), the population of Latvia has reduced by 155,000 people. In Latvia, emigration was about 16,000 people on average during the years of economic growth and 40,000 people in the years of economic crisis (2008–2010). Data presented in Table 1 indicates that the most significant factor in Latvia's population decline is migration, amounting to the loss of 175,000 people in the period of years 2004–2010. The total loss of Latvian population was 245,000, constituting approximately 10.5 per cent of the population.

Table 1. *Population change in the Baltic States between January 1989 and January 2011*

Country	Total population on January 1 st (in thousands)			Average annual change in 1989–2003 (in thousands)			Average annual change in 2004–2010 (in thousands)		
	1989	2004	2011	Total	Natural increase	Net migration	Total	Natural increase	Net migration
Estonia	1.566	1.351	1.295	-14.3	-4.1	-10.2	-8.0	-5.5	-2.5
Latvia	2.667	2.319	2.074	-23.1	-9.9	-13.3	-35.0	-10.0	-25.0
Lithuania	3.675	3.446	3.054	-15.3	-5.0	-10.3	-56.0	-10.2	-45.8

Source: Authors' estimation based on national statistics data: Estonia – Ränne, 2009; Latvia – Population Census, 2011; Lithuania – Provisional Results..., 2011

In Lithuania, as in Latvia, the most significant factor in population decline is migration, amounting to the loss of 392,000 people between the years 2004 and 2011. In Lithuania, emigration was about 15,000–17,000 people on average during the years of economic growth and more than 20,000 people in the first year of the economic crisis (in 2009). The emigration flow increased in 2010 about four times compared to 2009 (Table 2) and the stable high flow continued in 2011, when 54,000 emigrants left Lithuania (Latvia left in 2011 25,000 emigrants).

The main destination routes of Lithuanian emigration are Ireland, the UK, Spain, Norway and the USA. Lithuania remains in the forefront according to the migration rates in the European Union. According to certain estimations, approximately 12 to 15 per cent of adult Lithuanian citizens have departed to work abroad (Gaidys, 2010, p. 29).

A comparative analysis of the labour migration processes taking place in Latvia and Lithuania indicate that the traditional highly skilled groups in the national social structure are effective in conditions of high labour mobility in the European Union. Data of the most recent Latvian census indicates the loss of highly skilled labour force through large-scale migration.

Table 2. *Population change in Lithuania between January 2004 and January 2011*

Republic of Lithuania	2004	2005	2006	2007	2008	2009	2010
Emigrants	15,165	15,571	12,602	13,853	17,015	21,970	83,157
Immigrants	5,553	6,789	7,745	8,609	9,297	6,487	5,213
Net migration	-9,612	-8,782	-4,857	-5,244	-7,718	-15,483	-77,944

Source: *Database of Indicators, 2011*

Almost a half of all the emigrants from Latvia and Lithuania are part of the qualified labour force, which indicates an inefficient investment in human capital (Daugėlienė, 2008; Sedziuviene & Vveinhardt, 2009). The most notable reduction in the population number in Latvia and Lithuania was recorded in the age group 23–35 (more than 40%). The decrease may be explained with difficulties in finding employment in Latvia (Lithuania) after school (university), forcing young people to leave the country and seek employment abroad (*Population Census, 2011*).

In Estonia, these issues are not as salient as in Latvia and Lithuania. In Estonia the most significant factors in population decline were natural increase and labour migration, amounting to the loss of more than 56,000 people between the years

2004 and 2010 (Tiit, 2012). However, the labour migration process between Estonia and Finland has increased in the past two years and Estonian migration to Finland today is part of an intensifying economic migration. According to the recently established register, there are about 60,000 migrants from Estonia working in Finland (as indicated in the Finnish press).

It is estimated that in the period from 2004 to 2012, some 75,000 Estonians emigrated to live and work in the Scandinavian countries—primarily Finland, Sweden, and Norway, but also Ireland and Spain. During the same period, nearly 175,000 Latvians and 435,000 Lithuanians emigrated to Ireland, the UK, the USA, Spain and the Scandinavian countries.

3. University reforms as a tool for knowledge-based economy

The development of innovative economy has been named one of the main objectives of the joint efforts of the Baltic States (*State of the Region Report*, 2011, pp. 22–30). It is not a simple task to measure a country's level of innovation. In order to work out, apply, and assess political criteria for this purpose, it is imperative to produce certain measurement tools proper to the object under consideration. For the past ten years the European Commission has been measuring the innovation performance of countries with the help of the European Innovation Scoreboard (Veugelers, 2007, p. 33). The European Innovation Scoreboard (EIS) has been published annually since 2001 to track and benchmark the relative innovation performance of the EU Member States. The EIS uses the most recent statistics from Eurostat and other internationally recognised sources available at the time of analysis. International sources have been used wherever possible in order to improve comparability between countries. From 2008–2010 onwards, the EIS has revised the methodology and the number of dimensions has been increased to seven, grouped into three main blocks covering enablers, firm activities and outputs (Hollanders & van Cruysen, 2008).

Figure 1 presents a comparison of innovation opportunities in Estonia, Latvia and Lithuania with the Summary Innovation Index by ProInno Europe, calculated for the EU-27 over a five-year period (2007–2011).

Figure 1. *Estonia, Latvia and Lithuania: Normalised Summary Innovation Index calculated over a five-year period (2007–2011) of the European Innovation Scoreboard*

Source: ProInno Europe, 2011

In compliance with this index the states of EU-27 are divided into the following categories:

- 1) Innovation leaders: Denmark, Finland and Sweden all show a performance well above that of the EU-27;
- 2) Innovation followers: Estonia and Norway show a performance close to that of the EU-27;
- 3) Modest innovators: Latvia and Lithuania are well below that of the EU-27.

The 2007–2008 European Innovation Scoreboard showed a parallel increase of indices calculated by indicators of innovation in Estonia, Latvia and Lithuania. However, in 2009, the economic crisis slowed down the innovation performance and the convergence between the countries. According to the 2010 and 2011 Scoreboard, this negative impact is more clearly seen in 2009 in Lithuania and Latvia.

The findings of the most recent ProInno Europe report (2011, see Fig. 1) suggest that the rapid advance in innovation performance made by many lower performing countries (Lithuania and Latvia) may be maintained due to the severity of the economic crisis (e.g., the loss of highly skilled labour force from Latvia and Lithuania through large-scale migration). Such losses in human

capital (the diminishing number of researchers and postdoctoral students) will result in difficulties of the social innovation process in the future.

Currently, there are 69,113 students in Estonian universities (*Eesti Statistika aastaraamat*, 2011, p. 78). The Estonian state contributes a relatively small share of its budget to the sphere of higher education and the present situation in training highly qualified specialists is not satisfactory: the annual total expenditure per full-time equivalent student in Estonia in 2008 was only 4,500 PPS euros, whereas in Finland it was 12,000 PPS, and in Sweden and Denmark more than 13,000 PPS euros (*The European Higher Education Area...*, 2012, p. 25). In the years of recent financial crisis introducing budget cuts in higher education in the EU Member States was not a uniform response to the crisis, but in all the Baltic states these budgets cuts work. Public expenditure on tertiary education decreased considerably in Estonia, Latvia and Lithuania in 2008–2009, making up 20.6, 18.5 and 6.6 per cent, respectively (*The European Higher Education Area...*, 2012, p. 27).

Figure 2. *European Innovation Scoreboard Index of human resources for the Baltic Sea countries calculated over a five-year period (2007–2011)*

Source: *European Innovation Scoreboard, 2011*

Nevertheless, having cuts in budget allocations to higher education does not mean fewer resources in higher education. In all universities of the Baltic Sea states public expenditure is replaced by private contributions (e.g., alumni donations). As findings of the recent human resource index of ProInno Europe,

in Latvia, Estonia and Lithuania the lack of investment in the education system has not had a negative effect on universities achieving a high level (see Figs. 2 & 3). A growth in student contingents with university degrees is the result of private contributions for higher education process.

There are some possibilities available for the practical implementation of the new educational structure in Estonia to satisfy the priorities of the Europe 2020 Strategy. According to the data in Figure 3, this structure of labour resources can be created on the basis of existing educational resources in the region.

Figure 3. Percentage of population aged 30–34 who have completed tertiary education normalised scores

Source: Index calculated over a five-year period (2006–2010) of the European Innovation Score-board

Data presented in Figure 4 show the negative effects of labour migration process on the development of an innovative economy in Latvia, Estonia and Lithuania. As migration processes have been usually active in the last five to seven years, in countries of the southern Baltic area there is an increasing deficit in academic labour resources—there the number of doctorate graduates per 1,000 population aged 20–29 is very low. The consequences of the low level of training of ‘knowledge workers’ with high qualification (academic degrees) in the form of accumulation of human capital is an alarming issue for Latvia and Lithuania.

Figure 4. Human resources in science and technology (HRST) as a share of labour force (%) and doctorate graduates per 1,000 population aged 20–29

Source: Eurostat, *The European Higher Education Area...*, 2012

Recent academic research (Lauristin, 2011 and others), has concluded that the traditional structures of higher education in Estonia are ineffective in the situation of high competitiveness. There is a need to strengthen links between the different parts of the education system, but it is also necessary to strengthen each part in itself. Today the modernisation of the education system and the functions of academic science in universities are the two key elements of enhancing competitiveness in the whole society. One of the most crucial problems is the lack of continuity in the provision of educational services at the same level with the best European universities. To resolve these contradictions in Estonia, some authors (at universities and the Ministry of Education and Science) have proposed a new financial concept of the educational structure for Estonian universities on the basis of a state-commissioned study.

A higher education reform is currently taking place in Estonia. To make learning at the universities more effective, the government of Estonia has planned to expand the concept to a fully state-commissioned study and Estonian universities will be prepared for a major reforming process in the next three years (2013–2015). The additional contribution for budget for the period of 2013–2015 is about 60 million euros. (The basic state-commissioned student places could be beneficial for students learning in Estonian language study groups, including doctoral students.)

Relying on the process to strengthen the sector of the knowledge-based economy modernisation of Estonian universities is a key element in enhancing the competitiveness of its own human resources. The catching-up strategy offers

various instruments and solutions (further on this process see Tiits, 2011). One of the instruments in this process in Estonia has been the Competence Centre Programme, which is focused on creating specific business solutions between universities and high-technological centres (OECD, 2011, p. 215). There are currently more than ten centres of competence at Estonian universities and most of them have partners in universities of Sweden, Finland, Denmark, Germany, Norway and the USA.

Another major instrument is creating a new structure of institutions to carry out a new comprehensive and dynamic social innovation model. Marek Tiits (2011) argues in his recent publication that in a post-crisis situation there are specific industry segments of some major cross-border industrial clusters (ICT), which offer development possibilities for socio-economically challenging areas in Estonia as the first industrially prioritised areas in the period up until 2020. As has been argued recently—and it is in some ways favourable—, Estonia can establish ca 50,000 new workplaces for ICT people up until 2020, and ICT could become the first industrial area for Estonia (Kotka, 2012).

In the Baltic Sea macro-region, Estonia continues to seek as much support as possible to attract ‘knowledge workers’ in the form of accumulation of human capital through processes of transforming its education systems. This might prepare a coherent framework and support initiatives for a larger-scale cross-border cooperation with knowledge-building institutions in the Baltic Sea macro-region.

4. Conclusions

Following their accession to the EU in 2004, Estonia, Latvia, and Lithuania have experienced expansive and dramatic shifts in the economic sphere which have resulted in reduced job security for inhabitants in the region. EU accession has also contributed to extensive migration movements.

Even though the hundreds of thousands of Estonian, Latvian, and Lithuanian residents who seek employment opportunities in other countries comprise a small share of the broader migration flow from Eastern Europe each year, the relative size of emigration from the Baltic States has destabilised labour markets and the social system in the region.

Today the migration of highly skilled labour force from the three Baltic Sea countries (Estonia, Latvia and Lithuania) can be identified as a process with

negative impact on the economic potential of the region. As shown above, the traditional structures of higher education are inefficient in the situation of high mobility in a global society, and they do not correspond to the requirements established in Strategy Europe 2020 as a strategy for smart and sustainable growth.

In the region, an important role must be attributed to the 'knowledge triangle' which is concerned with creating new economic mechanisms (e.g., on the basic state-commissioned student places in the universities in Estonia) and creating a structure of institutions to carry out the new comprehensive and dynamic innovation model.

The labour migration process of 'knowledge workers' may be seen as a flow which originates in the emergence of differences in the socio-economic potential between two regions—the state of origin and the state of choice—from the southern to northern Baltic countries.

Although exact data about the migration flows of young and educated people is currently lacking, the trend is predominantly northward (to the Scandinavian countries). This means that, broadly speaking, half of the emigrated people (340,000 out of 700,000) stay in the Baltic Sea macro-region. According to the positive scenario the development of the concept of macro-region is of benefit to the entire region—to the destination countries as well as the donor countries. The destination countries acquire new educated labour force, while the benefit for the donor countries is the opportunity to be integrated into the research and innovation networks of countries that have already performed good results in the innovation field. Therefore it is inevitable to implement policies that would encourage networking and cooperation within the Baltic Sea macro-region.

Another scenario is not as positive. The coming two to three years will be a very difficult time for collaboration and competitiveness across the Baltic Sea macro-region. The overall economic decline in the EU in 2008–2010 may expand the "competitiveness shock", as described in connection with France's economy (see *The Economist*, 2012). This shock could be reduced to some extent with successful repatriation of youth, which requires the creation of hundreds of new highly qualified jobs over the next years. Future research on this topic should focus on the problem of remigration to the southern Baltic region.

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