Economic Perspectives, Qualification and Labour Market Integration of Women in the Baltic Sea Region

Ulrike Biermann
Dr. Christina Boll
Dr. Nora Reich
Dr. Silvia Stiller
assisted by Franziska Synowski
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Introduction to Part I and II

Demographic and economic structural change will affect the development of the whole Baltic Sea Region in the future. Coping with these challenges requires initiatives aiming at labour market issues. A shrinking and ageing labour force entails the danger of shortage of labour supply in general while demand for skilled labour increases in the course of knowledge-based structural change. There are large potentials for the Baltic Sea Region to strengthen its competitiveness by better tapping its human resources. Among these an advanced integration of women in the labour market is at the top of the agenda.

In the study at hand, current economic and demographic structures in the Baltic Sea Region are analysed. Additionally, development perspectives are assessed. These overall macroeconomic conditions constitute the framework for enhancing labour market integration of women.

Part I of the study deals with "Regional Development in the Baltic Sea Region: Current Economic Trends and Perspectives". This analysis first of all refers to macroeconomic conditions and trade in order to assess economic disparities and catching up processes among high and low income countries within the region. Afterwards structural change and its impact on economic productivity are discussed. Main indicators on innovation potential and overall demographic development are presented as well. Finally regional development perspectives are analysed.

Part II puts its focus on "Women in Baltic Sea Region countries – education and labour market involvement". It refers to disparities of participation in training and education between female and male population. Employment, income and hidden potentials are analysed by a wide range of indicators, e.g. employment rates according to sex and age, part-time labour market participation and gender gap in income. Additionally, data on women's position as self-employed persons and among the inactive population are presented.

The analysis concludes with combining results of Part I and Part II giving an overall outlook on future issues of economic development and labour market integration of women in the Baltic Sea Region.
Part I:
Regional Development in the Baltic Sea Region: Current Economic Trends and Perspectives

Ulrike Biermann, Silvia Stiller
1 | Introduction

Within the past decades, intensive integration processes between member states of the European Union (EU) could be witnessed. But also on the regional level, outstanding integration results were denoted. These kinds of processes occur as effects of spatial proximity between regions and experienced intensification in the course of fading relevance of national borders. Examples can be found around the shores of the Northern Sea or in the Alpine region connecting several European countries by a shared mountain chain.

The regional integration phenomenon in the focal point of the following survey is the Baltic Sea Region. Despite being aware of that within Interreg IV B, in the following it is marked as a broader geographic region. Within the framework of the article, it is defined as depicted in figure 1.

Figure 1
It comprises the mare balticum with its bordering countries Denmark, Estonia, Finland, Latvia, Lithuania, Sweden as well as regions of Germany (Schleswig-Holstein, Mecklenburg-Vorpommern and Hamburg), Poland (zachodnio pomorskie, pomorskie, warmińsko-mazurskie, podlaskie) and Russia (Kалиngradskaya oblast, Ленинградская область, St. Petersburg). Additionally non EU member Norway is considered in most of the analysis due to being an important trading and integration partner in the area.

High integration potential between heterogeneous countries

With the exception of Russia, all bordering countries are members of the EU. In these countries, we find 147 million inhabitants which account for 29.3% of total EU population. These countries are responsible for 30.3% of corresponding gross domestic product. Looking exclusively at the Baltic Sea Region (i.e. only including those regions of Germany and Poland bordering the Baltic Sea), its EU regions produce about 8.4% (cf. Eurostat 2012, data reference 2009) of gross domestic product of the 27 EU member states and account for a corresponding population of 8.0% (cf. Eurostat 2012). These figures specify the Baltic Sea Region as a significant social and economic habitat with extensive integration potentials along its national borders.

Of notable relevance for its future development prospects is the instance that the Baltic Sea Region is marked by substantial structural and developmental differences between its countries and regions. Despite various similarities, there are significant cultural, political and economic differences both between and within member states. On the one hand, we find post-transformation countries like the Baltic States which are still experiencing catching-up processes. On the other hand, we have a number of Europe's strongest economies and leading innovation regions in the north-western part of the Baltic Sea Region.

Additionally important for the future development of the Baltic Sea Region is the founded prognosis that several factors influencing its socio-economic development will experience considerable changes during the upcoming years. The framework of its socio-economic development will change due to continuing integration and convergence processes, the structural change towards a service and knowledge-based economy, intensified trade, labour market networking and an overall demographic change. These factors bring about a number of challenges but may also be used as unique opportunities for developing the Baltic Sea Region.

In the following analysis, selected aspects of the socio-economic development of the Baltic Sea Region will be highlighted, in order to gain insights into on-going economic trends and future perspectives. To start with, macroeconomic conditions and trade, productivity and the sectoral breakdown shall be investigated. This will be followed by a thorough look at demographic conditions and innovation aspects and finally con-
cludes with a dissemination of regional development and the role of cities in the Baltic Sea Region. Due to the critical comparability and limited access to data on the Russian Federation, the statistical analysis will in some parts be restricted to focus on the EU members bordering the Baltic Sea.
2 | Macroeconomic Conditions and Trade

In the course of the past two decades, the Baltic Sea Region was subject to far-ranging changes. The decline of the Soviet Union and the obtaining of EU membership for a number of its former states in 2004 were key events for a dynamic development and rapprochement within the region. Convergence processes, which account for growing accordance of economic indicators between new and old members of the EU – resulting in the catching up of lower income countries – play an important role within the Baltic Sea Region (Niebuhr and Schlitte 2008).

Table 1 exhibits an overview of the development of gross domestic product at market prices and of growth in export and import. It becomes apparent that the largest growth rates for all indicators from 2001 to 2011 emerged in the Baltic States and Poland. With a growth in trade of more than 100 % and in gross domestic product of more than 40 - 50 %, these countries are examples of extensive convergence effects.

Table 1
Development of Gross Domestic Product* and Trade 2001–2011

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EU27</td>
<td>10,295,236.0</td>
<td>11,729,884.0</td>
<td>13.9</td>
<td>59.5</td>
<td>58.8</td>
</tr>
<tr>
<td>Denmark</td>
<td>196,202.8</td>
<td>208,179.9</td>
<td>6.1</td>
<td>51.8</td>
<td>59.1</td>
</tr>
<tr>
<td>Germany</td>
<td>2,191,923.8</td>
<td>2,439,721.9</td>
<td>11.3</td>
<td>76.3</td>
<td>67.9</td>
</tr>
<tr>
<td>Estonia</td>
<td>8,411.7</td>
<td>12,030.8</td>
<td>43.0</td>
<td>166.1</td>
<td>144.5</td>
</tr>
<tr>
<td>Finland</td>
<td>141,416.7</td>
<td>169,794.4</td>
<td>20.1</td>
<td>29.5</td>
<td>69.5</td>
</tr>
<tr>
<td>Latvia</td>
<td>9,347.2</td>
<td>13,173.9</td>
<td>40.9</td>
<td>206.7</td>
<td>165.6</td>
</tr>
<tr>
<td>Lithuania</td>
<td>15,378.4</td>
<td>23,363.2</td>
<td>51.9</td>
<td>253.6</td>
<td>224.0</td>
</tr>
<tr>
<td>Norway</td>
<td>190,955.6</td>
<td>352,857.9</td>
<td>84.8</td>
<td>67.5</td>
<td>80.9</td>
</tr>
<tr>
<td>Poland</td>
<td>212,515.2</td>
<td>321,150.5</td>
<td>51.1</td>
<td>188.5</td>
<td>160.2</td>
</tr>
<tr>
<td>Sweden</td>
<td>264,558.9</td>
<td>334,738.9</td>
<td>26.5</td>
<td>64.7</td>
<td>68.5</td>
</tr>
</tbody>
</table>

* at market prices, chain-linked volumes, reference year 2005.
Sources: Eurostat (2012); OECD (2012); HWWI.

Declining disparities in per capita income but still distinct economic differences

Looking more thoroughly at gross domestic product as a main macroeconomic indicator, a similar picture evolves in figure 2, which depicts gross domestic product per capita of the European countries bordering the Baltic Sea, measured in purchasing power standards. Although the Baltic Sea Region is marked by distinct processes of convergence, clear disparities regarding income per capita still exist. Comparing the
highest per capita income EU-country Denmark with Lithuania – the equivalent at the lower end of the ranking – we find a difference in gross domestic product per capita of 18,500 purchasing power standards. For Denmark, this means an income per capita of almost two and a half times as large as for Lithuania. This distinct difference corresponds with the generally large gap between western (Denmark, Sweden, Germany, Finland) and eastern (Poland and the Baltic States) EU countries around the Baltic Sea. Between the fourth and fifth ranked countries – Finland and Estonia – a gap of 12,500 purchasing power standards is denoted.

Nevertheless, catching-up processes of the lower income Baltic Sea neighbours are obvious: While an increase from 2000 to 2010 can be determined for all examined countries, the percentage change is largest for Latvia (86.7 %), Estonia (82.6 %), Lithuania (81.2 %) and Poland (66.3 %). The older members of the EU, which have a generally higher gross domestic product than its newer additions, faced minor increases: Germany (28.6 %), Finland (26.5 %), Sweden (23.9 %) and Denmark (23.5 %).

Russia as yet another former Soviet Union country faced outstanding increases in gross domestic product per capita in the course of convergence processes, too: According to OECD data, it experienced an increase of 191.7 % – from 6,789.4 USD bn in 2000 to 19,833.0 USD bn in 2010 (cf. OECD 2012).
Looking at gross domestic product forecasts for 2010 to 2020 (cf. figure 3), a similar segmentation as in the past century evolves. This indicates that the catching-up process of eastern countries is still prevailing and proceeding in the future. Convergence processes are still decisive factors for economic development in the Baltic Sea Region. The forecasted growth rates, which rely on a model by Oxford Economics, account for more than 40% in Estonia, Latvia, Lithuania and Poland and for approximately 20 to 25% in Denmark, Germany, Finland and Sweden.

Ongoing economic growth and convergence

Yet, slight differences compared to the development from 2001 to 2011 (cf. table 1) occur: Until 2020, Germany will denote the smallest growth in gross domestic product. Simultaneously, Denmark which denoted the lowest growth rate from 2001 to 2011, will exhibit increases in gross domestic product above 20% until 2020. Lithuania will just like from 2001 to 2011 continue exhibiting the greatest growth rates until 2020. Of all countries bordering the Baltic Sea, Russia is going to face the greatest increase in gross domestic product, namely of 100%. It can be stated that despite the partially decelerating convergence processes, the heterogeneous development between eastern

Sources: Eurostat (2012); HWWI.
and western countries around the Baltic Sea is and will still be effective in the near future.

Figure 3

A further macroeconomic indicator, linked with gross domestic product, is the development of the employed population, the states’ human capital as a factor of production. Here, major threats for the positive economic prospects can be determined.

Looking at the change of employed population from 1999 to 2010 (cf. figure 4), a decrease for Lithuania (-4.5 %) can already be spotted. Latvia’s (0.1 %) and Estonia’s (-0.2 %) more or less neutral development is also to be considered critical as unemployment and still hang in these countries. The highest gains in labour force were made in Poland (+11.1 %) and Sweden (+8.7 %).
Growing labour demand

Altogether, developments since 2000 indicate a growing demand for labour in most countries in the Baltic Sea Region. This has to be considered in the context of demographic development described in chapter four. Especially shrinking birth rates within the demographic change play a major role for a reduced supply of new workforce in most of the countries in the next decade.

In view of unemployment rates, we find clear differences between the countries of the Baltic Sea Region. Those countries showing increases in labour force additionally account for high decreases in unemployment from 2000 to 2010.
While Poland, Germany and Finland denoted declines of 0.8 to 6.5 percentage points in unemployment among the population aged 15 or older (cf. figure 5), Denmark, Sweden and the Baltic States recorded increases from 2000 to 2010 (Denmark from 2007 to 2010). Although it has to be kept in mind that figures from 2010 stand under high influence of the financial crisis in 2009, which had differing effects in the countries under observation, high unemployment rates constitute major challenges for the economic and social development around the Baltic Sea, especially for the Baltic States.

**Macroeconomic growth as a driving force for trade**

The development of macroeconomic indicators has a deep impact on trade perspectives. Traditionally, trade plays an important role within the Baltic Sea Region. Regions with access to the Baltic Sea have enjoyed the opportunity of intensive trade relationships and the supply of international goods since medieval times. For the economic development of a region or city, its location along the coast or at a river was therefore crucial. Even nowadays, accessibility is a decisive factor for the competing as a trading location (Niebuhr and Stiller 2004).

International trade volumes are influenced by spatial proximity (Deardorff 1998), as it is a central determinant for transport costs, which again are highly critical for the
characteristics of the provided infrastructure. Quality and capacity of infrastructure networks and the relevance of border obstacles determine the accessibility of regions and as a result trading relationships. In the course of European integration, an extensive reduction of border obstacles could already be denoted by the end of the past century, as surveys by Nitsch (2000) and Head/Meyer (2000) could show.

Border impediments still matter for trade integration in the Baltic Sea Region

Nevertheless, their constraining influences on European trade are still present. The further enhancement of trade development depends on an on-going reduction of border obstacles to increase the integration within the Baltic Sea Region but also with the EU and the world economy (Niebuhr and Stiller 2004).

The relevance of countries bordering the Baltic Sea within the EU trade can be expressed by their share of 35 % as regards the worldwide export of goods and services and 30 % as regards worldwide import of goods and services. The importance within intra-EU trade is similarly high: countries of the Baltic Sea Region account for 32.8 % of intra EU export and for 31.8 % of intra EU import (Eurostat 2012).

Figure 6 illustrates forecasted growth in export volume for the EU. Here, two countries of the Baltic Sea Region (Poland with 82 % and Lithuania with 76 %) as well as a number of other eastern European countries like Bulgaria and Romania, have higher forecasts than the EU on average. The remaining Baltic Sea neighbours exhibit growth rates of 44 % to 60 %. This may partly be due to already high export volumes in western Baltic Sea neighbours like Germany, while many former SU-states are still catching up in this respect.

As the Baltic state with the currently lowest gross domestic per capita, Lithuania’s growth in export presumably corresponds with its positive forecasts for gross domestic product. The position of Estonia and Latvia may be explained reversely with lower gross domestic product forecasts as well as with low transport-based accessibility (Biermann et al. 2012). This indicates further integration potentials between European and global economies.
Figure 6

Growth in Export Volume 2010–2020*

*data for Norway not available
Sources: Oxford Economics (2012); HWWI.
3 | Productivity and Structural Change

In order to gain a clearer understanding of economic activities in the countries of the Baltic Sea Region, productivity measures and the structural change of the economies will be observed in this chapter.

Unlike gross domestic product, gross value added does not include factors varying between countries – like subsidies and taxes. It can be defined as the value of generated products and services less the value of those products and services consumed as intermediate consumption (Eurostat 2012). Hence, it is a measure for the economic output of a region. Figure 7 exhibits gross value added measured in purchasing power standards for the European Baltic Sea neighbours. Output in production constitutes a display similar to gross domestic product – with a distinct gap between eastern and western Baltic Sea countries.

Figure 7

**Gross Value Added in Purchasing Power Standards per Inhabitant 2000–2010**

The developments of gross value added and of employment (cf. figure 5) have direct effects on productivity per person employed, depicted in figure 8 as percentage changes since 2005 for the years 2010 and 2013 (forecast by Eurostat). It can be stated that those countries exhibiting lower results in the analysis of gross value added accounted for the greatest increases in productivity per worker employed since 2005 and will pursue this trend up until the coming year.
While among the former Soviet Union members in the European Baltic Sea Region, Lithuania used to record the highest gains in labour productivity (+ 14.5% in 2010), Latvia is going to outperform its neighbouring country by 2013 with an increase of 27.0%. Compared with the basic year 2005, all countries will exhibit gains in labour productivity per person employed by 2013, although Denmark accounted for a small decrease of 1.5% in 2010.

Figure 8

**Change in Labour Productivity per Person Employed since 2005**

![Graph showing change in labour productivity per person employed since 2005](image)

Sources: Eurostat (2012); HWWI.

Increasing labour productivity due to technological progress

Changes in labour productivity per person employed can further be seen as an indicator for technological productive efficiency. In the course of technological advance, the effect of increasing productivity on employment depends on two effects: On the one hand, the same gross value added can be achieved with less manpower. On the other hand, increasing productivity leads to cost savings, which come into effect as price reductions. This leads to an increased demand, which again is met by increased production. What is described here is the compensational effect of technological advance. Whether technological advance will result in an in- or decrease in employment, depends on the elasticity of demand, namely how much it will rise due to price reductions (Appelbaum/Schettkat 1993; Schettkat 1997).
Findings from surveys imply that while in industry, displacement effects are predominant, the technological advance mostly results in compensation effects in the service sector. Hence, technological advance leads to a relative decrease in employment in the industrial but to an increase in the service sector. This development can already be spotted within sectoral economic activities from 2000 to 2010 (cf. figure 10). Those countries exhibiting high shares in the service sector and other knowledge-based branches of business are therefore likely to enjoy a positive development of employment rates (Blien 2003; Kowalewski and Niebuhr 2008).

Increasing share of the service sector

Looking more closely at the development of sectoral economic activities measured in gross value added from 2000 to 2010 (cf. figure 9), Finland is ranked first as regards increases in the share of tertiary economic activities. Denmark and Lithuania exhibit growth rates in share of tertiary activities above EU average. Sweden, Finland and Denmark recorded minor increases, which nevertheless lie above 60 %. By this, all European countries bordering the Baltic Sea exhibit an increase of the tertiary sector.
Figure 9

**Sectoral Economic Development 2000 – 2010**  
Change in % - points within Total Economic Activities (GVA)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Change in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>-6.5</td>
</tr>
<tr>
<td>Denmark</td>
<td>-5.6</td>
</tr>
<tr>
<td>Lithuania</td>
<td>-2.9</td>
</tr>
<tr>
<td>EU27</td>
<td>-3.3</td>
</tr>
<tr>
<td>Germany</td>
<td>-2.3</td>
</tr>
<tr>
<td>Sweden</td>
<td>-2.4</td>
</tr>
<tr>
<td>Latvia</td>
<td>-2.0</td>
</tr>
<tr>
<td>Estonia</td>
<td>-1.3</td>
</tr>
<tr>
<td>Poland</td>
<td>-1.5</td>
</tr>
<tr>
<td>Norway</td>
<td>-2.0</td>
</tr>
<tr>
<td>Trade, hotels and restaurants, transport; financial intermediation, real estate; public administration and community services; activities of households</td>
<td>-0.6</td>
</tr>
<tr>
<td>Industry; construction</td>
<td>-0.4</td>
</tr>
<tr>
<td>Agriculture, fishing</td>
<td>-0.5</td>
</tr>
<tr>
<td>Sources: Eurostat (2013); HWWI.</td>
<td></td>
</tr>
</tbody>
</table>

Figure 10 illustrates the share of economic sectors in total economic activity measured in gross value added. In all countries of the Baltic Sea Region, shares in the tertiary sector account for more than 60%. Poland, Finland, Lithuania and Estonia denote shares of economic activities in the tertiary sector of 60 to 70%, while Sweden, Germany, Latvia and Denmark as the precursor with 76.1% exhibit shares exceeding 70%. A striking phenomenon is Latvia which on the one hand shows the second largest share of tertiary economic activities and by this outperforms its Baltic neighbours and on the other hand exhibits the largest share of primary economic activities. This indicates a great heterogeneity of economic activities and presumably also of social conditions.
The general implications of technological advance on employment do not imply that all lines in the service sector are going to face growth while all industries will decline (Kowalewski and Niebuhr 2008). As predominant growth generators, the automotive industry and medical engineering can be named as examples within manufacturing and knowledge intensive lines of business within the service sector (Geppert and Gornig 2010).

Expanding knowledge-based industries

Nowadays, knowledge-based industries in general account for the highest gains in economic activity. In the course of the 20th century, the rise of the service economy has been a decisive development for global economies. Its share in national incomes is increasing until today and is a central factor within future economic prospects (Dachs et al. 2003).
Knowledge intensive industries, whose importance will continue growing, can be seen as the future engines of economic activities in the Baltic Sea Region. The observed development of knowledge-based and service intensive economic activities emphasises the importance of innovation and qualified labour for the regions around the Baltic Sea.
4 | Demographic Conditions

Highly relevant for the future development perspectives of the Baltic Sea Region are its demographic conditions. Among other influencing factors, demography has impacts on labour supply, demand for infrastructure and public finances.

The Baltic Sea Region faces a number of demographic challenges, among which the demographic change of its populations due to declining birth rates and growing life expectancies, as well as increasing urbanisation can be found.

The Demographic Risk Atlas 2009 by Kühntopf and Tivig examined the shrinking and ageing of populations in EU countries and regions. It could be observed that while ageing is a global trend, shrinking populations are a rather local phenomenon (Kühntopf and Tivig 2009).

Demographic change becomes more intense

The Regional Demographic Change Index, which indicates the degree of demographic change (i.e. the magnitude of shrinking and ageing of populations) over time, has been calculated for the time periods of 1990 to 2004 and 2004 to 2030 by Kühntopf and Tivig (2009). It is illustrated in figure 11 on the national level. For Denmark, Germany and Poland, the magnitude of demographic change is going to increase distinctly. Estonia faced the strongest demographic alteration in the period of 1990 to 2004 but additionally exhibits the greatest decline in index points for the secondly observed period. Latvia and Lithuania accounted for strong demographic changes from 1990 to 2004. Their degree has noted a distinct drawback, too. Finland and Sweden stay at approximately the same level for both periods, with Sweden exhibiting the lowest degree of demographic change for 2004 to 2030.
Population development, which determines the demographic change and risk calculated by Tivig and Kühnkopf, generally results from natural population development, namely births and deceases, and from migration movements. Table 2 gives an overview of the named indicators.

While the preservation fertility rate lies at 2.1 children per woman, only Sweden, Denmark and Finland approach a rate of two children per woman. The lowest fertility rates can be found in Poland, Germany and Latvia. Within these countries, low fertility rates have been persistent during the past decades. For the upcoming years, population forecasts by Eurostat are based on the assumption that fertility behaviour is not going to change substantially. Therefore, natural population development is expected to have negative impacts in the Baltic Sea Region.
Table 2
Demographic Indicators

<table>
<thead>
<tr>
<th></th>
<th>Fertility rate</th>
<th>Expectancy of life at birth in years</th>
<th>net migration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010***</td>
<td>2010**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>Men</td>
</tr>
<tr>
<td>Denmark</td>
<td>1.87</td>
<td>74.5</td>
<td>79.2</td>
</tr>
<tr>
<td>Germany</td>
<td>1.39</td>
<td>75.1</td>
<td>81.2</td>
</tr>
<tr>
<td>Estonia</td>
<td>1.63</td>
<td>65.2</td>
<td>76.2</td>
</tr>
<tr>
<td>Finland</td>
<td>1.87</td>
<td>74.2</td>
<td>81.2</td>
</tr>
<tr>
<td>Latvia</td>
<td>1.17</td>
<td>64.7</td>
<td>76.0</td>
</tr>
<tr>
<td>Lithuania</td>
<td>1.55</td>
<td>66.8</td>
<td>77.5</td>
</tr>
<tr>
<td>Norway</td>
<td>1.95</td>
<td>76</td>
<td>81.5</td>
</tr>
<tr>
<td>Poland</td>
<td>1.38</td>
<td>69.9</td>
<td>78.0</td>
</tr>
<tr>
<td>Russia</td>
<td>1.54</td>
<td>59.0</td>
<td>72.3</td>
</tr>
<tr>
<td>Sweden</td>
<td>1.98</td>
<td>77.4</td>
<td>82.0</td>
</tr>
<tr>
<td>EU 27</td>
<td>1.60</td>
<td>74.5</td>
<td>80.9</td>
</tr>
</tbody>
</table>

* for Russia data from 2009
** for Latvia and EU27 data from 2002
*** or Russia and EU27 data from 2009
Sources: Eurostat (2012/2013); Federal Statistical Office Russia (2011); HWWI.

In the course of the past decade, life expectancy has risen in all countries with Sweden exhibiting the highest expectancy for both sexes (men 79.6 years/ women 83.6 years). Nevertheless, life expectancy in the Baltic States, Poland and Russia is still clearly lower than in the EU on average. For the future, increasing life expectancy is anticipated for these countries due to several factors, e.g. increasing per capita income, better nutrition and improved environmental conditions.

Migration is a decisive factor for population growth

A highly critical factor for the overall population development is net migration. It can be decisive for whether countries are growing or shrinking. Most countries in the Baltic Sea Region attract more people from abroad than exhibiting causes to emigrate. Yet, net migration is negative in Latvia, Lithuania and in relation to population only slightly negative in Poland, where more people emigrated than immigrated in 2010. However, since the 1990s a large amount of people emigrated from these countries to western EU countries.

A positive migration balance, preferably with skilled workers immigrating, could meet the challenges arising for the labour force in the course of the demographic change. However, migration patterns aggravate natural population development in
most cases. The negative migration balances are therefore to be seen as highly critical for the labour market, which in turn is a critical determinant within the structural change towards knowledge-based economies. Reasons for strong emigrations are among others the considerable wage differentials between the eastern and western countries (Brücker et al 2009).

Declining employable population, mainly of younger persons

Taking a look into the future (cf. table 3), one can see that among the countries of the Baltic Sea Region only Sweden, Finland, Denmark and Poland will denote growth of their populations until 2020. Based on the assumption that there will be no decisive changes in fertility and migration, Lithuania and Latvia will have to endure the greatest losses, followed by Germany.

Table 3
Population Forecast 2020

<table>
<thead>
<tr>
<th></th>
<th>population</th>
<th>population change</th>
<th>employable population</th>
<th>employable population change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010</td>
<td>2020</td>
<td>2010 - 2020</td>
<td>2010 - 2020</td>
</tr>
<tr>
<td>EU27</td>
<td>501.1</td>
<td>514.4</td>
<td>2.6</td>
<td>-1.5</td>
</tr>
<tr>
<td>Denmark</td>
<td>5.5</td>
<td>5.7</td>
<td>3.4</td>
<td>-0.5</td>
</tr>
<tr>
<td>Germany</td>
<td>81.8</td>
<td>80.1</td>
<td>-2.1</td>
<td>-4.3</td>
</tr>
<tr>
<td>Estonia</td>
<td>1.3</td>
<td>1.3</td>
<td>-1.2</td>
<td>-7.2</td>
</tr>
<tr>
<td>Finland</td>
<td>5.4</td>
<td>5.6</td>
<td>4.2</td>
<td>-4.1</td>
</tr>
<tr>
<td>Latvia</td>
<td>2.2</td>
<td>2.1</td>
<td>-4.8</td>
<td>-8.8</td>
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<tr>
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<td>3.2</td>
<td>-4.5</td>
<td>-8.3</td>
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<td>5.1</td>
<td>5.7</td>
<td>6.8</td>
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<td>38.4</td>
<td>0.6</td>
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<td>141.0</td>
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<td>-7.7</td>
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<td>9.3</td>
<td>10.1</td>
<td>7.8</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Sources: Eurostat (2012); Russia: UN World Population Prospects (2010); HWWI.

As regards changes of the employable population, forecasts are particularly drastic in the Baltic States, Poland and Russia. This corresponds with the change of population by age groups depicted in figure 12. Here, it can be noted that in the named countries, the decline in population aged 15 to 44 will be most severe. The same holds for Germany. As this is the younger fraction of the employable population, outlooks for the time past 2030 are similarly negative.
Demographic changes influence the economic development of the Baltic Sea Region. Social security systems, financial markets, infrastructure and labour force are collaterally affected. Due to varying initial positions, the demographic change and its effects on production preconditions and development potentials - especially on the labour market - will assume different shapes within the regions around the Baltic Sea (Stiller and Wedemeier 2011 b). For many countries, central tasks are to preserve the employable population as long as possible as a part of the active population and to address migration as a threat for labour force development.
5 | Innovation

In order to sustain competitiveness with other countries, but also in the context of demographic change, innovation is a central issue for all European countries. Within the knowledge-based structural change, it is the prime element enhancing further economic growth and value adding (Bundesministerium für Bildung und Forschung 2007). For the higher income countries in the Baltic Sea Region, innovation is a tool to stay assertive on global markets. For those countries still going through a process of catching-up, innovation is a measure to accelerate these processes.

Innovation and knowledge-based structural change support competitiveness

Within the European growth strategy "Europe 2020", which has the aim of creating an intelligent, sustainable and inclusive European economy, innovation can be found in the core of a number of recommendations. Within the flagship initiative "smart growth", innovation is the central element for creating growth and jobs in Europe. The EU embraced the fact that ageing populations and global competition can only be met with innovative progresses in the design of production, services and business models (Innovation Union 2012).

The securitisation of its technological efficiency and its innovation power is a central prerequisite for the Baltic Sea Region to enhance its competitiveness as an economic location. These factors widely cohere with the educational level of the population, especially with the qualification of staff in the research and development sector.

As regards the share of the national population aged 15 to 64 with an educational attainment in the tertiary educational sector (cf. figure 13), an increase from 2003 to 2011, or at least a stagnation in case of Denmark, can be observed for all EU countries bordering the Baltic Sea. Here, Finland (31.6 %), Estonia (29.7 %) and Sweden (28.1 %) are ranked first. With approximately 27 %, Lithuania and Denmark achieve a remarkable percentage, too. Lower shares were calculated for Germany (22.5 %), Latvia (22.5 %) and Poland (19.8 %). The highest shares of inhabitants with a degree in the upper and post-secondary sector can be found in Poland and the Baltic States. The lowest share of pre-primary, primary and lower secondary degrees or correspondingly the highest level of secondary and tertiary education can be found in Lithuania. With the exception of Denmark, the share of primary and secondary educational degrees has diminished in all observed countries.
High share of qualified population in the Baltic Sea Region

The high shares of well-educated people in the Baltic Sea Region, especially of the Northern Countries and Baltic States, are in accordance with a dominant, above EU average lying, tertiary sector in all the observed national economies and display a great potential in the field of innovation.

Within the discussion on the importance of tertiary degrees, it should also be regarded that vocational education, which is located in the secondary sector also holds a decisive role for macro- and microeconomic development. A survey by the European Centre for the Development of Vocational Training displays that in many European coun-
tries, vocational training has positive impacts on wages, employment and mobility. For enterprises, it improves productivity, innovation and organisational culture. It is further stated to be of special benefit for disadvantaged regions (Publications Office of the European Union 2011).

Strong disparities in employment in knowledge-intensive industries, potential for Baltic States

Figure 14 exhibits the share of employment in knowledge intensive industries for the EU countries of the Baltic Sea Region. Again, a distinct disparity between former Soviet Union countries and the north western Baltic Sea neighbours can be viewed. With 54.0 % of total employment in knowledge intensive industries, Sweden exhibits the largest share of knowledge-based active population. Germany, Denmark and Finland account for shares approximately between 45 and 50 %. The lowest share of employment in knowledge intensive industries is denoted in Latvia, where only 29.2 % of the active population has a corresponding employment. While Poland and Lithuania exhibit shares slightly above 30 %, Estonia (33.2 %) stands for the greatest fraction of employees in knowledge intensive industries among the eastern Baltic Sea neighbours.

Slight differences between the rankings of the countries according to the educational level of the population and the share of employment in knowledge intensive industries are displayed. In both figures, Finland and Sweden reveal the highest shares, but in contrast to the educational level of the employable population, the shares in knowledge intensive industries are among the lowest in the Baltic States. Although Estonia and Lithuania have a 25−, respectively 30 %−share of population with a degree from the tertiary level, the share of employment in corresponding industries lies at 5.3 % in Estonia and at only 4.9 % in Lithuania.
It can be reasoned that the potential of a highly educated population has not yet been fully utilised in all countries of the Baltic Sea Region. This should be seen as a call for action from political and economic decision makers, as these sectors are highly crucial within the structural change, especially for the generating and adaption of innovation.

The differences among the countries as regards employment in knowledge intensive industries may be correlated with investments made in these sectors, as figure 15 on personnel and expenditures in the field of research and development illustrates.
Finland, Denmark and Sweden invest more than 3% of their gross domestic products in research and development and exhibit the highest share of corresponding personnel in total employment. While in the western countries of the Baltic Sea Region, the percentage of R&D expenditures in gross domestic product clearly exceed the share of personnel in this sector, the observation is converse (or in case of Estonia much less distinct) in the eastern countries. Especially in Lithuania, the share of personnel in R&D within total employment by far exceeds investments made in this sector.

Denmark, Germany, Finland and Sweden as innovation leaders

Table 4 presents central innovation indicators, among which the Innovation Union Scoreboard (IUS) can be found. It is the successor of the former European Innovation Scoreboard and assesses the comparative innovation performance of European countries. Here, four countries from the Baltic Sea Region (Sweden, Denmark, Germany and Finland) are classified as innovation leaders. Estonia is marked as an innovation follower, Poland as a moderate innovator and Lithuania and Latvia are classified as modest innovators. The ranking widely corresponds with most innovation indicators.
Looking at patent applications, Sweden, Germany and Denmark can be regarded as the top inventors in the Baltic Sea Region, while patents play a minor role in Poland, Lithuania, Latvia and Russia.

While the gap between the eastern and western states of the Baltic Sea Region as regards innovation is still very broad, it is expected to decline in the future due to convergence processes and expanded R&D capacities. Here, spatial proximity will play an important role and Poland, Russia and the Baltic States will benefit from exchange and cluster effects with already knowledge-based economies such as Sweden and Finland. Hence, the reduction of border obstacles and the promotion of mobility between these countries are supported by another just cause.

Cross-border clustering and spatial proximity foster innovation potential

For the innovativeness of the Baltic Sea Region and the development of its less innovative regions, another driving phenomenon can be named: Cross-border clustering plays a major role within knowledge-based growth. It largely depends on spatial prox-
imity and face-to-face contacts, which promote exchange between businesses and the development of networks and cluster effects. As Porter observed already in the 1990s, despite open global markets, the supply of fast transportation services and modern tools of communication, location and spatial proximity still play a major role for competition. Clusters are geographic concentrations which provide an interconnection of companies and institutions in a specific field of business activity. They have proven to increase productivity, innovation and to stimulate the formation of new businesses (Porter 1998).

Good examples for cross-border clusters in the Baltic Sea Region are the health sector and the creative industry. Especially in the context of increasing life expectancies, the health sector is growing in importance for the entire Baltic Sea Region and gives rise to potentials for cross-border cooperation and cluster developments. A successful example is "Medicon Valley", a supranational institution within health care and life sciences in the Øresund region of eastern Denmark and southern Sweden. It contains a wide cluster of hospitals, universities and companies and is one of the strongest life science regions in Europe (Medicon Valley 2012).

As great innovation potentials and triggers, environmental technology and energy supply can be named, too. These lines of businesses give due to their characteristic innovation dynamics and increasing economic importance rise to numerous new businesses and work places. Furthermore, they invigorate innovation within the Baltic Sea Region (Stiller and Wedemeier 2011a).
6 | Regional Structures and the Role of Cities

Having investigated the development on the national level, the observation of regional structures partly delivers a more heterogeneous pattern of the Baltic Sea Region. Within the context of regional clustering, cross-border exchange of knowledge and goods, migration and the role of cities in the Baltic Sea Region, it is indispensable to take a look at regional developments, in order to understand current and future trends.

Looking at the development of gross domestic product, a rapid process of convergence on the national level could be viewed. Yet, observations on the regional level exhibit heterogeneous dynamics as illustrated in the following map (figure 16). Similar to the national level, a clear gap between eastern and north-western regions around the Baltic Sea can be determined. Whereas western German, Danish, Swedish and most Finish regions exhibited increases of less than 50 %, almost all regions in Poland and the Baltic States denoted rates of 50 up to 120 % growth.

Regional disparities in economic growth

The region of Mecklenburg-Vorpommern recorded higher growth rates than western German regions. It experienced as a member of the former GDR a profound convergence process after 1990. Rural areas in northern Sweden and Finland experienced catching-up processes with higher income regions, too. Being the only western region which denoted growth rates exceeding 65 %, the region Itä-Uusimaa near the Finish capital Helsinki (+76 %) is likely to have enjoyed economic growth, e.g. due to new trading relations with former Soviet Union countries.
Plenty of regions suffer from high unemployment

Taking a look at unemployment rates on the regional level, a number of regional peculiarities can be examined in Figure 17. Unemployment rates in several regions, distinctly in Mecklenburg-Vorpommern in Germany, zachodnio-pomorskie in Poland, Itä-Suomi and Pohjois-Suomi in Finland as well as in Mellersta Norrland in Sweden, exceed those of the national levels. This indicates structural differences between regions as regards the composition of the labour force. Improving employment options and mobilising the labour reserve are specific tasks for the named regions in order to secure their economic development.
Ongoing urbanisation: Growing cites in large parts of the Baltic Sea Region

Also population development evolves heterogeneously on the regional level. In figure 18, it can be observed that especially urban areas denoted increases from 2007 to 2011. While the regions surrounding Helsinki, Riga, Gdansk, Malmö and Stockholm denoted the comparably largest increases, declines are strikingly evident in Mecklenburg-Vorpommern and the rural areas of Lithuania and Latvia. This accounts for nega-
tive migration balances and for the growing attractiveness of cities as working and living locations.

Figure 18

Regional population development can to a great extent be ascribed to the fact that spatial development in Europe is marked by extensive urbanisation processes. While in 1950 only 51.2% of all Europeans lived in cities, the percentage amounted to 72.6 in 2010. In 2050, up to 83.8% of the European population might live in a city (United Nations 2012).

In the cities of the Baltic Sea Region, emigration aspects are far less drastic than for the national populations in general. Cities as economic centres attract international migrants as well as the local population and exhibit different developments than national populations. In large parts of the Baltic Sea Region, population and production are concentrated in the larger cities and their surrounding regions, as figure 19 and 20 illustrate.
Many large cities in the Baltic Sea Region grew faster than their countries. A polarisation of population development and as a result also of economic activity is implicated. As a consequence, urban centres play a major role within the national economies. As figure 21 shows, many cities account for a large proportion of their regions' economic production and population. Successful cities have a major importance for their regions and hold key functions as regards the economic development of the entire Baltic Sea Region. Stockholm, Helsinki and Aarhus house more than 50% of their regions' populations and produce more than half of their gross domestic products. Tallinn and Riga, which are compared to national levels, i.e. Estonia and Latvia, describe their role as economic centres by accounting for more than 50% of gross domestic product while exhibiting 30 to 40% of national population. Lithuania appears to be less concentrated on its capital, as Vilnius accounts for less than 40% of gross domestic product and slightly over 25% of national population. For the Polish Voivodships, their major cities play an important economic role. Especially the economic centre of tricity, containing Gdansk, Gdynia and Sopot, which accounts for almost 50% of Pomerania's gross domestic product and for more than 30% of its population holds a striking position. Of the German cities, Hamburg which was compared to Northern Germany (Mecklenburg-Vorpommern, Niedersachsen, Schleswig-Holstein, Bremen and Hamburg) contributes a major part to economic production of this region (20%).
The cities’ central role within the economy and as a location for work and life can further be explained by their pioneering role within knowledge intensive industries. Urban development interdepends with the knowledge-based structural change. The workplaces of knowledge intensive industries are predominantly located in cities (Blech at al. 2008). Here, universities and research institutions can be found as well as headquarters of major companies. This stimulates knowledge exchange and mutual innovation promotion. Due to their locational advantages for the industries of the future, the importance of cities as driving forces of regional growth will increase. Loca-
tions with a high degree of knowledge-based industries will benefit from the structural change.

Advantage locational conditions for knowledge-based structural change can be found in cities

The share of employment in knowledge intensive industries as an indicator for the knowledge-based structural change on NUTS2- level (cf. figure 22), confirms the importance of cities within knowledge intensive industries. Among the Baltic Sea regions with the highest shares of employment in knowledge intensive industries, are Stockholm and its surrounding region Östra Mellansverige, the Copenhagen region (Hovedstaden), Hamburg, the Malmö region (Sydsverige) and the Helsinki region (Etelä-Suomi). Among the Polish regions, Pomorskie comprising Tricity Gdansk-Gdynia-Sopot is ranked highest.
Figure 22

Share of Employment in Knowledge Intensive Industries 2008*

*EU 27, Poland, Sweden and Åland 2007

Sources: Eurostat (2012); calculations HWWI.
The innovative power of urban regions is another factor linking them to knowledge-intensive industries and the structural change. The Regional Innovation Scoreboard (RIS) assesses the innovative power of regions in the European Union on NUTS2-level (exception: Denmark on NUTS1-level). It is illustrated in figure 23 for the Baltic Sea Region. Looking at regional differences, further indicators for the cities role within the structural change can be observed: Hamburg is marked as having a high innovative strength in contrast to its medium high innovative surroundings. The same holds for the regions of the larger Swedish cities in contrast to the rural north of the country and for Pomorskie as a medium low innovative region with the cities Gdansk and Gdynia in contrast to the remaining Polish regions at the Baltic coast which are marked as low innovators.

Figure 23

Regions in the Baltic Sea Region account for heterogeneous structures and developments as regards gross domestic product, employment, population and innovative power. Despite the prevailing structural differences and on-going convergence be-
tween eastern and western member states, the outstanding role of cities as regional and national centres of economic development, especially within the knowledge-based structural change, is a common feature all over the Baltic Sea Region.
7 | Regional Perspectives

Generally, regional growth perspectives depend on several factors, e.g. demographics, economic structure, educational level, innovative potential and the macroeconomic environment. The analyses clearly show strong regional disparities regarding economic and demographic structures as well as dynamics. Altogether, regions in the Baltic Sea Region exhibit heterogeneous conditions for future development.

In the following, we selected some criteria for identifying groups of regions with relatively advantageous growth perspectives on the one hand and such having less favourable perspectives on the other. Criteria for identifying types of regions with different development perspectives are population growth, GDP growth, educational level, share of knowledge intensive industries, innovative potential and unemployment. While the growth indicators point towards regional dynamics, the latter figures relate to structural conditions.

In most cases, we refer to NUTS 2 regions and to national data for Estonia, Latvia and Lithuania. Thereby it has to be considered that there are also distinct disparities within these regions, e.g. between cities and other regional types. But for most indicators, data are only available for NUTS 2. However, referring to this type of regions is also very indicative for illustrating disparities in development for the regional economies.

Growing and shrinking regions

Table 5 exhibits data on population development from 2001 to 2011 as well as national population forecasts until 2020. These demographic frameworks constitute the overall surrounding conditions for regional demographic development. However, factual regional demographic development crucially depends upon migration figures.

Regions with high demographic growth potentials are concentrated in Finland, Sweden and Denmark. For these countries, projected population growth is in the range from 3.4 % up to 7.8 %. These developments go back to the fact that fertility rates are relatively high in these regions and that corresponding countries account for net migration. They also realised relatively high population growth since 2001. Altogether, there is an ongoing and lasting trend of an increasing number of inhabitants in the predominant number of regions in the Northern countries ranging from 5.3 % (Östra Mellansverige) to 17.5 % (Oslo og Akershus).

Additionally, plenty of regions from these countries, Pomorskie, Hamburg and the German Schleswig-Holstein gained population in the range from 0.5 % to 3.8 % since 2001 while corresponding population forecasts indicate population growth except for Germany. With relatively high population growth since 2001 Pomorskie deviates from
the demographic trends in the other Polish regions and also exhibits a better position than the Baltic States.

Among the shrinking regions we find a Polish region, and smaller Finnish and Swedish region as well as Latvia, Lithuania and Estonia. Population decline since 2001 was also relatively high in Mecklenburg-Vorpommern (-8,2 %).

Altogether we can summarise, that for regions in Northern Europe which strongly grew since 2001 national population forecasts also indicate an increasing number of population for the future. The opposite holds for shrinking regions. This means that regions which already had to cope with serious demographic threats in the past decade will be even be more affected by demographic change in the future. We can conclude that especially regions in the Baltic States still facing a process of convergence, with relatively low per capita income and serious unemployment, are affected by population decline.
<table>
<thead>
<tr>
<th>NUTS-2</th>
<th>Population Growth</th>
<th>Population(^1)</th>
<th>Population Development</th>
<th>Population Projections to 2020</th>
</tr>
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<tr>
<td></td>
<td></td>
<td>2011</td>
<td>2001 - 2011(^2)</td>
<td>national level</td>
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<tr>
<td>N001</td>
<td>Oslo og Akershus</td>
<td>1,144,9</td>
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<tr>
<td>SE11</td>
<td>Stockholm</td>
<td>2,054,3</td>
<td>13,9</td>
<td>7,8</td>
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<td>Ågder og Rogaland</td>
<td>718,5</td>
<td>13,9</td>
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<td>Sydsverige</td>
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<td>9,6</td>
<td>7,8</td>
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<tr>
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<td>Åland</td>
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<td>9,0</td>
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<td>Zachodniopomorskie</td>
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<td>-0,2</td>
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<td>Eesti</td>
<td>1,340,2</td>
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<td>-1,2</td>
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<tr>
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<td>-5,2</td>
<td>4,2</td>
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<td>Latvija</td>
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<td>Lietuva</td>
<td>3,052,6</td>
<td>-13,1</td>
<td>-4,5</td>
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</tbody>
</table>

Source: Eurostat (2012); HWWI.
Advantageous demographic perspectives for regions in Northern countries

As regards the demographic change, ageing and shrinking of population trends on the regional level might strongly deviate from the national ones. This can be illustrated by the matrix of the regional demographic risk type from 2004 to 2030 by Tivig and Kühntopf (figure 24) which combines ageing with population growth.

Also from this perspective, plenty of Swedish and Finnish regions as well as Denmark exhibit most advantageous demographic perspectives marked by slower processes of ageing and shrinking compared to the EU-27 average. On the contrary, Polish regions will be strongly affected by ageing and shrinking. But it has to be considered, that among these, the position of Pomorskie is less serious regarding ageing and shrinking.

Figure 24

Regional Demographic Risk Type 2004 – 2030*

Slower Ageing
Faster Shrinking

Faster Ageing
Faster Shrinking

Relative Ageing
Compared to EU27 Average

Relative Shrinking
Compared to EU27 Average

Latvia
Estonia

SE32
SE33
SE21
SE12
SE23
SE11

SE22

Sweden

Denmark
Finland

DE60 = Hamburg; DEF0 = Schleswig-Holstein; DE80 = Mecklenburg-Vorpommern; FI13 = Itä-Suomi; FI18 = Etelä-Suomi; FI19 = Länsi-Suomi; FI1A = Pohjois-Suomi; FI20 = Åland; PL34 = Podlaskie; PL42 = Zachodniopomorskie; PL62 =
Taking a look at German regions, Hamburg (DE 60) is ageing medium slowly and is shrinking in accordance with the EU-27 average, while Schleswig-Holstein (DE F0) exhibits a growth rate of population above EU-27 average and above Germany on the national level. Mecklenburg-Vorpommern will face the most intense demographic change – with shrinking and rapidly ageing populations – of the German Baltic Sea regions.

Higher educational level in fast growing regions

Combining demographic trends and regional education level is informative for assessing future development potentials. Figure 25 combines data on share of population with tertiary education with population growth.

Figure 25

**Typology According to Population Development and Educational Level**

<table>
<thead>
<tr>
<th>NUTS-0 and NUTS-2 levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slower Growth</td>
</tr>
<tr>
<td>Higher Educational Level</td>
</tr>
<tr>
<td>SLOOW</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Faster Growth</td>
</tr>
<tr>
<td>Higher Educational Level</td>
</tr>
<tr>
<td>FAST</td>
</tr>
</tbody>
</table>

**Relative Population Growth 2001 - 2011**

Compared to EU27 Average

**Relative Share of Tertiary Education Attainments 2012**

Compared to EU27 Average

Sources: Eurostat (2013); HWWI.

- DK01 = Hovedstaden; DK02 = Sjælland; DK03 = Syddanmark; DK04 = Midtjylland; DK05 = Nordjylland; DE60 = Hamburg; DEF0 = Schleswig-Holstein; DE80 = Mecklenburg-Vorpommern; FI13 = Itä-Suomi; FI18 = Etelä-Suomi; FI19 = Länsi-Suomi; FI1A = Pohjois-Suomi; FI20 = Åland; NO01 = Oslo og Akershus; NO02 = Hedmark og Oppland; NO03 = Sør-Ostlandet; NO04 = Agder og Rogaland; NO05 = Vestlandet; NO06 = Trøndelag; NO07 = Nord-Norge; PL34 = Podlaskie; PL42 = Zachodniopomorskie; PL62 = Warmińsko-Mazurskie; PL63 = Pomorskie; SE 11 = Stockholm; SE12 = Östra
Most regions in the Nordic countries as well as Hamburg grew faster than the EU on average from 2001 to 2011. At the same time they exhibit a relatively high educational level. Instead, Polish regions have lower educational level and grew below EU average implying relatively disadvantaged locational conditions. In the Baltic States there is a relative high educational level while population growth is below EU average. Generally a relatively high share of well-educated people has a positive impact on regional economic growth potential opening up opportunities for the future.

**Macroeconomic growth continues in the Baltic Sea Region**

Table 6 gives an overview on economic growth on the regional level. The Baltic States and the Polish regions had highest growth rates in gross domestic product per capita from 1999 to 2009. Up to 2020 growth projections still implicate the highest growth rates in the Baltic Sea Region for Estonia (+4.3 %), Latvia (+47.9 %) and Lithuania (53.1 %). Therefore it can be expected that the process of catching up in per capita terms will go on in this region.

The macroeconomic projections also implicate that Polish regions will converge as regarding per capita income. However, in 2020 there will still be groups with relatively low per capita income and such with relatively high per capita income. Especially income gaps between Swedish, Finish, Danish regions on the one hand and Baltic States and Polish regions on the other hand will remain. Among the Polish regions Pomorskie had the highest GDP per capita in 2009.

In Germany we find a distinct income gap between Hamburg, having a relatively high income, and Schleswig-Holstein and Mecklenburg-Vorpommern. Mecklenburg-Vorpommern is ranked among the regions with lowest per capita income. Income disparities are highly relevant for local economic conditions. The regional income level impacts on regional development potential by several channels, e.g. affecting the level of regional investments and consumption.

Combining demographic and economic growth, we find different types of regions (figure 26). There is a group of regions having GDP growth but population losses. A second group has GDP growth rates from 1999 to 2009 above 40 % and is also growing from a demographic perspective. This holds also for another group of regions but at much lower GDP growth rates. Especially the development of the second group of regions from Oslo to Pomorskie is characterised by stable development as to demographics and economics. It is important to always keep in mind that due to process-
es of economic convergence, regions with relatively high per capita income, e.g. Hamburg and Stockholm, exhibit relatively low economic growth rates. Having positive population development, these cities are attractive for population.

Table 6

<table>
<thead>
<tr>
<th>NUTS-2</th>
<th>Region</th>
<th>Economic Growth (GDP in PPS per capita)</th>
<th>Gross Domestic Product</th>
<th>National Economic Growth Projections (GDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>%</td>
<td>PPS per capita %</td>
<td>%</td>
</tr>
<tr>
<td>EE00</td>
<td>Eesti</td>
<td>96,1</td>
<td>14.900</td>
<td>45,3</td>
</tr>
<tr>
<td>LV00</td>
<td>Latvija</td>
<td>87,5</td>
<td>12.000</td>
<td>47,9</td>
</tr>
<tr>
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<td>Lietuva</td>
<td>85,5</td>
<td>12.800</td>
<td>53,1</td>
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<tr>
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<td>10.500</td>
<td>40,4</td>
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<tr>
<td>PL63</td>
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<td>58,0</td>
<td>13.900</td>
<td>40,4</td>
</tr>
<tr>
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<td>Warminsko-Mazurskie</td>
<td>54,4</td>
<td>10.500</td>
<td>40,4</td>
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<tr>
<td>PL42</td>
<td>Zachodniopomorskie</td>
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<td>12.500</td>
<td>40,4</td>
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<tr>
<td>FI13</td>
<td>Itä-Suomi</td>
<td>36,1</td>
<td>20.000</td>
<td>25,5</td>
</tr>
<tr>
<td>DE80</td>
<td>Mecklenburg-Vorpommern</td>
<td>35,6</td>
<td>19.800</td>
<td>19,6</td>
</tr>
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<td>Pohjois-Suomi</td>
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<td>22.200</td>
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<td>Länsi-Suomi</td>
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<td>25,5</td>
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</tr>
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<td>Stockholm</td>
<td>28,3</td>
<td>40.400</td>
<td>24,0</td>
</tr>
<tr>
<td>SE33</td>
<td>Övre Norrland</td>
<td>27,8</td>
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<td>24,0</td>
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<td>25.900</td>
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<td>Mellersta Norrland</td>
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<td>25.800</td>
<td>24,0</td>
</tr>
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<td>SE12</td>
<td>Östra Mellansverige</td>
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<td>23.800</td>
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<tr>
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<td>Midtjylland</td>
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<td>27.000</td>
<td>20,4</td>
</tr>
<tr>
<td>SE23</td>
<td>Västsverige</td>
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<td>26.200</td>
<td>24,0</td>
</tr>
<tr>
<td>DK02</td>
<td>Sjælland</td>
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<td>21.100</td>
<td>20,4</td>
</tr>
<tr>
<td>SE21</td>
<td>Småland med öarna</td>
<td>21,2</td>
<td>24.000</td>
<td>24,0</td>
</tr>
<tr>
<td>DK03</td>
<td>Syddanmark</td>
<td>20,6</td>
<td>25.800</td>
<td>20,4</td>
</tr>
<tr>
<td>DE60</td>
<td>Hamburg</td>
<td>20,5</td>
<td>44.100</td>
<td>19,6</td>
</tr>
<tr>
<td>SE31</td>
<td>Norra Mellansverige</td>
<td>19,9</td>
<td>23.500</td>
<td>24,0</td>
</tr>
</tbody>
</table>
Figure 26

**Regional Growth Indicators***

*For the Danish regions, population development and employment rates were calculated for the period of 2007 to 2011. National data for GDP growth in Norway.*

Sources: Eurostat (2013); HWWI.

Innovative potential as engine for future growth
For assessing economic development perspectives, regional specialisation as to knowledge-intensive sectors, educational level and innovative potential are informative indicators (cf. table 7). The regional innovation scoreboard groups regions according to their innovative potential considering these as well as additional indicators as to research and development and education (European Union 2012).

The group with highest innovative potential – so-called innovation leaders – consists of Danish, Finnish and Swedish regions. The corresponding regions do not only have growth potential due to a high share of knowledge-intensive industries and high share of population with a tertiary educational attainment. They are also regions with high population growth rates. The only exception is Övre Norrland where population shrank since 2001.

The second group, innovation leaders, comprises regions from Denmark, Sweden, Finland and Germany. Most of these regions have lower shares of knowledge-intensive industries than the top regions of the first group. Additionally, educational level is on average not as high as among innovation leaders.

In the third group we find moderately innovative regions, to which more rural areas from Finland, Sweden and Norway belong to.

Polish regions, the Baltic States and Nord-Norge belong to group number four subsuming modest innovation regions. Among the eastern regions the position of Pomorskie regarding specialization in knowledge-intensive regions is much more advanced than in the other Voivodships considered. There the agricultural sector still has a relatively high share due to which share of the knowledge-intensive sectors still is relatively low.
Table 7
Regional types according to innovation potential

<table>
<thead>
<tr>
<th>NUTS-2</th>
<th>Educational Level knowledge intensive industries²</th>
<th>Regional Innovation Scoreboard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
<td>2011</td>
</tr>
<tr>
<td><strong>Innovation, Leader</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DK01 Hovedstaden</td>
<td>57,0</td>
<td>45,4</td>
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<td>DK04 Midtjylland</td>
<td>47,5</td>
<td>30,1</td>
</tr>
<tr>
<td>DE60 Hamburg</td>
<td>54,2</td>
<td>32,0</td>
</tr>
<tr>
<td>FI18 Etelä-Suomi</td>
<td>50,3</td>
<td>43,5</td>
</tr>
<tr>
<td>FI19 Länsi-Suomi</td>
<td>46,4</td>
<td>36,2</td>
</tr>
<tr>
<td>FI1A Pohjois-Suomi</td>
<td>44,1</td>
<td>35,7</td>
</tr>
<tr>
<td>SE11 Stockholm</td>
<td>59,3</td>
<td>43,9</td>
</tr>
<tr>
<td>SE12 Östra Mellansverige</td>
<td>54,8</td>
<td>31,8</td>
</tr>
<tr>
<td>SE22 Sydsverige</td>
<td>53,5</td>
<td>36,8</td>
</tr>
<tr>
<td>SE23 Västsverige</td>
<td>53,9</td>
<td>34,4</td>
</tr>
<tr>
<td>SE33 Övre Norrland</td>
<td>52,5</td>
<td>33,3</td>
</tr>
<tr>
<td><strong>Innovation, Follower</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DK02 Sjælland</td>
<td>48,5</td>
<td>27,3</td>
</tr>
<tr>
<td>DK03 Syddanmark</td>
<td>44,7</td>
<td>27,5</td>
</tr>
<tr>
<td>DK05 Nordjylland</td>
<td>44,9</td>
<td>28,1</td>
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<tr>
<td>DE80 Mecklenburg-Vorpommern</td>
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<td>27,3</td>
</tr>
<tr>
<td>DEF0 Schleswig-Holstein</td>
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<td>24,3</td>
</tr>
<tr>
<td>FI13 Itä-Suomi</td>
<td>44,2</td>
<td>32,0</td>
</tr>
<tr>
<td>NO03 Sør-Østlandet</td>
<td>50,2</td>
<td>32,1</td>
</tr>
<tr>
<td>NO04 Agder og Rogaland</td>
<td>49,5</td>
<td>34,3</td>
</tr>
<tr>
<td>NO05 Vestlandet</td>
<td>51,8</td>
<td>36,0</td>
</tr>
<tr>
<td>NO06 Trøndelag</td>
<td>49,7</td>
<td>38,3</td>
</tr>
<tr>
<td>SE21 Småland med öarna</td>
<td>48,0</td>
<td>27,9</td>
</tr>
<tr>
<td>SE32 Mellersta Norrland</td>
<td>52,3</td>
<td>29,7</td>
</tr>
<tr>
<td>EE00 Eesti</td>
<td>33,2</td>
<td>36,8</td>
</tr>
<tr>
<td>NO01 Oslo og Akershus</td>
<td>55,0</td>
<td>48,8</td>
</tr>
<tr>
<td><strong>Innovation, moderate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE31 Norra Mellansverige</td>
<td>48,4</td>
<td>27,8</td>
</tr>
<tr>
<td>NO02 Hedmark og Oppland</td>
<td>43,5</td>
<td>29,0</td>
</tr>
<tr>
<td>FI20 Åland</td>
<td>51,1</td>
<td>26,4</td>
</tr>
<tr>
<td><strong>Innovation, modest</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LT00 Lietuva</td>
<td>30,2</td>
<td>33,6</td>
</tr>
<tr>
<td>NO07 Nord-Norge</td>
<td>50,7</td>
<td>33,5</td>
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<tr>
<td>PL63 Pomorskie</td>
<td>37,3</td>
<td>24,4</td>
</tr>
<tr>
<td>LV00 Latvia</td>
<td>29,2</td>
<td>27,7</td>
</tr>
<tr>
<td>PL34 Podlaskie</td>
<td>25,5</td>
<td>24,4</td>
</tr>
<tr>
<td>PL42 Zachodniopomorskie</td>
<td>35,1</td>
<td>21,4</td>
</tr>
<tr>
<td>PL62 Warminsko-Mazurskie</td>
<td>25,7</td>
<td>19,8</td>
</tr>
</tbody>
</table>

Source: Eurostat (2013); European Innovation Scoreboard 2012; HWWI.
Indicators on demographic development, per capita income, economic growth, education and innovative potential illustrate that we can characterise different groups of regions in the Baltic Sea Region.

**Type A:** A sample of regions has positive prospects for population growth and GDP growth as well, taking over a specific position due to very dynamic demographic development and comparatively slow ageing. The corresponding regions also exhibit favourable economic structures due to a relatively high share of knowledge-intensive industries. The educational level of the population as well as per capita income is relatively high. Among these, especially cities in the Northern countries, e. g. Stockholm, Copenhagen and Helsinki, are very dynamic.

**Type B:** Plenty of regions which already realised high per capita income and a relatively high share of knowledge-based industries grow at medium rates. They are attractive for population but do not realise as high population growth rates as northern regions due to lower fertility rates. Future development prospect are still advantageous due to a relatively high qualification level and position as innovation followers. This forms advantageous conditions for profiting from knowledge-based structural change.

**Type C:** The third group of regions is still in a process of catching-up. Some of these regions are seriously hit by population losses which in many of them will even continue in the future. Additionally they still have to cope with structural problems due to low specialisation in highly productive knowledge-intensive sectors and relatively low innovative activities. However, growth perspectives regarding per capita income are positive due to ongoing macroeconomic growth. Within this group the Baltic States, the Polish Voivodships and Mecklenburg-Vorpommern dominate. These regions exhibit highest unemployment rates (table 8) indicating structural economic problems. Thereby the special position of cities in the Baltic States has to be considered. They are centres even of the national economies and deviate in many respects positively from other regions of the respective countries.
## Table 8

### Unemployment

<table>
<thead>
<tr>
<th>NUTS-2</th>
<th>Unemployment rate</th>
<th>2011</th>
<th>2011</th>
</tr>
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<tbody>
<tr>
<td>Total unemployment rate below 4 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO04</td>
<td>Agder og Rogaland</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td>FI20</td>
<td>Åland</td>
<td>2.7</td>
<td>2.8</td>
</tr>
<tr>
<td>NO02</td>
<td>Hedmark og Oppland</td>
<td>2.9</td>
<td>2.4</td>
</tr>
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<td>Vestlandet</td>
<td>3.1</td>
<td>3.1</td>
</tr>
<tr>
<td>NO01</td>
<td>Oslo og Akershus</td>
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<td>3.0</td>
</tr>
<tr>
<td>NO06</td>
<td>Trøndelag</td>
<td>3.5</td>
<td>3.5</td>
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<tr>
<td>NO07</td>
<td>Nord-Norge</td>
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<td>NO03</td>
<td>Sør-Østlandet</td>
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<td>3.5</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>5.4%</strong></td>
<td><strong>3.6%</strong></td>
</tr>
<tr>
<td>Total unemployment rate 5.4% - 10%</td>
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<td></td>
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<td>Hamburg</td>
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<td>5.0</td>
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<td>Schleswig-Holstein</td>
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<td>5.0</td>
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<td>Stockholm</td>
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<td>6.6</td>
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<td>6.6</td>
</tr>
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<td>7.2</td>
</tr>
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<td>Etelä-Suomi</td>
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<td>6.3</td>
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<td>Sjælland</td>
<td>7.2</td>
<td>6.9</td>
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<td>Västsverige</td>
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<td>7.1</td>
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<td>7.9</td>
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<td>7.7</td>
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<td>Sydsvinge</td>
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<td>8.8</td>
</tr>
<tr>
<td>PL34</td>
<td>Podlaskie</td>
<td>9.3</td>
<td>9.6</td>
</tr>
<tr>
<td>PL62</td>
<td>Warminsko-Mazurskie</td>
<td>9.6</td>
<td>11.6</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>9.1%</strong></td>
<td><strong>7.9%</strong></td>
</tr>
<tr>
<td>Total unemployment rate above 10%</td>
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<td>9.1</td>
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<td>9.9</td>
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<td>Zachodniopomorskie</td>
<td>11.8</td>
<td>11.7</td>
</tr>
<tr>
<td>EE00</td>
<td>Eesti</td>
<td>12.5</td>
<td>11.8</td>
</tr>
<tr>
<td>LV00</td>
<td>Latvija</td>
<td>15.4</td>
<td>13.1</td>
</tr>
<tr>
<td>LT00</td>
<td>Lietuva</td>
<td>15.4</td>
<td>13.0</td>
</tr>
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</table>

Source: Eurostat (2012); HWWI.
8 | Conclusions

The development in Baltic States and Poland in the last decade is shaped by a strong catching-up process in terms of GDP. This development contributed extensively to ongoing convergence processes in core economic indicators between old and new EU members. Nevertheless, Baltic States and Poland still face far lower levels of income per capita than older EU members in the western part of the Baltic Sea region.

According to GDP forecasts until 2020, the catching-up in Baltic States and Poland will continue, even though also in the second decade of the century, considerable income per capita differences between the Eastern and the Western countries around the Baltic Sea will persist. Corresponding to GDP growth, Baltic States and Poland display promising trade perspectives.

The rapid economic growth goes hand in hand with a vast increase of labour productivity, promoted by technological progress. The overwhelming development of the service sector in the last decade and the high shares of tertiary activities and other knowledge-based branches of business in the Baltic States and Poland give rise to promising rates for these countries.

However, opposite to the vital amelioration of economic prosperity, the labour force development in this region is a cause for concern as it threatens promising employment growth. In the last decade, driven by persisting low birth rates and aggravated by disadvantageous migration balances, Baltic States denoted a halt or even shrinkage of the labour force. Poland experienced a considerable increase of the employable population. Nevertheless until 2030, Poland will experience a faster ageing and shrinking, compared to EU-27 average. The same applies to Lithuania, Finland and Germany, whereas in Latvia and Estonia shrinking will continue on a high level but ageing will slow down. All in all, until 2020 population will decrease in all Baltic States and will persevere in Poland. Forecasts are even more drastic with respect to employable population. Beyond the labour force this collaterally affects social security systems, financial markets, and infrastructure.

In order to sustain competitiveness, but also in the context of demographic change, innovation is a central issue for all European countries. Within the knowledge-based structural change, it is the prime element enhancing further economic growth, competitiveness and wealth. These factors widely cohere with the educational level of the population, especially with the qualification of staff in the research and development sector.

Up to date, the highest shares of inhabitants with a degree in the upper and post-secondary sector can be found in Poland and the Baltic States, and within those in
Lithuania. Over the last eight years, with the exception of Denmark, the share of primary and secondary educational degrees has diminished in all observed countries. The high shares of well-educated people in the Baltic Sea region, especially of the Nordic and Baltic States, are in accordance with a dominant, above European Union-average lying, tertiary sector in all the observed national economies and display a great potential in the field of innovation. But when it comes to the share of employed persons in knowledge intensive industries, these are – in contrast to the educational level of the employable population – among the lowest in the Baltic States. It can be reasoned that the potential of a highly educated population has not yet been fully utilised in all countries of the Baltic Sea region.

This should be seen as a call for action from political and economic decision makers, as these sectors are highly crucial within the structural change, especially for the generating and adaption of innovation. Here, spatial proximity will play an important role and Poland, Russia and the Baltic States will benefit from exchange and cluster effects with already knowledge-based economies such as Sweden and Finland. Hence, the reduction of border obstacles and the promotion of mobility between these countries are supported by another just cause. Cross-border clustering plays a major role within knowledge-based growth. It largely depends on spatial proximity and face-to-face contacts, which promote exchange between businesses and the development of networks and cluster effects. Good examples for cross-border clusters in the Baltic Sea region are the health sector and the creative industry. As great innovation potentials, environmental technology and energy supply can also be named.

However, additional challenges for future development of the Baltic Sea region arise from distinct socioeconomic disparities on the regional level. Regional population development can to a great extent be ascribed to extensive urbanisation processes: As economic centres, cities attract international migrants as well as the local population. Their central role within the economy and as a location for work and life can further be explained by their pioneering role within knowledge intensive industries. Thus, the importance of cities as driving forces of regional growth will further increase. Despite prevalent structural differences between eastern and western member states and ongoing convergence processes on country levels, the big cities will keep their outstanding role as triggers of structural change.

Demographic change and the afore-mentioned challenges of fostering catching-up processes, innovation power and value added requires, alongside with the promotion of immigration, an efficient use of domestic human resources. This task comprises on the one hand a sufficient and market-adequate formation of human capital via the educational system and on the other hand a high labour market involvement of those resources. A special focus has to be given to the exploitation of women’s potentials in this context.
Part II:
Women in Baltic Sea Region countries – education and labour market involvement

Christina Boll, Nora Reich
1 | Introduction

Demographic change and the aforementioned challenges of fostering catching-up processes, innovation power and value added requires, alongside with promoting migration, an efficient use of domestic human resources. This task comprises a sufficient and market-adequate formation of human capital via the educational system and a high labour market involvement of those resources. Thereby a high priority has to be given to a better utilisation of the skills and experience of women. The following three sections of this report deal with the educational performance (section 2), the crucial features of employment and income (section 3) and the magnitude of unemployment and inactivity (section 4) with respect to women. The conclusion sums up the main national or country group characteristics as well as striking similarities in a cross-country perspective.

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1 We thank Gdansk University of Technology (GUT) for helpful advice on this part of the study.
2 | Education and Training

Education is an essential part of human capital formation. Educational systems have to be optimized to efficiently equip people with knowledge and competences that are needed in a permanently changing environment. This applies to the public educational system as well as to forms of vocational training. Moreover, in the context of continuous economic, demographic and technological change, education has evolved to become a life-long business to maintain a nation’s competitiveness, welfare and employability of its workforce.

Persisting gendered segregation of occupational career orientation among children throughout countries

Gender differences in career orientation are already evident at childhood age. The proportion of six year old children planning a career in the typical male fields of engineering or computing is clearly higher among boys than girls in all BSR countries. The largest gap can be found in Poland (24 percentage points), where about one third of boys plan this type of career, whereas only 7 % of girls do so. Regarding the gap, Poland is followed by Latvia and Lithuania (13 percentage points each). The lowest gap is found in Finland (9 percentage points). Among students who plan a career in health services, the share of girls is considerably higher than the share of boys. In Denmark, Norway and Poland, 16 % of young girls plan this type of career, while only 8 % do so in Latvia. The gender gap is highest in three Scandinavian countries, namely Denmark, Norway and Sweden (11 percentage points). It is lowest in Lithuania (8), Germany (7) and Latvia (5 percentage points) (OECD 2012a).

Early leavers from education and training: Good performance of Poland and Sweden

Due to the tertiarisation of the economy, the proportion of jobs for highly qualified graduates is rising. In order to increase the pool of qualified workers, it is important to analyse the development of early leavers from education and training. These are individuals aged 18 to 24 who have finished no more than a lower secondary education, and who have not been involved in further education and training in the four weeks preceding the survey. A high share of early leavers could lead to disadvantages for the economy, as the demand for low educated people decreases in the course of the structural change. Against this background, the European Commission demands the percentage of early school leavers to be below 10 % in all member states in 2020 (Commission of the European Communities 2007).
Figure 1 shows the share of male and female early leavers from education and training as percentage of all people in the corresponding gender and age group for the years 2000 and 2011. In the year 2000, the ratio of early leavers ranged from 5.3 % among Swedish females to 20 % among Lithuanian males. The share was higher among males than females in Denmark, Lithuania, Finland, Sweden and Estonia, whereas it was slightly higher for females in Germany and about equal in Norway. Between 2000 and 2011, the proportion of female early leavers decreased in Denmark, Germany, Lithuania, Sweden and Estonia, but it increased somewhat in Finland and Norway. In 2011, it ranged between 3.8 % in Poland and 13.1 % in Norway. In this year, all countries but Norway had an average of female early leavers that was lower (better) than the EU-27 average of 11.6 %. Among men, the proportion also decreased between 2000 and 2011 in six of the BSR countries. However, a strong increase in Norway from 13 to 19.9 % was observed. In 2011, the ratio among men ranged between 7.4 % in Poland to 19.9 % in Norway. Besides Norway, the share was above (worse) than the EU-27 average of 15.3 % in Latvia (15.9 %). In sum, the share of early leavers from education and training was generally lower for women than men and a good development is visible between 2000 and 2011 for both sexes. Poland seems to have been the pioneer in 2011, with the lowest share for both males and females. In contrast, the increasing share of early leavers in Norway is worrying.

Higher share of students among young women aged 15 to 24 years than among young men, ranking above EU-average in all BSR countries

A further key factor in the context of the qualitative labour supply is the involvement of young people in tertiary education enrolment. In a cross-time perspective, from 2001
to 2010, the share of students on all persons aged 15 to 24 years increased in all countries, with a most pronounced upward trend among Polish women (+8.6 percentage points). In 2010, the share of students among women ranged between 65.3% in Latvia and 75.3% in Poland. Therefore, it is higher than the EU-27 average of 63.3% in all BSR countries. Among males, the ratio ranged from 55.2% in Latvia to 65% in Finland. Only Latvia was below the EU-27 average of 58.7%. In all countries and at both points in time, the percentage of students was higher among females than males. In 2010, the gap was highest in Poland (8.8 percentage points) and lowest in Germany (0.8 percentage points). Data from Estonia are lacking.

Higher share of females among graduates but persisting gendered patterns by field of study

Corresponding to the gendered distribution of students, more women were graduating from university than men in 2000 (figure 2). This phenomenon was observed for all countries under investigation and it was also stable over time, referring to the years 2001-2010. Nevertheless, countries shape very different gender gaps: In 2010, Denmark and Germany had the smallest gap with 140 to 141 women per 100 men graduating from ISCED levels 5-6, whereas the figure amounted to 248.6 women per 100 men for Latvia. To conclude, not only among students but also among graduates women in the Baltic States are far more ahead than men compared to the other BSR countries.

Figure 2

Women per 100 men graduating from ISCED levels 5-6, 2010

The general higher share of women on graduated persons goes hand in hand with typical sex differences in the field of study (figure 3). Analogous to the gendered segregation of occupation, women dominate fields like education and training, humanities and art or health and welfare whereas men prevail in science, mathematics and computing or engineering, manufacturing and construction.
In 2010, the share of women was lowest in the engineering, manufacturing and construction field. It was below the EU-27 average of 26.2 % in Germany and Finland. The share was second lowest in the science, mathematics and computing field, thereby below the EU-27 average of 41.4 % in Denmark, Latvia, Lithuania and Norway. On the contrary, the percentage was generally highest among females in the health and welfare field (between 75 % in Finland and over 90 % in Latvia, EU-27 average 77.0 %) as well as in the education and training field (between 74 % in Poland and 89 % in Latvia, EU-27 average 78.9 %). In the first mentioned field, it was above the EU-27 average of 77.0 % in all countries except for Poland. In the latter field, the percentage among women was higher than the EU-27 average of 78.9 % in the Baltic States, Poland, Finland and Sweden. In sum, there is potential to reduce the gender imbalance in fields of study in all BSR countries, which should be on the agenda of all EU member states according to the EU Commission (Commission of the European Communities 2007).

Figure 3

Females’ share on total graduates ISCED levels 5 - 6 by field of study, 2010

Female adults are more involved in lifelong learning than men, low engagement of both sexes in Germany, Baltic States and Poland

In the context of continuous economic, demographic and technological change, education has evolved to become a life-long business to maintain a nation’s competitiveness and welfare as well as the employability of its workforce. This is why, since the late 1990s, the European Union has increasingly supported life-long learning as an im-
portant strategy to ensure the supply of qualified labour for economic development (European Union 1999; Commission of the European Communities 2000; Higher Institute for Family Sciences 2008; Council of the European Union 2002; European Commission 2012). The goal is that an average of at least 15% of adults should participate in lifelong learning in 2020 (Council of the European Union 2009).

Figure 4 shows the percentage of adult population aged 25 to 64 participating in education and training. Participation is defined as having received education or training in the four weeks preceding the survey. The percentage refers to the share of participants in relation to the total population in the corresponding age group.²

![Graph showing percentage of adult population aged 25 to 64 participating in education and training, 2000/2010](image)

Note: No data available for LV and PL 2000.
Sources: Eurostat (2012a); HWWI.

Most countries experienced growing participation rates in education and training in the last decade. For males, the sole exception is Sweden with a lower rate in 2010 compared to 2000. As to gender, women experienced a higher engagement than men in all countries, and this trend is stable over time. For both sexes, Scandinavian countries, headed by Denmark, displayed the highest participation rates. In 2010, they ranged

² The education and training activities refer to life-long learning among adults. Life-long learning refers to persons aged 25 to 64 who stated that they received education or training in the four weeks preceding the survey (numerator). The denominator consists of the total population of the same age group, excluding those who did not answer to the question ‘participation to education and training’. The data come from the EU Labour Force Survey. The information collected relates to all education or training whether or not relevant to the respondent’s current or possible future job. It includes formal and non-formal education and training that means in general activities in the school/university systems but also courses, seminars workshops, etc. outside the formal education and regardless their topic.
from 16 % for Norwegian men to 39.1 % for Danish women. Estonia was in a medium position and performed better than Germany, Poland, Latvia and Lithuania.

With regard to continued vocational training (CVT), similar national patterns are obtained. CVT data are based on answers of enterprises in the industry and service sectors with at least ten employees as to the training activities of their employees. The full previous year is taken as a reference here, thereby encompassing a longer time horizon than the former mentioned statistics relying on information given by private respondents. For 2005 (not displayed), Baltic States and Poland exhibited low participation rates, Estonia ranking in a medium position. Corresponding to the education and training statistics, Scandinavian countries exhibited quite high participation rates.

High variety in forms and providers of Continuous Vocational Training; chambers of commerce show lowest share of engagement in Estonia, Latvia and Poland

Across countries, there is a reasonable variation in kind of continued vocational training (CVT) (figure 5). In 2005, training in the work situation (on-the-job) played the most important role, followed by (1) continued training at conferences, work-shops, lectures and seminars, (2) self-learning, (3) learning/quality circles, and (4) job rotation, exchanges or secondments. Obviously, the training engagement is lowest in Latvia, Poland and Lithuania. In Latvia, only 15 % of all employees participated in CVT.

Figure 5

Participants by forms of continued vocational training (percentage of all employees), 2005

Sweden, Denmark and Germany exhibited the highest participation rates. In Denmark, 87 % of employees participated in CVT, the highest share of it in continued train-
ing at conferences etc. (38 %), and the second highest in CVT in the work situation. Norway, Finland and Estonia were ranked on a medium level. Compared to EU-27, only Latvia and Poland displayed a below-average, Estonia an average involvement in CVT.

Education and training activities by provider shows employers’ organisations’ potential in Estonia, Latvia and Poland

Data on the suppliers of adult education and training are not available according to gender differences, but nevertheless they provide interesting insights (figure 6).

Figure 6

Education and training activities by provider, 2007

The analysis of the supply side of education and training reveals in a cross-country comparison that the largest share of education and training that was undertaken by
employees was offered by employers (between 14.5 % in Lithuania and 45.5 % in Sweden), followed by non-formal education and training institutions. Furthermore, particularly in the Baltic States and Poland, formal education institutions played a reasonable role. Finland is somewhat outstanding as almost one third of training activities was provided by non-commercial institutions (e.g., libraries, museums, ministries), whereas non-formal education and training institutions are only of low importance. In all BSR countries, employers’ organisations (e.g., chambers of commerce) played a minor role, as they provided less than 10 % of education and training activities, with the largest share in Latvia (9.2 %) and the smallest share in Poland (1.0 %).
3 | Employment and Income

The population aged 15 to 74 in the EU-27 countries, currently amounting to about 377.5 million persons, comprises employed, unemployed and economically inactive people as the three main categories (figure 7). To a more or less extent, all three categories address the problem of untapped resources.

Firstly, this is the case referring to employed\(^3\) persons who aim at working more hours (underemployed part-timers); furthermore, working life duration and earned income point to some extent to underused potentials. Unemployed persons, although signalling a strong labour market affiliation, fail to realise a satisfactory job match and therefore represent a reasonable share of the labour force that is actually not in productive use. Last but not least, a reasonable part of economically inactive people is closely attached to the labour market and thus has to be regarded as potentially additional labour force. This subsection of the report discusses common patterns as well as cross-country differences in women’s and men’s labour market performance in BSR countries. It aims at highlighting potentials in terms of untapped resources in a cross-country comparison as a pre-requisite of identifying the main fields of policy actions to overcome gendered labour market obstacles.

Inactive persons are those who are neither classified as employed nor as unemployed. The economically inactive make up more than one third of the EU-27 population in working age. Among them, 11 million persons are rather close to the labour market and therefore have to be regarded as a potentially additional labour force. The last subsection of the report deals with key features and challenges of those potentials.

\(^3\) According to Eurostat, employed persons are persons who are aged 15 year and over (16 and over in ES, UK and SE (1995-2001); 15-74 years in DK, EE, HU, LV, FI and SE (from 2001 onwards); 16-74 in IS and NO), who during the reference week performed work, even for just one hour a week, for pay, profit or family gain, or who were not at work but had a job or business from which they were temporarily absent because of, e.g., illness, holidays, industrial dispute or education and training.
The quantitative and qualitative development of the potential labour force is crucial for the dynamics of innovation and economic growth. In the context of the aforementioned demographic change that is shaped by shrinking and ageing populations, a sufficient and efficient use of human resources is an urgent demand for all BSR countries in the next twenty years.

Females’ employment rate is lowest in Poland and rather low, compared to Scandinavian countries, in Baltic States and Germany.

Figure 8 shows the employment rate by sex in 2000 and 2011.

Figure 7

ILO labour statuses and new supplementary indicators of persons aged 15 to 74, EU-27, 2011

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Figure 8

Employment rates by sex of persons aged 15 to 64, 2000/2011

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Figure 8 shows the employment rate by sex in 2000 and 2011.
In all countries, the employment rate was higher among men than women in both years under study. Furthermore, from 2000 to 2011, the employment rate increased among men and women in most of the BSR countries. The exceptions are men in Denmark, Norway, and Finland, where the employment rate slightly decreased but was still on a high level in 2011.

In 2011, the female employment rate was highest in Sweden (71.8 %) and Norway (73.4 %). It was clearly lowest in Poland (53.1 %), and second lowest in the Baltic States. In the same year, the employment rate of men ranged between 66.3 % in Poland and 76.3 % in Sweden.

From 2000 to 2011, the gender gap in employment rates decreased in all countries except Poland and Sweden, with a far higher level in Poland.

The gender gap in employment rate is calculated by subtracting the female employment rate from the male employment rate. As this difference is positive in all BSR countries, men realise higher employment rates than women. In 2000, the gender gap was highest in Germany (14.9 percentage points) and Poland (11.9 percentage points), while it was lowest in Sweden and Lithuania (both 2.9 percentage points). From 2000 to 2011 the gender gap decreased in all countries except Poland and Sweden. In Poland, the situation aggravated from an already high gap level, in Sweden from a quite low level. In 2011, Germany and Poland remained the countries with the highest and conversely, Lithuania and Latvia were the countries with the lowest gender gap in the BSR.

Employment rates by age show that young people are poorly employed in Baltic States and Poland, the latter also performing worst with respect to older women aged 55-64.

Figure 9 shows the male and female employment rate according to age groups in 2011. The employment rate for men was highest in the age group 25 to 54, ranging from 73 % in Norway to 89 % in Sweden. The second highest employment rate was found for men aged 55 to 64. It is highest in Denmark, where 57 % are employed, and lowest in Poland, where 48 % are employed. The employment rate of young men was comparatively low in the new EU member states, especially in Lithuania (22 %). It was highest in Denmark (57 %).

The employment rate of women lay between 71 % in Poland and 83 % in Sweden in the age group 25 to 54. Poland also had an extremely low female employment rate for ages 55 to 64. Only 27 % of women were employed in this age group, which is 20 percentage points below the second last country, Lithuania. It was highest in Sweden and Norway, where at least two thirds of women in this age group were employed. As for young men, the employment rate for young women was quite low in the new EU
member states, with Lithuania showing the lowest rate of 17%. One reason is probably the high youth unemployment rate in these countries.

Figure 9

Employment rates by age class and sex, 2011

While young people show a fairly low gender gap in employment throughout countries, the gap is higher in older age groups in all countries but the Baltic States and Finland; a bell-shaped pattern is observed in Finland and Estonia, a U-shaped pattern in Lithuania and Latvia.

The employment gap has decreased between 2000 and 2011 in many countries and age groups (figure 10). However, in some countries and for some age groups, it was higher in 2011 than eleven years ago: Estonia (25-54), Poland (15-24, 55-64), and Sweden (25-54). In 2011, the average employment gap between men and women in percentage points was lowest in the youngest age group (2.22), medium in the middle age group (5.5) and high in the oldest age group (7.35).

In the youngest age group, it ranged from -2.9 in Norway to 9.5 in Poland. Poland and the Baltic States had the highest gap, the Scandinavian countries the lowest, and Germany was somewhat in between. In the Scandinavian countries, the employment rate of men was lower than that of women.
In the middle age group, the gap was highest in Poland (11.6) and Germany (9.9) and lowest in Lithuania (-2.0). It is the only country where the employment rate was higher for women than for men. In the oldest age group, the gap is highest in Poland (20.5) and Germany (14.0), and lowest in Estonia (0.2) and Finland (-0.4). All in all, Poland clearly sticks out, as it had the highest gender gap in employment in all three age groups, which even widened during the past years in two of the three age groups.

Women holding a university degree display a higher employment rate than men in all countries but Germany.

While the share of employed persons with a low or medium level of education was higher among men than women, the opposite is true for academic education (figure 11): Women holding a university degree displayed higher employment rates than men in all countries under study – except Germany. Here, the gap diminished over time, but in 2011, male graduates were still more frequently employed than female graduates. The gap amounted to 3.2 percentage points. By contrast, in all other countries the advance of female graduates’ employment rates enlarged between 2000 and 2011.
As aforementioned, innovation depends on efficient use of skills. In a globalised economy and within the knowledge-based structural change, innovation plays a crucial role as being a trigger enhancing further economic growth, competitiveness and wealth. The innovation potential of the Baltic Sea region highly depends on the educational distribution of its working age population.

Highly skilled females are overrepresented, lowly skilled are underrepresented among employed

Throughout countries, the share of lowly educated females on females employed was below their share in the working age population in 2011. Differences were most pronounced in the Baltic States and Poland where the share of lowly employed females employed reached only one third of the corresponding population share. The share of women with a medium level of education on the employed equalled in most countries their population share. Estonia was outstanding here as females in this educational group played a far higher role among the employed (48 %) than it would have been assumed regarding their population share (27 %). In all countries under review, the share of highly skilled women on the employed exceeded their corresponding population ratio by far. The difference in percentage points was largest in Lithuania (15.1) and Latvia (11.4), smallest in Germany (5.2) and Denmark (5.7). The share of highly educat-
ed women among working women was highest in Latvia (48.8 %), Estonia (46.7 %) and Finland (46.2 %). Germany fell behind with only 27 %, and also Poland’s (36.4 %) and Denmark’s (36.0 %) shares were quite low.

Figure 12

Employed aged 15 to 64 by educational level and sex, 2011

Sources: Eurostat (2012a); HWWI.
Employment rate of women decreases with the number of children, but mothers work more often than childless women in Latvia, Lithuania, Denmark and Sweden.

Figure 13

Employment rate by children of females aged 25 to 54, 2011

Thinking of women’s employment rate according to the number of children, one would probably assume a strict negative relationship at first sight. However, for women aged 25 to 54, in the year 2011, this was only observed for Germany, Estonia, Poland and Finland. In these countries, the employment rate of women without children ranged between 75% in Poland and 84% in Germany and Finland, while the rate among women with one, two or three children was clearly lower. The gap between women without children and mothers of three amounted to 28.6 percentage points in Germany, to 24.6 in Finland and to 23.4 in Estonia. This confirms findings of an EU-25 comparison with data from 2003, which revealed that the employment gap between childless women and mothers of children below the age of 12 was largest in Germany and Estonia (Aliaga 2005). It seems that these countries have been at the bottom of the table regarding mother’s labour market participation for several years. In other words, women seem to have more difficulties in reconciling work and family life in these than in the other countries.

In all other countries, mothers with one child, and in Denmark and Sweden, even those with two or three children had a higher employment rate than childless women. One reason might be that a large proportion of childless women are young and therefore still partly participating in the educational system. For Scandinavia, Germany and other countries, a negative effect of educational enrolment on fertility is widely sup-

Sources: Eurostat (2012a); HWWI.
ported by the empirical literature (Baizán 2009; Gebel/Giesecke 2009; Hank 2002; Krapf 2009; Vikat 2004). A different explanation could be the cross-country difference in possibilities to reconcile work and family life, which will be discussed in one of the next paragraphs. Generally, women with and without children were best integrated into the labour market in Denmark and Sweden, where the employment rate in all categories lies above 78%. The outstanding position of Denmark compared to other European countries regarding labour market participation of mothers was also confirmed in the earlier study by Aliaga (2005).

Among men, the employment rate was high for fathers (80-96%), regardless the number of children, and clearly lower among childless men (69-84%). As for women, the group of childless men could be very young, so that they were still partly participating in education. Moreover, a high economic incentive to work and to earn sustainable income may be derived from the cultural norm of the male breadwinner model. In the context of male unemployed also selection effects (into employment and family formation) could play a reasonable role (Schmitt 2004, 2005).

Children below the age of six seem to restrict mothers’ employment strongest in Estonia, Finland, Poland and Germany but, for parents of 6 to 11 year old children, mothers have a higher employment rate than fathers in Estonia, Latvia and Finland.

The employment rate of women with children is related to the age of their youngest child in all countries in the BSR, as seen in figure 14.

Figure 14

**Employment rate by age of youngest child of females aged 25 to 54, 2011**

Note: child has to be in full social and economic dependence from other household member/-s (parents/ adults).

Sources: Eurostat (2012a); HWWI.
In most countries, in 2011 there was a positive relationship, so that women’s employment increases as the youngest child becomes older. Only in Estonia was the employment rate of women whose youngest dependent child at home is aged between 12 and 24 years lower than that of their counterparts with a youngest child aged between 6 and 11. Mothers were best integrated into the labour market in Denmark, where the employment rate ranges between 81% and 87% in the three categories of the youngest child’s age, and Sweden, where it is 78% in the first category, and 89% and 92% in the other categories. Among mothers with children below the age of six, the employment rate was highest in Denmark (81%), Lithuania and Sweden (both 78%). This confirms earlier findings of an EU-25 comparison for Denmark and Lithuania (Aliaga 2005).

Mothers’ labour market integration was low for those with a child aged below six in Estonia (53%), Poland (61%), Finland (61%) and Germany (62%). The gap between mothers with children below six and children aged 6 to 11 was on average 13.1 percentage points. It was especially large in Estonia (32 percentage points), Finland (26 percentage points) and Germany (14 percentage points). In other words, participating in the labour market seems to be relatively difficult to reconcile with family duties for mothers with young children compared to those with older children in these countries. The employment gap between the two older age groups of the youngest child was quite small, with an average of 4.1%. That means that once the child reaches school age, mothers’ employment rate stays fairly the same in the Baltic Sea region.

Men’s labour market participation was hardly related to their children’s age, as others have noted before (Aliaga 2005). The average gap was 4.3 percentage points between men with a youngest child younger than six and those with a youngest child aged six to eleven, and it was 3.3 percentage points between the latter group and fathers of children aged 12 or older.

For all categories of children’s age, the employment rate was higher for men than for women in most countries. However, for parents of 6 to 11 year old children, mothers had a higher employment rate than fathers in Estonia, Latvia and Finland. For parents of children aged 12 or above this was true in Estonia, Latvia, Lithuania, Poland and Finland.

Low incidence of part-time employment in Baltic States and Poland and high relevance in Germany, Sweden and Denmark; females’ rates are far higher than males’

For the assessment of potentials to increase the labour supply, and as profound gender differences are expected, the analysis of part-time work is of great importance. However, definitions of part-time work vary considerably between the EU member states. In most countries, the full-time/part-time distinction is made self-assessed by the respondents. Some countries furthermore deploy weekly working hour’s thresholds with the consequence that some self-reported part-timers are recoded as full-time
workers and vice versa. As not only the occurrence but also the height of those ceilings differ between countries, part-time quotas are of poor comparability in a multinational context.

Nonetheless, the great variety in part-time quotas that is reported in figure 15 points to really different situations between countries. Displayed is the percentage of part-time employees among employed women and men in 2011.

Figure 15

**Percentage of part-time employed aged 15 to 64 by sex, 2011**

![Bar chart showing the percentage of part-time employed aged 15 to 64 by sex in 2011 for various countries (DK, DE, EE, LV, LT, PL, FI, SE).]

Sources: Eurostat (2012a); HWWI.

Among men, the share of part-time workers ranged from 4 % in Poland to 11 % in Sweden. Among women, the share ranged between 10 % and 17 % in the Baltic States, Poland and Finland. Danish, German, and Swedish women clearly stick out, as their part-time share was above 30 % (DK: 33 %, DE: 45 %, SW 36 %). In all countries, part-time employment was more common among employed women than men, but in these three countries, the gap was largest. It amounted to 23 percentage points in Denmark, 25 percentage points in Sweden, and 37 percentage points in Germany. Female and male part-time shares as well as the gap were lowest in Latvia, Lithuania and Poland. In other words, in these countries, part-time jobs played a minor role in the labour market. Female part-time employment rate did not increase in Estonia, Latvia and Lithuania, neither during periods of economic growth, nor during recession (Toots/Bachmann, 2010).

Work attitudes and norms from the Soviet labour regulations are still prevalent in those countries, such as regarding permanent full-time employment as a norm, and strict rules for recruitment and termination of contracts. They still shape contemporary industrial relations in the region. Furthermore, the low occurrence of part-time in these countries shapes the fact that labour costs which drive flexible work forms are rather...
low. By contrast, in Germany high wages as well as the tax and social insurance system set incentives for marginal employment of second earners. Furthermore, restricted opening hours of external childcare (see next paragraphs) additionally constrain mothers’ full-time work.

Part-time quotas decrease with increasing education for both sexes. Germany exhibits the highest part-time rate among female graduates

Part-time employment was higher among women than men in all countries and for all educational levels in 2011. For both men and women, the share of part-time employees of all employees declined with the increase of the educational level, except for Swedish men where a U-shaped pattern was observed. The highest part-time employment rates of over 50 % thus could be found among Danish, German, Swedish and Norwegian women with a low educational level. The highest rates for men were observed among the lesser educated in Denmark (26.0 %), Norway (21.6 %) and Sweden (17.5 %). The part-time rate was lowest for men and women with a high educational level in Latvia, Lithuania and Poland (3.7-6.7 %).

U-shaped age-specific pattern of part-time for both sexes in all countries except German females: Here, part-time incidence steadily increases with age

The analysis of the share of part-time employment according to age groups and sex supports the result that part-time is more prevalent among women than men and more common in Scandinavia and Germany than in the Baltic States and Poland. This is found for all age groups in all countries analysed. Except for German women, the share of part-time employees was highest in the youngest age group. It was highest in Denmark (f: 73.4 %, m: 52.8 %), Norway (f: 71.59 %, m: 42.1 %) and Sweden (f: 62.0 %, m: 38.7 %). Again, with the exception of German women, a U-shaped pattern is observed, i.e., the share of part-timers was lowest in the age group 25 to 49 years. Thus, part-time employment seems to be a strategy to enter the labour market at a young age and to smooth labour market exit around retirement age. In Germany, however, the share of part-time employed women rose with age, reaching 50.1 % among those aged 50-64. For them, the argument of a smooth retirement seems to hold. In addition, part-time employment seems to be a common strategy to reconcile work and family life.

If labour supply was short, policy makers could increase the intensive margin of labour by offering part-time workers (especially at young and older ages, and especially women) the expansion of working hours. The success depends on the proportion of part-time employees who would like to increase their working hours. In addition, the

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4 Data missing for Estonian and Latvian persons below secondary education as well as for Estonian women with tertiary education.
extensive margin of labour could be extended by offering more part-time jobs in countries where these types of jobs are not very common (Baltic States, Poland), inducing people who are out of the labour force because they do not want to work full-time, e.g. parents, to enter the labour market. Certainly, a reverse effect could occur, namely that some current full-time employees might opt for part-time, given that opportunity. Importantly, it must be kept in mind that part-time work is mostly associated with lower income and career perspectives.

Continuous increase in part-time incidence with the number of children in Germany and Scandinavian countries except Denmark: In the latter country as well as Estonia, lower part-time rates for women with one child than for childless women are observed.

In the Baltic States in 2011, the part-time share was low (<=12 %) and did not differ substantially according to the number of children. In all other countries, the share of part-timers clearly increased with the number of children (exception: Denmark 0 children vs. 1 child). Men exhibit a different pattern: Part-time employment was slightly more common among childless men than fathers, and among fathers it did not vary much according to the number of children. These findings for men and women seem to be long-lasting trends, as they have been shown earlier in the 21st century (Aliaga 2005). Among women in the BSR except for the Baltic States, it seems that part-time employment is used by women to reconcile work and having (larger) families. This strategy is most common in Germany, where more than 74 % of employed mothers with 2 or at least 3 children were working part-time (also supported by Aliaga 2005). It is followed by Denmark and Sweden, where part-time rates for mothers ranged between 25.2 % and 46.2 %. With part-time shares between 7 % and 20.7 %, Finland and Poland are in between the Baltic States on the one and Denmark, Sweden and Germany on the other hand.

In most countries, part-time is less relevant for mothers with pre-school aged children than for those in elementary school enrolment and later on decreases when dependent children reach the age of 12 to 24; Thus, a bell-shaped curve is observed, with potentials to reconcile work and family life especially for mothers with elementary school kids.

In Denmark, Sweden, Germany and Latvia, the part-time ratio of women increases when children reach school age and decrease further on when they are twelve years old or older. Due to the overall rare occurrence of part-time employment in Poland and the Baltic States, the ages of children as well as their number play a minor role in these countries in this context.

Involuntary part-time plays a high role for women in Lithuania and Latvia and reflects a high full-time preference.
Figure 16 shows the motivation for part-time work in the Baltic Sea region in 2009.

**Figure 16**

**Motivation for part-time work by sex of persons aged 15 to 64, 2009**

<table>
<thead>
<tr>
<th>Country</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Could not find a full-time job</td>
<td>Looking after children or incapacitated adults</td>
</tr>
<tr>
<td>NO males</td>
<td>13.2</td>
<td>20.4</td>
</tr>
<tr>
<td>NO females</td>
<td>17.2</td>
<td>15.0</td>
</tr>
<tr>
<td>SE males</td>
<td>28.1</td>
<td>16.3</td>
</tr>
<tr>
<td>SE females</td>
<td>27.2</td>
<td>11.9</td>
</tr>
<tr>
<td>FI males</td>
<td>28.4</td>
<td>7.9</td>
</tr>
<tr>
<td>FI females</td>
<td>28.2</td>
<td>7.2</td>
</tr>
<tr>
<td>PL males</td>
<td>19.4</td>
<td>14.7</td>
</tr>
<tr>
<td>PL females</td>
<td>19.4</td>
<td>3.7</td>
</tr>
<tr>
<td>LT males</td>
<td>42.1</td>
<td>0.0</td>
</tr>
<tr>
<td>LT females</td>
<td>33.5</td>
<td>8.8</td>
</tr>
<tr>
<td>LV males</td>
<td>59.2</td>
<td>0.0</td>
</tr>
<tr>
<td>LV females</td>
<td>43.0</td>
<td>0.0</td>
</tr>
<tr>
<td>EE males</td>
<td>29.2</td>
<td>0.0</td>
</tr>
<tr>
<td>EE females</td>
<td>29.2</td>
<td>0.0</td>
</tr>
<tr>
<td>DE males</td>
<td>18.8</td>
<td>38.6</td>
</tr>
<tr>
<td>DE females</td>
<td>18.8</td>
<td>38.6</td>
</tr>
<tr>
<td>DK males</td>
<td>14.3</td>
<td>11.4</td>
</tr>
<tr>
<td>DK females</td>
<td>14.3</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Sources: Eurostat (2012a); HWWI.

Among men, on average, the most prominent reason for part-time work was being in education or training. Over half of Danish men reported this as the main reason. Apart from “other reasons”, it was followed by illness or disability and then other family or personal responsibilities. Only up to 7.5 % (Sweden) of men reported that looking after children is the reason for part-time job. Among women, “other reasons” was the main reason in many countries, with a share of between 7.5 % in Denmark to 47.8 % in Poland. On average, 17.4 % of women reported working part-time because of other family or personal responsibilities (from 4.1 % in Poland to 32.5 % in Denmark), and
17.1% were in education or training (from 6.5% in Germany to 31.4% in Denmark). Between 3.9% in Denmark and 26.9% in Germany reported that looking after children or incapacitated adults are the main reason for part-time employment. Taking “other family or personal responsibilities” and “looking after children or incapacitated adults” together as “family responsibilities”, we see that between 14.6% in Poland and 54.7% in Germany chose part-time because of family responsibilities. Here, the stark contrast to men is interesting: While men reported being in education and training most often, women reported “family responsibilities” most often. In other words, while women are likely to lose human capital during part-time employment, men are likely to gain human capital and increase their employability.

All in all, having children affects women’s part-time ratio more than men’s, and this is especially pronounced in Germany, while it is least visible in the Baltic States. Apart from the supply of part-time jobs, institutional circumstances like childcare provision could play a role for the results on men’s and women’s part-time employment according to the number and age of children.

High provision and high share of full-day public childcare in Sweden, Norway and Denmark; Lithuania, Latvia and Poland display particularly low provision for children below the age of three.

Figure 17
Formal childcare by children’s age and weekly hours as a percentage over the population of each age group, 2010

Notes: A: <3 years; B: 3 years - compulsory school age; C: compulsory school age - 12 years.
Sources: Eurostat (2012a); HWWI.
Public childcare provision is an important instrument for promoting mothers’ labour market participation. Figure 17 shows that in 2010 the share of children in public childcare (including pre-school and school) increased in all countries with the children’s age (exception: Denmark first to second age group). The largest variety in the Baltic Sea region can be seen for children aged zero to three, where the overall share of children in public childcare ranges from 2 % in Poland to 78 % in Denmark. In this age group, there is great potential to increase any form of childcare in Germany, Poland and the Baltic States. For children aged three to compulsory school age, the overall share of those in public childcare was above 90 % in Germany, Estonia and Sweden, while it was only 52 % in Denmark and 42 % in Poland. It is to question that these two countries as well as Finland, Latvia and Lithuania reach the EU Commission’s goal of at least 95 % of preschool children (aged four to compulsory school age) participating in early childhood education (Council of the European Union 2009).

More than two thirds of children in this age group were in public childcare at least 30 hours per week in Estonia, Sweden and Norway, but, on the contrary, only 5 % in Latvia and 9 % in Lithuania.

At least 88 % of children in the oldest age group – from compulsory school age to eleven – were in public care (including school) in all BSR countries. Finland was the country with the lowest share of ‘long’ care (13 %), followed by Lithuania (22 %). At least in these countries, but probably also in Germany, Norway and further countries, there is theoretically the potential to increase hours of public education in order to promote mothers’ labour market participation.

Nevertheless, according to Scharle (2007), labour market conditions have a stronger effect than childcare provisions in explaining cross-national variation in the gap between female and male participation rates in central/eastern Europe. For example, Latvia and Lithuania suffered severe cuts in childcare facilities but retained a high level of female employment. This finding is confirmed by the empirical results shown above: Despite a low provision for children aged zero to three in Latvia and Lithuania, the employment rates of Lithuanian and Latvian mothers with pre-school children range clearly above EU-average. Things are different for Poland, where only one in four children aged three goes to kindergarten. Poland exhibits the lowest provision for zero to three and also for three to six year old children among all countries observed, but the employment rate of mothers with children in these age groups is close to the EU-27 average. On the other hand, despite quite well established public childcare provision in this age group, Polish mothers with children six to eleven display the lowest employment rate among BSR countries. As an overall tendency, the empirical findings indicate that in Poland, indeed, other factors but childcare provision are into force which hinder mothers’ engagement on the labour market.
Short duration of parental leave in Denmark, Finland and Norway, high benefit rates in Denmark, Estonia and Norway, exclusive parental leave weeks for fathers in Germany, Finland, Sweden and Norway

The employment rate of mothers with young children is not only related to the public childcare coverage, but also to the duration and nature of the parental leave system. To date, the duration of parental leave in weeks ranges from 32 to 35 weeks in Denmark, Finland and Norway to more than 100 weeks in Lithuania and Poland (table 1).

Table 1

Parental leave legislation

<table>
<thead>
<tr>
<th></th>
<th>parental leave duration</th>
<th>parental leave benefits</th>
<th>parental leave weeks reserved for the father</th>
<th>maximum duration of leave after birth for mothers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>32</td>
<td>100%</td>
<td>0</td>
<td>46</td>
</tr>
<tr>
<td>Germany</td>
<td>60</td>
<td>67%</td>
<td>8,7</td>
<td>162</td>
</tr>
<tr>
<td>Estonia</td>
<td>62</td>
<td>100%</td>
<td>0</td>
<td>171,9</td>
</tr>
<tr>
<td>Latvia</td>
<td>52</td>
<td>70%</td>
<td>0</td>
<td>52</td>
</tr>
<tr>
<td>Lithuania</td>
<td>104</td>
<td>100% (first year), 85% (second year)</td>
<td>0</td>
<td>104</td>
</tr>
<tr>
<td>Poland</td>
<td>156</td>
<td>flat rate, means tested</td>
<td>0</td>
<td>156</td>
</tr>
<tr>
<td>Finland</td>
<td>34</td>
<td>70%</td>
<td>4</td>
<td>156,5</td>
</tr>
<tr>
<td>Sweden</td>
<td>90</td>
<td>80% (first year), then flat rate</td>
<td>12</td>
<td>51,4</td>
</tr>
<tr>
<td>Norway</td>
<td>35 / 55</td>
<td>80% / 100%</td>
<td>12</td>
<td>91</td>
</tr>
</tbody>
</table>

Note: maximum duration of leave is the sum of maternity leave, parental leave and prolonged leave that can be taken by mothers.

Sources: Bjerkeng, Harry (for Norway; personal correspondence); OECD (2012b); Moss (2011); HWWI.

The link between mothers’ employment and the arenal leave system is twofold: On the one hand, an attractive child-related benefit system may enhance fertility, keeping mothers far away from labour market in the very first couple of months in most countries. On the other hand, a long duration of leave may strengthen the labour market absence of mothers by temporary postponement or even complete foregoing of re-entry. Germany and Poland have traditionally provided long but scantily leave paired with low supply of public childcare for children below the age of three (Saxonberg/Sirovátká 2006, Reich 2010). In Germany, a shift of paradigm happened recently, when a new parental leave system was introduced which is similar to the Swedish model, accompanied by the intention to increase public childcare provisions, especially for children below the age of three (Reich 2010, 2011). The Scandinavian countries, by contrast, have a comparatively long tradition of short and well-paid leave for both parents and quantitatively and qualitatively good public childcare provisions (Reich 2010). In the Baltic States, a shift from childcare infrastructure to financial support has been
observed, since, firstly, public childcare was seen as something ‘communist’, and, sec-
ondly, pronatalist thinking gained increasing influence in the transition period due to a
significant population decline (Toots/Bachmann 2010).

In addition, mothers are obliged to take maternity leave around the birth of a child,
and some countries offer parents the possibility to stay at home after parental leave. All
together, the maximum duration of leave for a new-born child ranges from 46 weeks in
Denmark to 156 weeks or more in Germany, Estonia, Poland and Finland. With in-
creasing duration of the withdrawal period, the probability of re-entering the labour
market diminishes, at the detriment of income perspectives, pension entitlements and,
thus, old age financial prosperity of women (Boll 2011).

The parental leave benefit is usually determined by the average income in the 12
months preceding the birth, oftentimes up to a ceiling. The highest benefits, where
mothers receive benefits in the amount of 100 % of her prior income are found in Den-
mark, Estonia and Norway. Polish women probably receive the lowest rates, as the
benefit is a flat-rate payment which is only paid to families in need. Theoretically, a
high replacement rate lowers the opportunity costs of childbearing. Therefore, it is like-
ly to encourage also highly paid women to become mothers. In addition, a high re-
placement rate is an incentive for fathers to use parental leave, because fathers usually
have a higher income than the partner and therefore higher opportunity costs. Espe-
cially parental leave weeks reserved for the father are incentives for shared childrear-
ing. As multinational studies show, family-friendly policies with a special focus on
fathers leave participation are positively associated with various indicators of fathers’
involvement in childcare both in a cross-country and cross-time perspective (Boll et al.
2011; Boll/Leppin 2011). In the Scandinavian countries and Germany, many more fa-
thers take the exclusive parental leave weeks than the weeks for both parents (Statis-
tisches Bundesamt 2008; Moss 2011). To date, only Germany, Sweden, Finland and
Norway offer exclusive parental leave weeks for fathers. In order to promote women’s
employment, the other countries could take these as best practise examples. Moreover,
the EU Commission advises its member states that they should encourage parental
leave for fathers (UNICE et al. 1996).

Women’s – and especially mothers’ – labour market participation is also related to
cultural attitudes towards female employment. Antecol (2003) uses data from 23 coun-
tries (among them the BSR countries East and West Germany, Norway, Poland and
Sweden) and finds that women are more likely to be employed if men in their country
approve female employment. Similarly, Algan and Cahuc (2007) show that gender
roles in the family have an effect on female labour market participation in OECD coun-
tries (including Denmark, Finland, Germany and Sweden). Thus, it is important to look
at attitudes towards female employment as one potential source of explanation.
High agreement to the statement „Both the man and the woman should contribute to the household income” in Sweden, the Eastern part of Germany, Latvia and Denmark

Figure 18 displays large variation across countries in respondents’ agreement to the statement „Both the man and the woman should contribute to the household income” in 1994 and 2002. It shows that agreement (strongly agree and agree) was largest in the former eastern part of Germany, where over 90 % of the respondents agreed in both years. High agreement was also found in Sweden (over 80 %).

Figure 18

**Gender roles: Agreement to the statement "Both the man and woman should contribute to the household income", 1994/2002**

<table>
<thead>
<tr>
<th></th>
<th>1994</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE O</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DE W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LV</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: No data available for LV, DK, FI 1994.
Sources: Zentrale für empirische Sozialforschung (2004); Zentrale für empirische Sozialforschung (1997); HWWI.
By contrast, less than 75% agreed/strongly agreed to the statement in the in Finland (only 2002 available), Norway (1994), Poland (1994, 2002) and the former western part of Germany (1994, 2002). In these countries, it is likely that cultural values had a negative effect on women’s employment. From 1994 to 2000, the share of persons that agreed or strongly agreed rose in all countries where the data were available except for the western and the eastern part of Germany, where it slightly decreased.

Another hint at the cultural values regarding the gendered division of labour is given by the response to the statement “A man’s job is to earn money; a woman’s job is to look after the home and family” (not displayed). The findings confirm the overall picture that women’s labour market participation is promoted most strongly in the Scandinavian countries, and least in the conservative countries (West) Germany and Poland. Latvia, the only country of the Baltic States from which the data are available, exhibited also rather traditional gender roles. This hints at the traditional division of household labour in these countries, despite a comparatively good labour market integration of women (Scharle 2007). For Germany, the findings clearly show the influence of the different historical developments in the two parts of this country.

Outstanding share of unwillingly part-time employed on all part-time employed among women in Latvia and Lithuania, but, due to low overall part-time occurrence in these countries, without representing a reasonable share on the labour force. Conversely, a considerable part of part-time employed German women has to be considered as potentially additional workforce.

Involuntarily part-time workers are denoted as those who declare that they work part-time because they are unable to find a full-time job. According to European Labour Market Statistics (LFS) and from the view of untapped resources in the workforce, those persons are named underemployed part-timers since this indicator points to potentially additional labour force among the part-time employed (see figure 7).

According to figure 19, the share of unwillingly part-time employees among all part-time employees ranged from 14% among Danish and Norwegian men to 41% and 43% of Latvian and Lithuanian men. Among women, involuntary part-time employment ranged from 14.7% in Germany to 41.5% in Latvia. In Denmark, Poland, Finland and Norway, women were slightly more often unwillingly part-time employed than men. The reverse was observed in Germany, Lithuania and Sweden. The highest potential to increase full-time employment by increasing the work hours of part-time employed persons who wish to be employed full-time could be found in Latvia and Lithuania, the least potential in Denmark and Norway.

As percentage of the labour force, 2.4% (Poland) to 7.3% (Germany) of female part-time workers reported that they would prefer a full-time job. Among men the share ranged from 1.0% in Estonia to 4.1% in Latvia.
As the incidence of part-time work was far more pronounced among women in most countries, the share of female underemployed part-timers in the labour force was much higher than men’s even in the case of rather gender balanced shares of involuntary part-time workers on persons employed. This particularly applies to Scandinavian countries and Germany.

Temporary contracts play an outstanding role in Poland and a rather negligible role in Baltic States.

The analysis of temporary contracts as a form of less secure working conditions is important since job security plays a crucial role for employees’ health: People in more secure forms of work are less likely to become ill or addicted to drugs than employees in secure forms of work. Improving job security can thus improve employees’ well-being, resulting in enhanced labour productivity (European Foundation for the Improvement of Living and Working Conditions 2007) and probably fewer health-related public spendings.
In cross-country comparison, temporary contracts play an outstanding role in Poland, where the share of persons with temporary contracts increased rapidly between 2000 and 2011 (not displayed). Over a quarter of working women and men were in temporary employment in the latter year. Poland was followed by Finland and Sweden, where over 17% of men and women had temporary contracts. In 2011, the share was lowest (<5.3%) in the Baltic States and among Norwegian men, while it was somewhat in between in Denmark and Germany as well as for Norwegian women. The gender comparison reveals that temporary contracts were more common amongst men than amongst women in Baltic States and Poland, whereas they were clearly dominated by women in Norway, Sweden, Finland and Denmark. Germany recently exhibited a rather balanced share of women and men holding a temporary contract.

The incidence of temporary part-time employment featured the same cross-country pattern as aggregate temporary employment. The only exception is Poland, where temporary contracts predominantly applied to full-time jobs. Again, Scandinavian countries and Germany were harmed most by precarious work forms, females even more than males, and the importance of those work forms even increased (Denmark, Germany, Sweden) or remained stable (Norway) between 2000 and 2011. Because of the relation between job security, health and productivity, the development of temporary contracts can have negative economic and welfare effects for certain Baltic Sea region countries in the future.

While women make up less than half of the managers in all countries, they outnumber men in the other two categories in several countries; in a cross-country perspective, women in Baltic States and Sweden are more often in high status jobs than women in other countries observed.

The occupational status is a criterion that shapes the gendered pattern of employment throughout countries (not displayed). Among men, in 2011, the largest share was professionals in the Scandinavian countries (19.3-21.6%), whereas it was craft and related trade workers in the other countries (20.4-27.8%). Among women, the largest share works as service and sales workers in Norway, Sweden Finland and Germany (21.8-35.1%), and as professionals in the Baltic States, Poland and Denmark (21.9-28.6%). A closer look at the three top categories that are especially important for innovation and growth – managers, professionals, as well as technicians and associate professionals – reveals several interesting results regarding gender differences. The share of managers was higher among men than women in all countries. The difference was highest in Estonia and Latvia (5.1 and 4.8 percentage points). It was smallest in Denmark and Poland (2.1 and 1.6 percentage points). In contrast, the share of professionals was higher among women than men in all BSR countries except Finland and Germany. Mixed results are also found for technicians and associate professionals, where the share was higher among women in Finland, Poland, Germany and the Baltic States, while it was
higher among men in Norway, Sweden and Denmark. Taken together, the share of the three highest categories was higher among females than males in all countries but Norway, where the share among men led with 1 percentage point.

However, as the presented data show percentages of occupational categories among men and women separately, they do not reveal which sex is dominant in certain occupations. Therefore, the share of men and women in each occupation has been calculated as well. Especially interesting is the women’s share in the first three categories. Less than half of the managers in all countries were female. The share of female managers was clearly highest in Latvia, amounting to 44.8%. It was followed by Poland (38.7%) and Lithuania (38.5%). The lowest share of female managers was found in Denmark (28.3%), Germany (30.3%), Norway (31.7%) and Finland (32.2%), where the share was below the EU-27 average of 33.4%. Among professionals, the share of women was highest in the three Baltic States, ranging from 67.4% in Latvia to 70.9% in Lithuania. It was lowest and below the EU-27 average of 51.6% in Germany (44.1%) and Finland (48%). In other words, women made up more than half of the professionals in all BSR countries but Germany and Finland. As the share of managers who are female has been rising quite slowly in Germany during the last years (2005-2011: 0.4 percentage points per year), it is not expected that German women will catch up with their counterparts in other BSR countries in the near future (Körner et al. 2012).

Among technicians and associate professionals, the women’s share was again highest in two of the Baltic States, Latvia (62.2%) and Lithuania (60.0%), followed by Finland (58.2%). Also in Germany and Poland, more than half were women (DE: 55.4%, PL: 54.2%). Less than half of technicians and associate professionals were women in the three remaining Scandinavian countries (DK: 46.8%, SE: 43.9%, NO 40.2%), and this was also below the EU-27 average. In sum, women’s share among the three top occupational categories was comparatively high in the Baltic States and comparatively low in Germany, Norway and Denmark. While women made up less than half of the managers in all countries, they outnumbered men in the other two categories in several countries.

Notwithstanding services’ dominance among sectors, in Poland and the Baltic States the share of people employed in the service sector is lower than in Scandinavian countries and Germany.

In the last decade, the tertiarisation of the economies was visible in all BSR countries. The share of workers in the service sector has increased among male and female employees, while the share of workers in agriculture has clearly decreased. The share of workers in the industrial sector has also decreased among women in all BSR countries, and among men in five of the countries except for Estonia, Lithuania, and Norway. In 2011 (not displayed), the share of men and women was highest in the service sector, followed by the industrial sector and finally agriculture in all BSR countries. The share
of individuals working in the industrial sector was higher for men than women in each country. It ranged from 27.1% in Denmark to 44.5% in Estonia among men and from 7.4% in Norway to 18.1% in Estonia among women. Conversely, the percentage working in the service sector was higher among women than men in all countries. Notwithstanding services’ dominance, in Poland and the Baltic States the share of people employed in the service sector was lower than in Scandinavian countries and Germany. This applied to both sexes. This may be one reason for the lower occurrence of flexible working-time arrangements in the formerly mentioned countries, as they are reported above. The dominance of the service sector was most pronounced among Danish men (68.8%) and Norwegian women (91.6%).

Baltic States and Poland display a remarkably lower duration of working life, but also of gender differences. Males work more years than females in all countries but Lithuania.

Figure 20

Duration of working life in years 2010 and gender gap in duration of working life 2000 and 2010, Females

As a strategy for combating possible labour force shortages, the expansion of working hours has been discussed by analysing part-time work. Another strategy could be the elongation of the duration of working life. The duration of working life indicator measures the number of years a person at age 15 is expected to be in the labour market, either working or searching for work (unemployed) according to the ILO definition (see figure 7). Besides for labour supply, this can be very important in light of the social security systems, as the expected duration of life has been increasing in the past and is expected to increase further in the future. The working life span is shortened from two
sides: Increased age at first job due to increased average educational level of population, and early retirement from the other end of the employment career. Moreover, other forms of inactivity, e.g. neither working nor looking for a job due to the care for family members, imply breaks in the duration of the “active” life.

Among women in 2011, the duration of working life lay between 28.9 years for Polish women and 38.5 years for Swedish women (see figure 20). The duration was higher for men in all countries but Lithuania, where women work on average half a year longer than men. For both sexes, the duration was highest in the Scandinavian countries. It was lowest for women in Germany, Lithuania and Poland, for men (not displayed) in Latvia, Lithuania and Poland. From 2000 to 2011, the gap decreased in all countries but Sweden and Poland. In both years, Germany exhibited the highest gap.

Throughout countries, men are more often self-employed than women and moreover, to a smaller extent as own-account workers. Among women, Polish women exhibit the highest share of self-employment.

Self-employed persons are the ones who work in their own business, farm or professional practice. According to the EU Strategy for the Baltic Sea region (European Commission 2010), there is a need of enhancing women’s entrepreneurship (self-employment), which should be actively promoted by policy makers and SME (small and medium enterprise) stakeholders in these countries. The current low number of female entrepreneurs is seen as an insufficiently exploited potential in the Baltic Sea region (Danish Enterprise and Construction Authority/Baltic Development Forum 2011).

Indeed, only between 3.2 % (Estonia) and 14.03 % (Poland) of women, but between 8.97 % (Norway) and 22.14 % (Poland) of men were self-employed in the Baltic Sea region in 2011. For both sexes, the share of self-employed workers was outstandingly high in Poland. It is the only country where the share of self-employed women and men was above the EU-27 average of 9.7 % for women and 18.3 % for men. In all countries, the share of self-employed was lower among women than men. The gap ranged from over 8 %points in Finland and Poland to less than 5 %points in Latvia and Lithuania. Of all self-employed persons, the share with employees (employers) was also lower among women than among men.

According to a recent study, women’s self-employment is most actively promoted in Finland and Norway, where the actions include all six of the measured dimensions of

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5 According to Eurostat, a self-employed person is considered to be working if she/he meets one of the following criteria: works for the purpose of earning profit, spends time on the operation of a business or is in the process of setting up his/her business.
promotion (policy for women’s entrepreneurship, regulation, market conditions, access to finance, knowledge and education, entrepreneurial culture). Women’s self-employment is promoted in four dimensions in Germany and Sweden, in three dimensions in Denmark and Latvia, in two dimensions in Poland and only in one dimension in Latvia and Lithuania (Danish Enterprise and Construction Authority/Baltic Development Forum 2011). In other words, there is large variation in the countries’ efforts to reach the goal of more female entrepreneurs.

Figure 21
Self-employed persons aged 15 to 64 in % of total employment by sex, 2011

The unadjusted gender pay gap turns out to be highest in Germany and Estonia, whereas it is lowest in Poland and features a decreasing trend in all countries but Latvia and Germany.

The gender pay gap (GPG) in unadjusted form represents the percentage difference between average gross hourly earnings of male and female paid employees.\(^6\) It may have various reasons. Firstly, it may be a result of job segregation or/and of a lower bargaining power of women on the labour market due to spatial immobility and time-inflexibility. Secondly, it may be attributed to intermittent labour market experience of women and a thereby lower endowment with market related human capital (Boll

\(^6\) The annual gross income includes the value of any social contributions and income taxes payable by an employee or by the employer on behalf of the employee to social insurance schemes or tax authorities. Furthermore, it includes fringe benefits (non-cash income, e.g. company car, free or subsidised meals etc.), in order not to underestimate income differences between less and more qualified employees.
Thirdly, gender discrimination might play a role. For the sake of women’s income prosperity and the fight against poverty there is a great policy demand to remove discriminatory components of GPG and to foster equal opportunities of women and men on the labour market. A high GPG indicates a strong gendered segregation of jobs, income and career prospects in the respective country.

In the BSR, women’s income was on average between 5 and 30 percentage points lower than men’s in 2006 and 2010 (figure 22). The unadjusted gender pay gap turned out to be highest in Germany and Estonia, whereas it was lowest in Poland. This holds for 2006 as well as for 2010. The gap changed only slightly during this time span. In most countries it decreased somewhat, but the two countries which experienced a gap increase are Latvia and Germany. In other words, for women in Latvia and Germany the income distance to men increased during these years.

Figure 22
**Gender pay gap in unadjusted form, 2006/2010**

![Graph showing gender pay gap in unadjusted form for different countries in 2006 and 2010.]

The Gender Pay Gap reflects the gendered distribution of occupational status in the BSR countries. To a certain extent, the most pronounced gender pay gap in Estonia, Germany and Finland may be attributed to the comparatively low share of managers and/or professionals among women in these countries.

To women, education clearly pays off to reduce the gender pay gap in Estonia, where women’s average earnings as percentage of men’s increase with the educational level attained; for Scandinavian countries, the opposite is observed, and it is mostly pronounced in Finland.
Women’s average earnings as percentage of men’s according to the educational level reveals whether participating in education is as profitable for women as for men. This indicator is presented in figure 23 for the year 2008.

**Figure 23**

*Average annual earnings of women aged 25 to 64 as % of men’s earnings by educational level attained, 2008 (males=100)*

Education paid off for women clearly in Estonia, where women’s average earnings as percentage of men’s earnings increased with the educational level. In Germany and Poland, a bell-shaped pattern was observed. In other words, women with a medium educational level had on average the highest income as percentage of men’s. In the Scandinavian countries, the relationship between women’s relative income and their education was negative. This was most pronounced in Finland, where women with a low educational level earn on average 78 % of men’s income, while highly educated women earn 66 % only. Overall, figure 23 confirms the results of Figure 22, in that the gap was largest in Estonia and Germany. Women in these countries earned less than 65 % of men’s income and were below the OECD average in all educational groups. Women earned at least 70 % when having a low or medium educational level and living in Denmark, Finland or Sweden, or when having a medium educational level in Poland.
4 | Unemployed and Inactive Persons

Members of the population of working age who are without a job have to be considered as untapped resources. In the context of ageing societies and an increasing demand of skilled workers the full exploitation of potentials becomes more and more important. Unemployed persons are those aged 15-74\(^7\), who were without work during the reference week but currently available for work, and who were either actively seeking work in the past four weeks or who had already found a job to start within the next three months. Unemployment rates represent unemployed persons as a percentage of the active population.

Unemployment rate: Quite high unemployment rates of young people and elderly in Baltic States and Poland for both sexes; high youth unemployment also in Sweden

Figure 24 shows the unemployment rate by age groups and sex in 2011. Overall, the unemployment rate was highest in the three Baltic States and Poland, while it was lowest in Germany and Norway. The broad pattern across the age groups was the same for women and men (not displayed) in all BSR countries: The unemployment rate was considerably higher among people aged 15 to 24 than in the other age groups. For women it was highest in Latvia, Lithuania and Poland (29-30 %). For men, it was highest in Lithuania (35 %), Latvia (30 %) as well as Estonia and Poland (both 24 %). The unemployment rate in the medium age group was lowest in Norway for both sexes (f: 2.6 %, m: 3.1 %) and highest in Lithuania (f: 11.6 %, m: 16.5 %), closely followed by Latvia. In the oldest age group, the unemployment rate for men ranged from 1.5 % in Norway to 16.7 % in Latvia, the rate for women from 4.1 % in Sweden to 12.4 % in Lithuania.

In 2011, the difference in unemployment rate by sex was less than 5 percentage points in all countries, and the unemployment rate was slightly higher for men than for women in most countries and age groups. One reason is probably the educational pattern, with women being generally better educated – as shown before – and a risk decreasing impact of education – as shown next. However, in Poland, women were more affected by unemployment than men in the youngest and medium age group. This was also true for the medium age group in Sweden, Estonia and Denmark.

\(^7\) (in SE (1995-2000) and NO: 16-74)
The risk of unemployment decreases with more education throughout countries; particularly high rates of unemployment among lowly skilled men and women in the Baltic States.

For women and men in all BSR countries, the risk of unemployment decreased with increasing educational level in 2011 (figure 25). Compared to women in the medium age group, the employment bonus of women graduating from university was particularly high in Lithuania. The same is found for men. Among women and men with a low educational level, the unemployment rate was clearly highest in the Baltic States, with Lithuania exhibiting the highest rates 38 % among women and 40 % of men. But also Poland, Sweden and Finland were above the EU-27 average for the unemployment rate of women in this educational group (16.6 %), and the Baltic States as well as Poland were above the EU-27 average for men. The lowest rate can be found in Norway for both sexes (7 %). Also for the other educational levels, the unemployment rate was highest in the Baltic States and lowest in Norway. The second and third lowest rates are found in Denmark and Germany. For highly educated women, the unemployment rate was above the EU-27 average (6.0 %) only in Estonia. For men, it was above the EU-27 average of 5.1 % in the three Baltic States.
In a cross-country comparison, Baltic States suffer the highest persisting unemployment rates as a share of active population. Poland is the only country where women have a lead over men.

Persistently (long-term) unemployed persons are those who have been unemployed for at least twelve months. Persisting unemployment is a key indicator used to assess the urgency of the unemployment problem and to evaluate the effectiveness of active labour market policy. Similar to the overall unemployment rate, the rate of persisting unemployment is highest in the Baltic States for both sexes. This is the result of a sharp increase between 2008 and 2010 in these countries (Governatori et al. 2010). In all countries but Poland, the persisting unemployment rate was higher for men than for women (not displayed). This corresponds to the higher shares of lowly educated men and the higher unemployment rate among men. The gender gap was largest in Latvia. Poland and Germany are in a medium position and Scandinavian countries displayed the comparatively lowest rates of persisting unemployment.

Throughout countries, the inactive population is higher among females than males, i.e., females’ resources are less exploited than males’. There is outstandingly high quantitative female potential for labour market integration in Poland.

All persons in working age who are not part of the workforce – so neither being employed nor unemployed – are defined as inactive persons. In the following paragraphs, data on the inactive persons aged 25 to 64 is presented. The lower boundary of the age group is set at 25, because inactivity among younger people is frequently caused by...
participation in higher education, and would therefore have to be interpreted as a positive sign. At least for the Baltic States Scharle (2007) shows that the main reason behind the growing proportion of inactivity is due to increasing enrolment in higher education. The upper age boundary is set at 64 to adjust for cross-country differences in retirement ages.

According to Figure 26, the share of inactive persons among the total population was considerably higher for women than for men in all countries, in the year 2000 as well as in 2011. For men and women, the share of inactive persons decreased in almost all countries between these points in time. For women, only in Poland the share increased from an already outstandingly high level of 32.2 % in 2000 to 33.8 % in 2011. Poland was the only country where the share of inactive women was above the EU-27 average of 35.7 % in 2000 and 29.9 % in 2011. For men, it increased in Norway from 11.6 % to 13.9 %. This is in line with other unfavourable developments regarding labour market participation among Norwegian men, e.g., the educational level. However, Norway was not the country with the highest rate of male inactive persons at both points in time. In 2011, the share was higher and above the EU-27 average of 15.5 % in Poland (18.9 %) and Finland (17.0 %). In the same year, the share of inactive women and men was lowest for Sweden.

Figure 26

Inactive population aged 25 to 64 as percentage of total population by sex, 2000/2011

In Baltic States and Poland, four in five inactive women have a medium or high educational level. In Estonia and Finland, one third of them have a university degree.
Due to the structural economic change, the demand for highly qualified labour rises. Hence, its share among the inactive population is of special interest. As figure 27 displays, the share of persons with at least upper secondary education was highest among women in Baltic States and Poland where four of five inactive women dispose of a medium or high educational level. The lowest share of medium and highly qualified inactive men and women was found in Denmark.

Figure 27

Inactive population aged 25 to 64 by sex and education, 2011

Note: No data available for DE, EE, LV, LT, PL, FI, SE males, NO "no answer".
Sources: Eurostat (2012a); HWWI.
Taken the educational distribution of the population and the overall employment rate as given, an effective use of skills requires that the share of qualified labour on the employed clearly outperforms their population share; the same applies to the share of lowly skilled on the unemployed or inactive. In this respect, the use of qualified female labour is particularly worrying in Estonia and Finland where one third of inactive females dispose of a university degree. Their share on inactive women outperforms lowly skilled women's share (Estonia) or rather balances it (Finland).

The allocation of female qualified labour is most efficient in Denmark and Sweden and here also most advantageous compared to males'

Considering medium and highly educated persons as those with upper qualification, upper qualified women represent a larger fraction of inactive females than do their male counterparts in all countries but Sweden, Germany and Denmark. If one recalls the also higher share of women on the employed in all countries but Germany, it becomes evident that the allocation of female resources is most advantageous compared to males’ in Sweden and Denmark. In all remaining countries but Germany, though the ratio of upper qualified women of employed women was higher than the correspondent ratio of males, it becomes evident that unfortunately, upper qualified women also represented a larger fraction of inactive women than their male counterparts. In Germany, upper qualified women provided both a lower fraction of employed and of inactive women.

Lacking compatibility of work and family life is a main reason for inactivity in Baltic States, Poland, and Germany whereas job search frustration plays a special role in Latvia and retirement is a popular reason for inactivity in all countries but Norway and Sweden; awaiting recall to work turns out to be the dominant motivation in Norway.

Figure 28 shows the main reason why inactive persons were not looking for a job in 2011. Awaiting recall to work (on lay-off) was the main reason for between 16.1 % of German women to 61.0 % of Norwegian men. It was the reason with the largest share for men and women in Norway, Sweden, Estonia, Denmark, as well as for men in Poland and Lithuania. In all countries, the percentage having given this reason was higher among men than among women.

In Finland, Latvia, and Germany as well as for Polish and Lithuanian women, the main reason was retirement. The share of retirees ranges from 10.8 % among Norwegian woman to 45.1 % among German men. It was higher among men than among women in all countries except for Poland and Lithuania. The relatively low importance of retirement as a motivation for inactivity in Sweden and Norway reflects the high work life duration in both countries.
This implies that, not disregarding the fact that a prolongation of working life sometimes fails for health reasons, a strategy to successfully establish age-based working conditions increases the productive use of elderly’s experience and skills.
Strong differences between women and men are observed regarding the reasons looking after children or incapacitated adults as well as other family or personal responsibilities. Taken together, they reveal whether persons are inactive mainly because of family duties. Among women, the share was comparatively high in Germany (25.9 %), Poland (25.4 %) and Estonia (23.3 %), while it was comparatively low in Norway (10.7 %), Sweden (7.2 %) and Denmark (6.6 %). Among men, the highest shares are found in Latvia (5.1 %), Poland (4.7 %) and Germany (2.1 %). No man was inactive mainly because of family reasons in Denmark, Estonia, Lithuania, Sweden and Norway. Although some women might prefer to be a full-time housewife or mother, there is probably a certain scope to increase women’s labour market participation by increasing the supply of institutional care for children and other family members. The data suggest that especially in Germany, Poland, the Baltic States and Finland, the supply could be increased in order to promote women’s labour market participation.

Finally, in all countries, between 2.9 % and 14.6 % of women and between 3.1 % and 21.1 % of men were inactive because they think that no work is available (discouraged workers). The share is highest in Latvia, for both sexes. This is a matter of information and communication. Higher use of potentials requires transparency with regard to job vacancies and governmental job promotion.
5 | Conclusions

The analysis of human resources in terms of education, labour market involvement and job features yields a quite sophisticated performance of Baltic Sea region countries. While some findings that refer to gender differences display great similarities between countries, the cross-country comparison is shaped by clearly pronounced national characteristics in other aspects which shall be resumed in what follows.

For the Baltic States, it is observed that the share of women graduating from university is far higher than men’s and that, in a cross-country perspective, highly educated women are very well integrated into the labour market. Nevertheless, the overall employment rate of women is quite low in Baltic States and lowest in Poland, being negatively connected to the number of children, but – as opposed to Germany – not to the age of children. Part-time as well as temporary employment is scarce and moreover, many women experience to be involuntary part-timers. As to the gender patterns of work remuneration, Baltic States shape a heterogeneous pattern: Whereas Lithuania and Latvia (together with Poland) display quite gender balanced gross hourly incomes, the Estonian gender pay gap is outstanding and highest among all countries observed. This is striking in light of the comparatively high share of women among managers, technicians and (associate) professionals. Another common feature of the Baltic States is the lower unemployment rate of women compared to men. But once without a job, women face, like their male counterparts, a high risk of persistent unemployment. Furthermore, there is a reasonable share of potentially additional labour force among the inactive population in Latvia and Estonia. To a considerable extent, this may be attributed to job search frustration: In Latvia, almost every seventh (Estonia: every twelfth) inactive women does not expect to find a job. Moreover and for both sexes, there is a great potential to enhance income perspectives over the life course via a stronger engagement in life-long learning. Among all countries observed, Baltic States and Poland come last in this aspect.

In Poland, traditional gender roles are very common. Polish women experience the lowest employment rate in a cross-country comparison and the highest gender gap in employment, which even increased over the last decade. On the one hand, the poor pre-school childcare provision does not seem to hinder mothers’ employment, but, on the other hand, despite a quite well established child care provision for children aged six to eleven, Poland displays the lowest employment rate of mothers of children in this age group. In contrast to the Baltic States, temporary employment is very widespread for both sexes and applies mostly to full-time work, whereas part-time employment is as rare as in the Baltic neighbour countries. Poland exhibits the highest share of inactive persons among females among all countries observed: One third of the female population aged 25 to 64 is inactive, and the share even increased over the
last decade. Retirement is the dominant motivation for being inactive among women in this age group. Maybe due to the poor provision of flexible working time arrangements that result in more unisex work patterns of the employed, Poland exhibits the lowest unadjusted gender pay gap among all countries observed.

The Scandinavian countries seem to have overcome gender differences in the labour market to a great extent. The overall high labour market integration of mothers is related to a vast provision of childcare for children below three and a high extent of full-day care provision. However, the connection between mothers’ employment and children’s age is much more pronounced in Finland than in Scandinavian neighbour countries. Conversely, Denmark ranks highest as neither children’s age nor their number is reasonably associated to mothers’ employment. Nevertheless, the share of women in the three highest occupational statuses is comparatively low in Denmark, as well as in Norway (and Germany). Another finding is that Swedish (and German) women are mostly harmed by precarious work forms. Furthermore, Scandinavian countries face higher unadjusted gender wage gaps than Latvia, Lithuania and Poland. Another striking finding in this context is that in Scandinavian countries, education does not pay off very well to reduce the gender pay gap: Women’s relative income in terms of men’s worsens with the educational level attained. This holds, in contrast to Poland and Germany, also for medium level of education. The relationship is most pronounced in Finland. With respect to the productive use of female skills, Denmark and Sweden perform best.

Germany is the second country with rather strong traditional gender roles in its western part. One outcome on the national level is the low childcare provision for children aged zero to three. In this context, the particularly low employment rate of mothers with children below three does not come at surprise, neither the strong difference in employment rates between childless women and mothers. Tertiary education does not pay off in terms of gendered labour market prospects: Only in Germany women holding a university degree experience a lower employment rate than men, and their relative income in terms of men’s worsens if they attain a university degree. If women work at all, they do this mostly in part-time forms: Germany displays the highest part-time ratio of employed women among all countries observed. Thus, the low share of women among managers, technicians and (associate) professionals comes as no surprise. Motivation for part-time is driven by family context. Due to the overall high magnitude of part-time, there is a reasonable amount of underemployed part-timers as a potentially additional workforce. Furthermore, only in Germany the part-time incidence as well as the gender pay gap – ranking as the second highest level among all countries observed – increase steadily with age.

Despite these marked differences, the gendered structure of education and labour market involvement in the BSR region also features some cross-country similarities.
Women are better educated than men in most countries of the Baltic Sea region. Women leave school less often without a degree, and they are involved in tertiary education to a higher extent. In all countries but Germany, employed women are on average better educated than men. Nevertheless, a traditional gendered segregation of occupations and by field of study is observed in all countries of the Baltic Sea region. This might be one reason for the gender gap in pay for all educational groups that is also visible in all BSR countries. The employment rate of females is lower than for males in the BSR, but the gap is smaller in the youngest age group. Family duties (number and age of children) are negatively associated to women’s employment rate in most countries except for Denmark and Sweden, but not to men’s.

To obtain an integral picture of the situation of women in the Baltic Sea region, the portrayed economic and regional perspectives of those countries have to be merged with the corresponding features of qualification and employment. In short, the main findings of part I and II of this study have to be brought together. This is done in the following overall summary.
Overall Summary Part I and II

For the future of the Baltic Sea Region it can be stated that the catching-up process of its eastern states will continue. Continuing convergence processes will lead to an increased assimilation of income levels in eastern and western countries. However, due to large disparities in regional structures in the Baltic Sea region, the impacts of convergence will vary between its regions. Cities are regional and national centres of economic development. They take over a leading role within the knowledge-based structural change.

Generally, there is a high potential for knowledge-based structural change in this area. Here, the strengthening of research and development activities in public sectors and firms is a central field of action. Additionally, cross-border integration and cluster building are effective measures for developing R&D-networks. The support of migration of labour forces and infrastructure investments in order to increase mobility are exemplary tasks.

In the course of the structural change towards knowledge-based industries, special attention should be paid to cities as engines of regional development. Crucial aspects for the development of cities are whether or not they will be able to cope and counter steer international migration. A sufficient supply of housing and a successful integration of foreign workforces are central challenges. Soft factors, such as fostering the attractiveness of cities by an increase in quality of life are additionally important when meeting challenges and opportunities of migration.

The major task for the Baltic Sea Region is to smooth potential negative consequences of the demographic change. Measures to reduce the threatening shortage in labour force, especially in the Baltic States and Poland are in high demand. The mobilisation of less frequent workforces, such as elderly people and women is a central task for political decision makers and companies. Additionally, the improvement of the educational level of these groups, migrants and the existing labour force will be of aid against demographical deductions. The cross-border recognition of educational attainments is another factor to foster cross-border labour market integration.

In the Baltic States and Poland – and to a certain degree this applies also to Germany – women’s skills accommodate an untapped potential of considerable amount. This finding particularly applies to the suboptimal labour market usage of (high level of) formal education, to the underachievement in the provision of full-time jobs and adequate institutional child care, to the representation of women in managerial positions and among self-employed as well as to a considerable pay gap and low career prospects due to poor life-long learning opportunities in the workplace.
Furthermore, a reasonable share of highly educated women is economically inactive in those countries. On the other hand, the pronounced labour market orientation and high educational aspirations of young women especially in the Baltic States are quite promising. In Germany and Poland, traditional gender roles hinder a more extensive female integration in the labour market, whereas this obstacle plays a minor role in Scandinavian and part of Baltic countries.

However, tackling gender pay gap is a challenging task in all countries observed and will not be successful unless the gendered segregation of rather high-pay male and rather low-pay female jobs will be redressed. Whereas women in high-wage shaped Scandinavian countries and Germany are handicapped by some side effects like precarious work forms, women in the eastern countries of the Baltic Sea should use the chance of – still – quite low wages to establish a job culture that grounds on reliable work arrangements with respect to job security, working-time and income for both sexes.

The framework of the socio-economic development in Baltic States and Poland will change due to continued integration and convergence processes, the structural change towards a service and knowledge-based economy, intensified trade, labour market networking and an overall demographic change. These factors bring about a number of challenges but may also be used as unique opportunities for developing the southern Baltic Sea countries to a “Triple A Region” in terms of skills, innovation and competitiveness. In this context, human resources, and among them particularly female potentials, should be fully tapped.
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