PROJEKTU UN KVALITĀTES VADĪBA

THE IMPACT OF POPULATION AGEING ON FUTURE SKILLS SUPPLY IN LATVIA

RESEARCH

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The research group of “Projektu un kvalitātes vadība” Ltd conducting the research “THE IMPACT OF AN AGEING POPULATION ON THE FUTURE SKILLS SUPPLY IN LATVIA” of the activity “Researches of Labour market” within project No.1DP/1.3.1.7.0/10/IPIA/NVA/001 “Development of medium-term and long-term forecasting system for demand of labour market” of the European Social Fund programme “Human resources and employment” addition 1.3.1.7.activity “Development of short-term and long-term forecasting and monitoring system for demand of labour market”:

Head of the group of researchers – Professor of the University of Latvia (LU) Edgars Kasalis. He has obtained doctorate in economic sciences and has more than 20 years of academic and research work experience at the LU and experience in different international and local scientific projects. The following researchers participated in the research and the following blocks of activities were specified:

Associate Professor of the LU Edgars Brēķis

Planning of detection and collection of the necessary data, probation of methods for data analysis, developing of forecasts, data analysis;

Associate Professor of the LU Sandra Jēkabsone

Research of the demographic situation and past performance of Latvian demographic projections analyse determining factors of skills;

Docent of the LU Kārlis Purmalis

Analysis of Latvian and foreign researches on labor market, trend analysis of skills supply, analysis of findings and development of recommendations for the collection of labor market policy development.

The following researchers also were involved in the preparatory stage of the research: Māris Brants and Guna Eglīte.

The information necessary for the research purposes from sector representatives – executives, industry association representatives and industry experts and Latvian national and foreign economy experts was obtained from the surveys conducted by “Dorus” Ltd, within the framework of the ESF Project of the Ministry of Economics No1DP/1.3.1.7.0/10/IPIA/NVA/001 “Development of medium-term and long-term forecasting system for demand of labour market”, activity „Surveys in Labour Market Sphere”.

This document expresses the opinion of the group of researchers that in no way can be considered to be reflecting the opinion of the European Community or the State of Latvia.

Researchers: “Projektu un kvalitātes vadība”, Ltd

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SUMMARY

During the research „IMPACT OF AGEING OF POPULATION ON THE FUTURE SKILLS SUPPLY IN LATVIA", analysis of skills supply was carried out and long-term impact of the ageing of population on the skills supply was assessed. Researchers were analysing the former trends of skills supply in relation to changes in the number of population, ageing of population and consequent factors. Activity rate of the population and employment was viewed across different age groups, analysis of structure of economically active and economically inactive population and their skills was performed, as well as factors having impact on the economic activity have been identified.

Based on the assessment of demographic changes and forecasts, and the possible changes of factors determining the economic activity, skills supply forecasts until 2030 were prepared, considering also the future development forecasts of the national economy.

During the research, a particular attention was paid to labour market risks in relation to ageing of population and possibilities to decrease the ageing, identifying long-term risks of the labour market in relation to ageing of population. Based on foreign experience in reduction of ageing risks, measures to be taken to improve the Latvian labour market were identified in order to minimize the possible risks due to ageing of population.

The following novelties and practical benefits of the research can be mentioned:

- Labour skills supply and factors having impact thereon have been described, assessing the impact of ageing on the skills supply;
- Assessment of factors having impact on the economic activity of population identifying the main factors having impact on economic activity of population in Latvia in the last 10 years;
- The most significant trends of demographic changes have been summarized and factors having impact on the demographic changes in Latvia in the last 20 years have been identified;
- Former migration trends have been described, specifying factors aiding migration, positive and negative aspects of the migration and the possible future changes in migration flows forecasted;
- In light of the former demographic trends, future development alternatives of the national economy, and globalization processes, three versions of demographic forecasts have been developed according to three different GDP projections (in case of dynamic, moderate and slow development);

- Changes in the factors determining the skills supply in Latvia have been identified until 2030, identifying skills, in which significant decrease of labour supply is expected;
- Labour market risks in relation to ageing of population in Latvia and other European countries have been analysed, and recommendations for decreasing the ageing provided.

As a result of the research the following main conclusions were made:

1. Decisions regarding the economic activity of the population are influenced by a complex set of factors, development of which can be influenced by the economic, social, demographic and education policies adopted by government and applicable to the specific circumstances.
2. Economic activity of the population in Latvia during the last 20 years has been affected by the following factors: salaries and tax burden, labour legislation and shadow economy, social benefits, availability of social and transport infrastructure, free movement of labour (after Latvia joined the EU) and opportunities of employment outside Latvia (different income level and standard of living in EU member states), migration flows, pension system (terms of pensioning, amount of pensions and opportunity to ensure an adequate quality of life, changes in pension legislation, including increase in retirement age), natural movement of population (including low birth-rate, early mortality, health care quality and lifespan), education system (duration of education and availability of different education levels, quality of education and attitude of public to education), structural changes of the national economy and labour market demand.
3. Ageing of population increases the risk of skills supply deficit in the labour market, disproportions occur between labour supply and demand from the point of view of age groups, occupations and skills; older labour has difficulties to adapt to the demand and has higher risk of qualification inadequacy in the age of rapid technological developments; furthermore, ageing of population affects state budget and development of economy – increasing costs for care of elderly people, and reducing GDP growth rate and potential.
4. Labour supply will change by fields of education due to both structural changes and technological development of the national economy, demographic situation (changes in ageing structure, emigration), diversity and availability of education programmes. Until 2030, in the labour supply structure, compared to the existing, an increase in the number of professionals in humanities and arts, social sciences, commercial sciences and legal sciences, healthcare and social welfare will be observed, while the proportion of professionals in agriculture and education will decrease.
5. Currently the population in the working-age (age of 15 to 64) represents 67.1% in the age structure of the skills supply, while until 2030, the respective proportion will decrease to

64%; the proportion of population over 65, however, will increase from the current 18% to 23%, resulting in the increase in the level of demographic burden.

6. The main factors causing changes in the skills supply until 2030 in Latvia will be development of education system (offer and availability of education, number of school years, lifelong education), changes in demographic indices (in particular, migration flow, which can partially compensate the negative demographic trends), improvement of the social security system (that would promote involvement of economically inactive population in the labour market) and changes in the pension legislation, technological progress.
7. When analysing labour survey data on the age structure of employees in different occupational groups at the 2 and 3-digit level, the professions/occupations have been identified, in which deficiency of labour can be expected due to ageing until 2030. At the 2-digit level, the following occupational groups are considered potentially problematic: 32 (health associate professionals), 44 (other clerical support workers), 53 (personal care workers), 61 (market-oriented skilled agricultural workers), 71 (building and related trades' workers, excluding electricians), 73 (handicraft and printing workers), 91 (domestic cleaners and helpers), 96 (refuse workers and other elementary workers).
8. In general, the current labour ageing structure suggests that the impact of ageing mainly affects lower qualification occupational groups with lower remuneration level and consequently a lower motivation of young workers and professionals to get involved in the respective occupations or specific occupational groups (for instance, occupational group 61 (qualified market agriculture workers), the low motivation of young people to stay at the countryside is caused by the comparatively hard working conditions and poorly developed transport and social infrastructure). However, there are some medium and high qualification occupational groups (for instance, health associate professionals), where labour deficiency may be experienced in future due to demographic and other specific factors.

Keywords: labour market, labour supply, population, demographic forecasts, risks, ageing.

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LIST OF ABBREVIATIONS

CSB	Central Statistical Bureau
EC	European Commission
EQF	European Qualifications Framework
MoE	Ministry of Economics
GDP	Gross Domestic Product
MoES	Ministry of Education and Science
NACE	Statistical classification of economic activities
SEA	State Employment Agency
N/e	National economy
LU	University of Latvia

TERM DEFINITIONS

Human capital – stock of knowledge and skills possessed by labour and applicable in production.

Labour market – the environment where the labour force supply and demand is in mutual interaction determining the remuneration level and the placement[1].

Labour force supply – the decision of the economically active population to perform paid work of a specific type at a definite time and place[2].

Labour force demand 1) The decision of employers to employ the economically active population for a specific type of work at a definite time and place for appropriate remuneration[3];

2) Amount of labour resources with a specific qualification required by employers, characterized by the population employed in various economic sectors and occupational groups, as well as vacant (free) positions[4].

Labour productivity Added value per one employed person[5].

Economically active population (labour) Persons of both genders who, in the reporting period, offered their work for the production of goods and services. Economically active population consists of employed persons and nonworking persons actively seeking a job (both the ones registered with the State Employment Agency and the unregistered ones[6].

Economic activity rate Share of economically active population to the total number of population in the respective age group, in per cent[7].

Education level Organizational unit of the education system and the description of the education obtained by a person comprising the acquisition of qualitatively defined and consequently implemented education[8].

1 *Detailed labour market research in the sectors of national economy*, LU, Riga, 2007.
2 Ibid.
3 Ibid.
4 Definition offered by authors.
5 CSB database.
6 CSB database, available at: *http://data.csb.gov.lv/DATABASE/Iedzsoc/Ikgad%E7jie%20statistikas%20dati/Nodarbin%E2t%EEba/NB01.htm*
7 Ibid.
8 Ministry of Education and Science of the Republic of Latvia, available at: *http://www.liis.lv/vi/termizgl.htm*

New (knowledge) economy Various aspects and sectors of economy producing or actively using innovative or new technologies[9].

Competence 1) Set of knowledge and skills in a certain area, issue, field of activity that enables someone to act effectively in various situations[10].

2) Proved ability to use knowledge, skills and personal, social and/or methodological capabilities in study and work situations and in professional and personal development[11].

Qualification Result of an official evaluation and recognition process obtained when a competent institution establishes that a person has achieved training results in accordance with the specific standards[12].

Potential (possible) supplementary labour Persons seeking for job, however, unable to assume it, and persons ready to assume work, however, not seeking for it[13].

Skills 1) Specific abilities obtained through training or practice, and useful for work[14]. Those include abilities to obtain, revive and expand theoretical knowledge and skills, use them creatively in practice to fulfil work assignments[15].

2) The European Qualifications Framework (EQF) describes skills as cognitive (use of logical, intuitive and creative thinking) or practical (including prestidigitation and use of methods, materials, tools and instruments)[16].

Skill level the necessary level of education, specialization and practical working experience that ensure a successful fulfilment of job assignments[17].

9 Restructuring problems of the Latvian economy in conditions of the new economy. Scientific monography Edited by R.Škapars and Ē.Šumilo, LU, 2005.
10 Dictionary of Business Terms, available at: *http://www.businessdictionary.com/definition/competence.html.*
11 Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning (Document refers to EEZ) (2008/C 111/01), Official Journal of the European Union, 6.5.2008.
12 Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning (Document refers to EEZ) (2008/C 111/01), Official Journal of the European Union, 6.5.2008.
13 CSB database, available at:
http://data.csb.gov.lv/DATABASE/Iedzsoc/Ikgad%E7jie%20statistikas%20dati/Nodarbin%E2t%EEba/NB01.htm.
14 Cambridge Business English Dictionary /skill – a particular ability that you develop through training and experience and that is useful in a job/.
15 *Profession classification* ("LV", 299/304 (1360/1365), 21.10.1998.).
16 Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning (Document refers to EEZ) (2008/C 111/01), Official Journal of the European Union, 6.5.2008.
17 *Profession classification* ("LV", 299/304 (1360/1365), 21.10.1998).

Occupation Qualified occupation/kind of occupation (position, trade, speciality) where an employee is required to have certain education, knowledge, experience and skills[18].

Major occupational groups Occupational groups grouped according to the codes of the International Labour Organization in an ascending order by degree of their similarity (from 0 to 9)[19].

Occupational standard Theoretical and practical preparedness that allows performing the work that corresponds to a certain level of complexity and responsibility[20].

Occupational qualification Documentary assessment of education and professional mastery corresponding to certain occupation[21].

Professional qualification levels Division of professional qualification distinctive by the degree of education or type of programme (In the education system of Latvia there are five levels of professional qualification: from 1 (lowest) to 5 (highest))[22].

Green economy Economy that results in "improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities"[23].

Knowledge Result of the assimilation of knowledge perceived during the study process. A set of facts, principles, theories and practice related to the field of work or studies[24].

18 Ministry of Welfare of the Republic of Latvia, available at: http://www.lm.gov.lv/text/80.
19 Ibid.
20 Ibid.
21 National Database of Educational Opportunities, available at: http://www.niid.lv/node/372.
22 Ministry of Welfare of the Republic of Latvia, available at: http://www.lm.gov.lv/text/80.
23 United Nations Environment Programme, available at: http://www.unep.org/greeneconomy/greeneconomyreport/tabid/29846/default.aspx.
24 Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning (Document refers to EEZ) (2008/C 111/01), Official Journal of the European Union, 6.5.2008

Major occupational groups (ISCO *88*)

CODE	MAJOR GROUPS
OC1	Managers
OC2	Professionals
OC3	Technicians and associate professionals
OC4	Clerical support workers
OC5	Service and sales workers
OC6	Skilled agricultural, forestry and fishery workers
OC7	Craft and related trades workers
OC8	Plant and machine operators, and assemblers
OC9	Elementary occupations
OC0	Armed forces occupations

Statistical classification of economic activities by NACE Rev. 2

CODE	FIELD
A	Agriculture, forestry and fishing
B	Mining and quarrying
C	Manufacturing
D	Electricity, gas, steam and air conditioning supply
E	Water supply; sewerage, waste management and remediation activities
F	Construction
G	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Transportation and storage
I	Accommodation and food service activities
J	Information and communication
K	Financial and insurance activities
L	Real estate activities
M	Professional, scientific and technical activities
N	Administrative and support service activities
O	Public administration and defence; compulsory social security
P	Education
Q	Human health and social work activities
R	Arts, entertainment and recreation
S	Other service activities
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	Activities of extraterritorial organisations and bodies

Education levels (according to ISCED97 classification)[25]

LEVEL	LEVEL NAME
Level 0	Pre-primary education
Level 1	Primary education or first stage of basic education
Level 2	Lower secondary education or second stage of basic education
Level 3	(Upper) secondary education
Level 4	Post-secondary non-tertiary education
Level 5	First stage of tertiary education
Level 6	Second stage of tertiary education

25 Eurostat database, available at: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Glossary:International_standard_classification_of_education_(ISCED).

INTRODUCTION

Topicality of the research on the impact of ageing of population on the future skills supply is defined by the necessity to provide to developers of structural policy a reasoned, clear and sufficiently detailed information on the impact of ageing of population on the future skills supply in Latvia until 2030, identifying major labour market risks arising thereof. **Subject** of the research is the SUPPLY of future skills and impact of ageing of population on the respective skills. Skills supply in future is closely related to demographic factors, alternatives for long-term development of the Latvian national economy, trends of the demand of skills and competencies arising thereof, and global economy development trends.

Goal of the research is to evaluate impact of ageing of population on the future skills supply in Latvia until 2030 and to identify major labour market risks arising thereof.

Main **tasks** of the research:

1. To analyse the current age structure of the skills supply of the economically active, non-active and employed population groups.
2. Considering the former demographic trends, future perspectives of the national economy development, and globalization processes, to develop demographic forecasts, including birth-rate, mortality and international migration indices in Latvia until 2030. To establish factors that have influenced and will influence demographic changes in future. To compare Latvian demography forecasts of different sources and to analyse the most significant differences.
3. To establish the main factors having impact on economic activities of population during the last 20 years and to identify factors determining the impact until 2030.
4. Considering demography trends, the expected changes in economic activities of population and national economy trends, develop forecasts for skills supply until 2030. To identify those skills where significant decrease of labour supply is expected until 2030.
5. To identify the skills where deficiency of labour is expected as a result of labour ageing, structural changes in the national economy and non-conformities of education offer.
6. To analyse and provide recommendations for measures to be taken to reduce labour market risks in relation to ageing of the population. To study international experience in reduction of labour market risks in relation to ageing of the population.

7. To describe in detail the research results and provide conclusions and recommendations arising from the research that shall be used for development of long-term labour market policy after conclusion of the research and for development of skills supply forecasts.

The research views skills supply and factors having impact thereto, assessing the impact of ageing of population on the future skills supply, analyses the former skills supply trends in Latvia by economically active, non-active and employed population groups, and provides assessment of factors having impact on the economic activity of population in Latvia. Moreover, the research assesses future skills supply trends in Latvia until 2030. Evaluation of future skills supply has been performed considering former demographic trends, alternatives for future development of the national economy and globalization processes, comparing Latvian demographic forecasts provided by different sources and analysing major differences thereof. Within the framework of the present research, considering future perspectives of the national economy development, three versions of demographic forecasts have been developed according to three different GDP projections (in case of dynamic, moderate and slow development). Forecasts prepared by MoE (target scenario) were used as a basis for development of the demographic forecasts, correcting natural movement and migration flow of the population respectively. In light of the demographic forecasts and assessment of economic activity of the population along with changes in factors defining the skills supply until 2030, skills supply forecasts for Latvia until 2030 were developed, providing possible skills the labour supply of which may decrease and skills that might face the deficiency of labour due to ageing and other factors. Furthermore, labour market risks in relation to ageing of the population have been studied, and, considering foreign experience, ageing decrease possibilities in Latvia have been analysed. Research results shall be used for development of labour market policy and for development of skills supply forecasts.

The main **limitations** of the research are related to the quality of available statistic data and changes in the population and social statistic indices after census carried out in Latvia in 2011. Majority of the publicly available data for the period 2001 to 2010 still have not been adjusted according to the latest census results, and are not comparable to the results of 2011 recounted already. Thus, within the framework of the research, when analysing statistical data, it has been specified, which data (recalculated or non-recalculated) have been used in the specific case. Furthermore, majority of demographic etc. socioeconomic forecasts have not been reviewed that consequently limit the opportunity to analyse the future labour supply. In order to carry out a comparative analysis of demography and labour supply in retrospective, researchers propose to consider the former demographic and labour market forecasts with a certain offset in time (according to the results of

census, the current number and structure of population complies with the previously forecasted one with an offset of 5 to 7 years).

METHODOLOGY OF THE RESEARCH AND APPLIED SOURCES OF INFORMATION

To achieve the goal of the research, qualitative and quantitative methods of analysis have been applied:

- Monographic,
- Graphic illustration,
- Table,
- Graph and chart,
- Calculation of average and relative values,
- Time series,
- Statistic forecast methods,
- Forecast methods with expert method,
- Expert inquiries.

During the research, authors mainly used the available official statistical data. Data available from Eurostat and CSB databases and characteristic national accounts and labour market, as well as SEA labour inspection information for detailed analysis of skills supply and demand was used.

Seeking answers to questions posed in the research, along with the available statistical data, the following survey methods were used in the analysis:

- Different classifications for statistical data analysis:
- Occupational groups in ISCO 88 wording,
- Statistical classification of economic activity in NACE 2 wording,
- Education levels according to ISCED 97 classification,
- Profession classification in Latvia.

To identify alternatives for development of the national economy, range of the EU and Latvian programme documents was viewed, including "Europe 2020" and "Latvia 2030". Priorities of the economic development established in the documents were the main focus.

Based on the results of analysis and applying expert method, scenarios for assessment of alternatives of the development of the Latvian national economy were prepared. When developing group of scenarios, method of desirable-undesirable scenarios was applied, in which, initially, pessimistic and optimistic future development was specified, while the actual scenario was the combination of pessimistic and optimistic.

When creating demographic forecasts for Latvia, authors of the research used forecasts developed by the MoE (target scenario), correcting figures of natural movement and migration flow of the

population. Three versions of demographic forecasts were developed within the research in accordance with 3 different projections of GDP (in case of dynamic, moderate and slow development).

Future skills supply was determined analysing the former trends and projecting dynamics of specific figures in the future.

Assessment of the impact of ageing of the population on the future skills supply was based on data characterizing skills supply (professional and education level) and the available in labour surveys by economic activity, age and gender.

Qualitative assessment of skills supplies development and forecasts for Latvia were developed based upon:

- Actual forecasts of changes in the number of population, considering migration;
- Expected distribution of the number of population in the total labour supply by future qualification, considering dynamic forecasts of the number of population;
- Forecasts of long-term changes in the number of population by the education level;
- National economy development scenarios, developed within the framework of the research of skills demand;
- Professional opinion in relation to the demand and supply of labour skills in the future.

Analysis of economically inactive population structure and assessment of skills was carried out using the primary labour survey database of the Central Statistical Bureau for 2010, supplementing the information with publicly available data on the economically inactive population.

Data collection methods used in the research

Within the framework of the research, aiming to obtain information on the long-term development trends of specific economic sectors in Latvia and national economy trends in general, in-depth interviews with the following professionals were carried out:

- Representatives of sectors – senior managers of companies where indices exceed the average level by the number of employees and turnover;
- Representatives of sector associations and professionals of the sectors (sector professionals recommended by representatives of associations);
- Professionals of the Latvian national economy sectors and foreign economy experts.

Organization of interviews

To carry out the field work within the framework of the ESF project of the Ministry of Economics No.1DP/1.3.1.7.0/10/IPIA/NVA/001 "Development of long-term and medium-term forecasting

system for demand of labour market", activity "Surveys in the area of labour market", sub-contractor "Dorus" Ltd, was involved according to tender procedure. Interviews were carried out during the period 22 February to 10 May 2013 carrying out, in total, 65 valid interviews. Duration of interviews varied from 40 minutes to 2 hours.

For purposes of the interviews, 893 potential informants were addressed and in 609 cases refusals were received. In total, 284 interviews were carried out, of which 19 were recognized invalid (for instance, informant was unable to reply to several important questions about the industry etc.) thus these interviews were not included in the research.

A report was prepared for each valid interview, and a summary for each specific industry, summary of interviews of Latvian professionals and summary of interviews of foreign professionals were prepared as well.

Sectors of national economy

Before the research, a list of industries to be included in the interviews was prepared and approved by the client. In total, based upon the scale and significance of the industries in long-term perspective, 45 most significant sectors to be included in the research were identified.

Interviews of representatives of industries

135 valid interviews were carried out with senior managers of companies. In each industry, three companies that were among 10 largest companies in the sector by the number of employees in 2011 (based upon information from CSB) were selected. In each company, one senior level manager was interviewed.

In case of two sectors ("Real estate activities" and "Pre-primary and primary education"), 10 companies with the largest number of employees had the same line of business, while the sector itself was not so homogenous. Thus, in these sectors, companies were selected for interviews not by the number of employees, but by turnover – i.e. selection was carried out from 10 companies with the largest turnover.

In general, to carry out the interviews, 551 senior level managers were addressed and 403 refusals were received. 13 interviews out of 148 were recognized invalid.

During the interviews, questions were posed in relation to issues of three parallel researches:

1. Research on strategically most demanded skills in future Latvia;
2. Research on the impact of ageing of population on future skills supply in Latvia;
3. Research on occupational mobility of labour.

Questions of the interviews were posed both to representatives of sectors and to representatives from sector associations and sector professionals, considering peculiarities of each specific group.

Interviews with representatives from sector associations and sector professionals

45 valid interviews with representatives from sector associations and 45 valid interviews with sector professionals were carried out. In each sector, one association of the 3 largest associations by the number of members was selected. One representative from each sector was interviewed.

Each of the interviewed representatives of sector associations further recommended a professional of the respective sector, who is competent at the sector in general. Afterwards, an interview with the respective sector professional was carried out.

Five industries ("Electric power generation, transmission and distribution", "Railway transport", "Air transport and activities auxiliary to air transport", "Postal and courier activities", "Higher education"), do not have industry association, therefore in these industries interviews with representatives from industry associations and industry professionals were replaced by interviews with representatives and professionals of the largest companies, trade unions and societies.

In total, 102 representatives from sector associations and 66 sector experts were addressed for interviews. Refusals were received from 57 representatives of associations and 19 professionals. All interviews with representatives from sector associations and 45 out of 47 sector professional interviews were recognized valid.

During the interviews, questions were posed in relation to issues of three parallel studies:

1. Research on strategically most demanded skills in future Latvia;
2. Research on the impact of ageing of population on future skills supply in Latvia;
3. Research on occupational mobility of labour.

Questions of the interviews were posed both to representatives of sector associations and sector professionals, considering peculiarities of each specific group.

Interviews with professionals of the Latvian national economy sectors and foreign economy experts

20 valid interviews with professionals of the national economy sectors of Latvia and 20 valid interviews with foreign economy experts were carried out. Interviews with representatives from Latvia were carried out in person, while those with the foreign economy experts – on the phone.

For interviews, professionals with specialization in macroeconomics and/or labour market issues, but for foreign experts – those with global vision of European situation – were selected. List of professionals to be interviewed was agreed with the client.

In total, 87 professionals of the Latvian national economy sectors and 87 foreign economy experts were addressed. Refusals were received from 66 professionals of the Latvian national economy sectors and 64 foreign economy experts. 20 out of 21 interviews with Latvian professionals were recognized as valid Latvian and 20 out of 23 interviews with foreign professional were recognized valid.

During the interviews, questions were posed in relation to issues of three parallel studies:

- Research on strategically most demanded skills in future Latvia;
- Research on the impact of ageing of population on future skills supply in Latvia;
- Research on occupational mobility of labour.

1. THEORETICAL ASPECTS OF LABOUR SKILLS SUPPLY

Analysing labour market and skills, several groups of factors having impact on the labour demand and supply should be noted. As the most significant factors of impact in the labour market shall be considered:

1. Change in the national economy structures – industrialization or de-industrialization, change in ownership rights (public and private property);
2. Technological progress – expansion of IT availability and opportunities, digitalization;
3. Globalization – deepening of international relations in terms of labour, capital, movement of goods and services.

It must be taken into account that due to these factors in the labour market the following may occur:

1. Changes in division of employment by sectors;
2. Change of skills in the labour market;
3. Changes in the gender groups in the labour supply (changes in proportion of women or men);
4. Changes in employment indices;
5. Changes in the salary and income level.

Labour supply is the decision of economically active population to perform specific wage labour at specific time and place[26]. Labour supply is influenced by demographic situation in the state (number of population and increase thereof (birth-rate and mortality, average lifespan, age structure, migration), education and education offer (number of school years, time for acquisition of qualification and specialization), professional structure of labour by specific labour market segments, skills and qualification of employees, occupational mobility of labour, salary level, and the choice of individual between spare time and income (level of economic activity). Furthermore, **skills supply** shall be considered a set of skills supplied by the economically active population of the country, determined by demographic factors, education of labour, skills and qualification, occupational mobility of labour, level of economic activity (involvement) and other factors (see Figure 1.1.).

26 Detalizēts darbaspēka tirgus pētījums tautsaimniecības sektoros (*Detailed labour market research in the sectors of national economy*), LU, Riga, 2007.

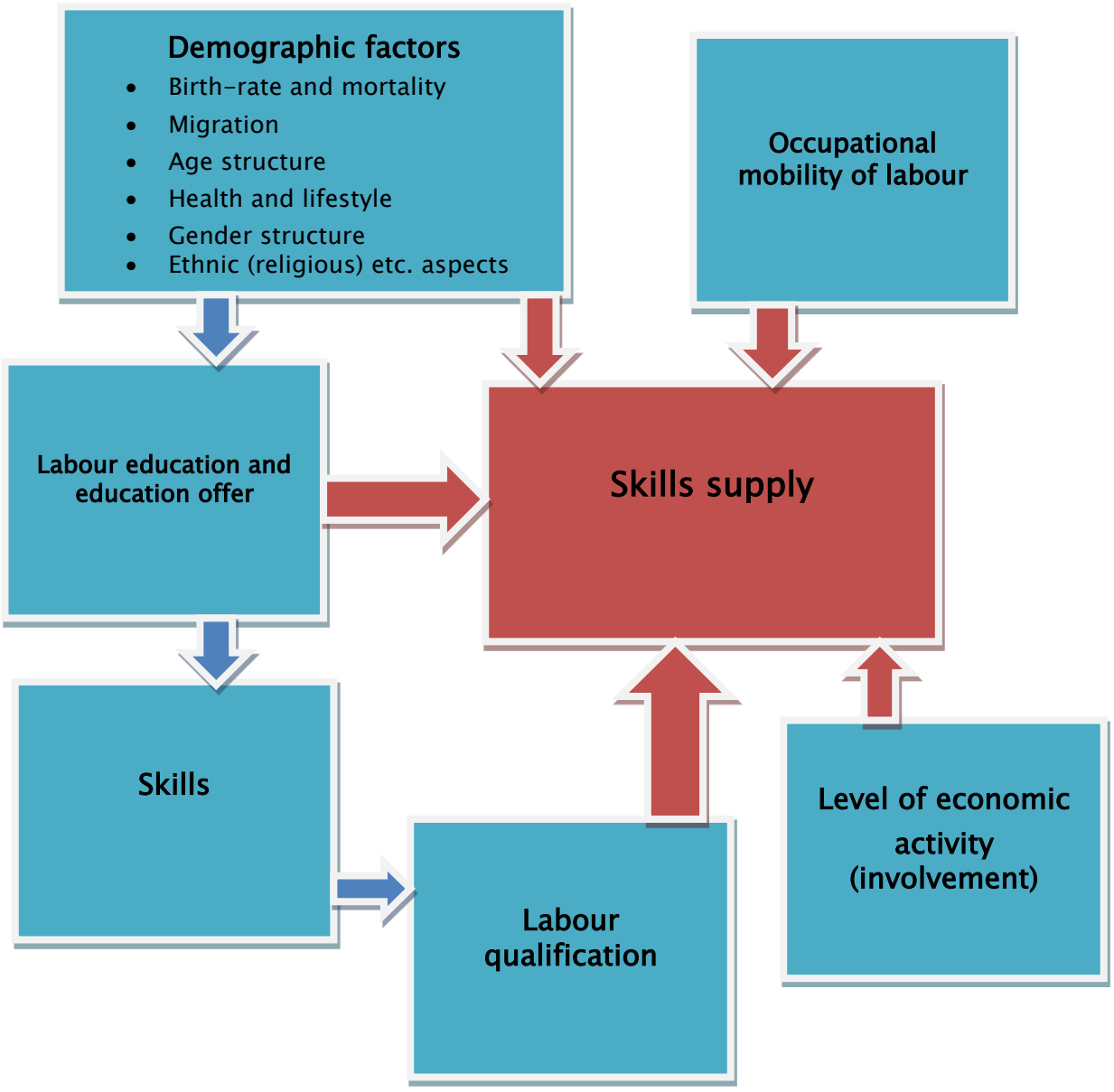


Figure 1.1. Factors determining skills supply

After the assessment of factors determining labour supply, special emphasis shall be put on the demographic factors, which have the most significant role in developing the labour supply and are hardly influenced by developers of the policy (in particular, in the long run). Furthermore, the education level of employees is of great importance and other aspects in relation to acquisition of education (number of school years, time for acquisition of qualification and specialization, education offer and opportunities) that determines skills of labour and quality thereof. Skills supply in terms of quantity depends on economic activity of the population or on the level of involvement, which is largely determined by salary and choice of the individual between spare time and income, since any employee benefits both from income and spare time. Usually, the higher the actual salaries are, the more working hours employees tend to offer. However, in the labour market, not only regularities

described by microeconomics theory with supply function may be observed, since labour supply is of purely prejudiced nature. Inflexible labour supply may occur in the labour market when along with minimum increase in salary, labour supply in the labour market undergoes almost no change at all, since the curve of labour supply is vertical. There is also possibility that employees react to higher salaries reducing their work efforts, since higher salaries mean also that one may work less, receiving the same income. Furthermore, a situation may occur when, in case of a very low salary rates, labour supply is high, since people, to ensure necessary means, must work longer hours. In this case, labour supply curve may show a negative increase (therefore in case of decrease of salary, labour supply shall increase). For instance, in Latvia, along with significant decrease of the average salary in 2009, increase in economic activity of population was observed, as along with decrease of the state social guarantees and increase in indebtedness, people were forced to work more or seek for a job offering higher salary rates.

Summarizing the analysis on skills supply and factors having impact on the supply, the following conclusions can be drawn:

- Skills supply is a set of skills offered by economically active population of the country that is determined by demographic factors, education of labour, skills and qualification, occupational mobility of labour, level of economic activity (involvement) and other factors.
- The determinant role in development of the skills supply is played by the demographic factors – level of birth-rate and mortality, age and gender structure, health and lifespan, migration that cannot be directly influenced by the developers of economic policy in a short term.
- Significant role in the development of skills supply is played by the education level of employees and other aspects related to acquisition of education – number of school years, time for acquisition of qualification and specialization, education offer and opportunities determining skills of labour and quality thereof.
- Furthermore, skills supply is influenced by the occupational mobility and level of economic activity (involvement) of the labour determined by salary and choice of the individual between the spare time and income.

In the majority of European and other developed countries of the world, ageing of population is considered a serious socio-economic issue of the 21st century. Impact of the ageing of the population can be observed in all EU member states and in the majority of political spheres. As a result of decrease of birth-rate, increase in lifespan and in the number of immigrants in the working-age, number and proportion of elderly people in the total number of population will continue to increase.

Moreover, in Latvia, according to the demographic forecasts provided by Eurostat, proportion of elderly people in the total number of population in the age of 15 to 64 until 2060 may reach 68% and be the highest in the EU.

In the last 20 years, proportion of people in the age of 65 and older has increased in all continents; in Europe it has been the highest: in 2010, it represented 16.2% of the total number of population (in EU-27 countries 17.4%)[27]. Ageing of population is an inevitable and objective phenomenon that reflects development regularities in the society during a transition to the regime of a rational reproduction of population with low level of mortality and birth-rate. Increase in the average age of population and in number of proportion of elderly people shall be mentioned among the principal forms of manifestation the regime. According to the assessment of the European Commission, in 2025 more than 20 % of Europeans will have reached the age of 65 or more; a rapid increase will be observed in the number of people over the age of 80[28]. A rather specific indication of ageing is also a decrease of the proportion of children and youth, and increase in the average age of the working-age population.

Ageing of population exists at the bottom of the so called population pyramid, where the key indication is decrease of the proportion of children in the population age structure, the reason of which is low level of population birth-rate, and ageing "from the top" related to the natural changes in the adult population age structure and, in part, also to the decrease of mortality among people of elderly and middle-age population due to the improvements of material and economic situation and efficiency of medical care. Usually, common ageing processes are more enabled by the ageing "from the bottom" (decrease of the proportion of children)[29]. Sometimes ageing of population may be caused by migration: youth and other economically active population leave specific territory (country).

Nowadays, problems of ageing of population become topical in many countries in the world, thus, issues related to ageing and needs of elderly population have been viewed in three large international conferences (in Bucharest in 1974, in Mexico in 1984, and in Cairo in 1994). In 2002, UN General Assembly convened the Second Global Assembly for the research of the issue of ageing (in Madrid). This Assembly adopted the strategy for solving the ageing of population problem and topical social, cultural, economic and demographic issues related to the problem in the 21st century. Forecasts show that in 2050 the number of population (from the age of 60) will exceed the number of children (up to

27 Eurostat Statistical Books. Active ageing and solidarity between generations. A statistical portrait of the EU 2012.Luxemburg: publication Office of the EU, 2011.

28 Population and social conditions. Available at: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-10-001/EN/KS-SF-10-001-EN.PDF.

29 Dynamics and differentiation of ageing of population in Latvia, Centre of Demography of the University of Latvia, LU Academic Publishing house, 2006.

the age of 15) for the first time in history (in Latvia, however, such a situation exists since 1996). Demographic processes will affect labour supply (for instance, in general in the EU, labour supply has decreased by 12%, while in separate states, incl. Latvia, labour supply in the age group of 20 to 64 may decrease even by 40%).

Intensity of ageing in a state or region may be increased or decreased by changes in the population birth-rate and mortality level, migration directions, as well as direct and indirect consequences of wars and other political upsets. An excessively rapid ageing may cause serious socioeconomic issues with undesirable long-term consequences, as well as demonstrate inability of government authorities to regulate effectively the development of population. Ageing may cause a decrease of voluntary and geographic mobility of population, and increase in the budget expenses for health and social care. On the other hand, issues of involvement of elderly population in the labour market and acquisition of the required skills (for instance, e-skills) shall be solved.

In foreign studies ageing is considered the key factor having effect on the development of skills; furthermore, there is a range of factors having a direct effect on the accumulation of skills or reduction thereof. Researchers analyse, for instance, development of cognitive skills (acquisition and application of knowledge) during the lifecycle, and relationship with different social factors – lifestyle etc.[30] In accordance with the approach of the German researcher *Kurt Vogler-Ludwig*, ageing of population shall be considered as one of the factors having effect on the complex supply (and demand) of labour skills[31]:

- Labour supply, age structure of labour, migration.
- Costs of labour – taxes, impact of the labour market regulation or indirect costs;
- Human capital resources and accumulation, or factors reflecting return of education;
- Technological progress, organization of business, productivity;
- Environment protection costs and value of natural resources;
- Global placement of production plants.

One of the most significant factors describing the labour market offer is the abovementioned mobility of labour – a specific feature of the modern globalization. Studies show that in open markets, where labour can freely cross national state borders (for instance, EU), risks of lack of labour supply are considerably lower than those in closed national economies. Thus, mobile labour is the factor

30 Richard Desjardins, Arne Jonas Warnke. Ageing and Skills: A Review and Analysis of Skill Gain and Skill Loss over the Lifespan and Over Time. – OECD Education Working Paper No.72, 2012.
31 Kurt Vogler-Ludwig. Germany. Forecasting Skills and Labour Market Needs. – Kurt Vogler-Ludwig, 2006.

affecting the balance of labour market.[32] Furthermore, labour market offer may be regulated by the assistance of migration policy.

In several other studies, conclusions may be found that ageing of society is related both to the impact on the budget and on the development of economy – impact on productivity. In the global scale, ageing is topical in developed countries, including Europe, Asia (for instance, Japan) and USA. Expansion of globalization and ageing of population are considered the main challenges of Europe. Manifestations of globalization – technological development, changes in social, economic areas have promoted mobility of labour and "alienation" of specific labour market groups, or negative impact on adaption of elderly labour to demand.[33]

In the labour market, at global level, according to conclusions of the research, changes in generation age groups occur – labour of younger age tends to integrate in the service market, while those of elderly age – in the production industry. Qualification of elderly labour has a higher risk of inadequacy in the age of rapid technological development. Sometimes comparing to labour of younger age that is mobile and receives on average a lower remuneration, employees of elderly age may be characterized as an expensive, less flexible and less productive factor.[34]

However, at the same time, studies show non-compliance of skills with the labour market demand not only among older employees, but also among youth. The OECD study[35] reflects opinion of surveyed employers on recruiting difficulties, and one of obvious indicators – lower level of unemployment – is closely related to higher level problems of providing employment. It contradicts to the opinion of more than 40% of employers that during the economic crisis (in 2009), selection of employees with necessary skills was complicated (in Japan, Australia, and Poland).[36] The research states that among the surveyed states, there are those where one third of employees consider their skills higher than required for the current position, and there are those where more than 10% consider their skills inadequate.

Summarizing surveys of specific states on the labour market trends, including ageing issues, range of different methodologies in the labour market analysis shall be noted – from methods of statistical data analysis to complicated econometric models.

32 T Kurt Vogler-Ludwig. Germany. Forecasting Skills and Labour Market Needs. – Kurt Vogler-Ludwig, 2006.

33 Globalization and the Labour Market Situation of Older Workers: Exploring Trends, Challenges and Strategies for Adaptation. – GHK, CERGE EI, 2012.

34 Ibid.

35 Better Skills. Better Jobs. Better Lives. The OECD Skills Strategy. OECD, 2012.

36 Ibid.

In the survey of demand and supply of skills in the **Lithuanian** labour market, the skills are defined as knowledge and experience formed by education and applied in a certain field of operation.[37] Thus, labour supply is expressed by the education level and the corresponding occupation (OC1-9). According to surveys carried out in Lithuania, trend of ageing of population is characteristic of the last 20 years and shall be expected in future as well; that being similar to Latvia and Estonia (see Figure 1.2.).

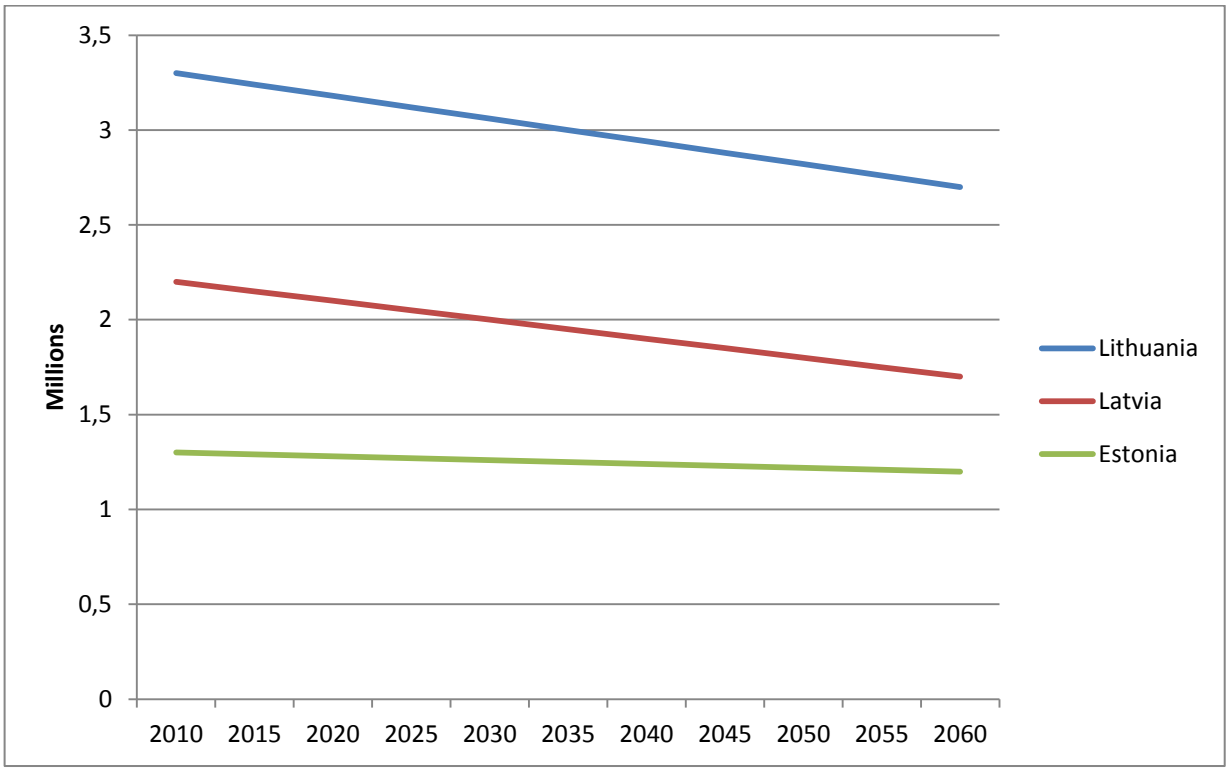


Figure 1.2. Forecasts of the number of population in the Baltic States in 2010-2060[38]

Labour market forecasts in **Bulgaria** show that decrease of the birth-rate, increase in mortality and emigration volumes have caused situation when the remaining part of labour supply transforms into the deficiency of working hands. This trend will be topical in the long run, and indices describing labour market in future include increase in the proportion of elderly people and decrease of the number of youth in the total number of population. Thus, if in 1985 in Bulgaria 12% of population was older than 65 years, consequently in 2020 proportion thereof will increase up to 23%.[39]

37 Lit. *„...term* skills *means knowledge and experience in performing certain intellectual and/or physical actions in a concrete area of activity where experience is the outcome of formal education, non-formal education or self-education and work in a concrete occupation post."* – Monitoring Demand and Supply of Skills. Analysis Report on Labour Market and Education and Training Indicators. – Vilnius, 2008.

38 The 2012 Ageing Report: Economic and budgetary projections for the 27 EU Member States (2010-2060). European Commission.

39 Iskra Beleva. Bulgaria. Forecasting Skills and Labour Market Needs. – Bulgarian Academy of Sciences, 2006.

In the **United Kingdom** labour market research "Working Futures 2010–2020"[40], labour supply was analysed using distribution of the working-age population by the level of education obtained, taking into account also distribution by age groups. Distribution of population by education level is considered the most significant indicator characterizing labour supply, while demographic and education acquisition indices are stated as the most influential factors for the labour supply. Thus, combination of these two factors results in the average increase in qualification level of population.

In the formation of labour supply, certain role is played by the education policy, continuing education and opportunities of higher education. Thus, until 2020, increase in the number of the working-age population (16 and older) and having obtained higher education, as well as respective decrease of the working-age population having obtained elementary and general education might be expected.

Forecasts show that until 2020, the average age of employees will increase, and the ageing of population trend will increase as well. According to forecasts, average number of population in 2010–2020 will increase by 2.9% during the first five-year period, and by 3.1% – during the second period. [41] Furthermore, number of the working-age population over the age of 16 will also increase, while the participation rate in the labour market will have tendency of moderate decrease. According to forecasts, long-term labour demand (in 2020) of the national economy will increase, and around 1.5 million of new workplaces will be formed, generally, along with expansion of the service sector. Demand (and employment) for highly educated labour, managers, professionals will increase. Their proportion among employed persons will increase in the long run. Technological development will affect demand for administrative staff; it will decrease, in general, however, demand for representatives of simple occupations is expected to be stable and increasing in the long run.

Labour skills supply expressed in the research as the obtained education level, is increasing in the United Kingdom along with the demand for skills (defined by changes in structures of the national economy on the industrial level – influenced by competition in the market, level of technological solutions, productivity).

Summarizing conclusions derived from foreign studies on the impact of ageing on skills supply, the following conclusions can be drawn:

- Ageing of population increases the risk of deficit of the skills supply in the labour market.
- Older employees may be described as an expensive, less flexible and less productive factor of production.

40 Working Futures 2010–2020. Evidence Report 41. – 2012.
41 Ibid.

- Older employees cannot easily adapt to the demand, and have higher risk of inadequacy of qualification in the period of the rapid technological development.
- Ageing of population has a negative impact both on the labour market and state budget, and to development of economy – increasing costs for care of elderly people and reducing speed of GDP growth and growth potential.

2. FORMER TRENDS OF SKILLS SUPPLY IN LATVIA

2.1. ANALYSIS OF DEMOGRAPHIC SITUATION AND CHANGES THEREOF IN LATVIA FROM 1990 TO 2010

In the beginning of the 90s of the last century along with political and economic rearrangements and transformation processes in Latvia, negative trends such as decrease of birth-rate, the statistically expected lifespan (for 3.2 years on average), and a rapid increase in emigration could be observed that continued (except for the decrease of the expected lifespan, the increase in which could be observed from the second half of the 90s) also in the following decades and significantly affected development of the society in the 21st century. As a result, during the period 1990 to 2009, a decrease by 180 people out of every thousand people was observed in Latvia, that split almost equally across the natural decrease of the number of population and emigration of population42. Dynamic series of changes in the number of population for the period 1990 to 2010 have been provided in Table 2.1.

Table 2.1. Number of population and distribution by age groups in Latvia from 1990 to 2010 (thsd. people, in the beginning of the year)*[43]

YEARS/ AGE GROUPS	1990	2000	2010	CHANGES			
				2010-1990	2010/1990 (%)	2010-2000	2010/2000 (%)
Total	**2668.1**	**2381.7**	**2248.3**	**-419.8**	**84.3**	**-133.3**	**94.4**
0-14	571.8	428.1	309.1	-262.7	54.1	-118.9	72.2
15-24	370.3	339.6	326.5	-43.8	88.2	-13.2	96.1
25-34	408.4	324.3	328.2	-80.2	80.4	4.0	101.2
35-44	339.7	352.2	311.4	-28.4	91.6	-40.9	88.4
45-54	351.7	295.1	327.1	-24.6	93.0	32.0	110.8
55-64	310.8	289.1	255.8	-54.9	82.3	-33.2	88.5
15-64	**1780.9**	**1600.3**	**1549.0**	**231.9**	**87.0**	**-51.3**	**96.8**
65+	**315.4**	**353.3**	**390.2**	**74.8**	**123.7**	**36.9**	**110.4**

* Not taking into account the results of census of 2011

42 Estonian Human Development Report 2010/2011, Eesti Koostoo Kogu, Tallinn, 2011.
43 CSB database.

Along with the decrease of the number of population, in Latvia trends of ageing of population have to be noted. Among significant ageing forms, increase in the average age of population and increase in the proportion of elderly people shall be mentioned that occurs along with the decrease of proportion of children and youth. In Latvia, ageing trends are intensified by higher rate of emigration of young and middle-age population. The data of census of 2011 confirmed that due to economic migration and low birth-rate the average age of population in Latvia to 1 January 2011 was 41.6 years representing an increase by a half-year compared to that published before[44]. Even more intensive ageing of population and increase in the proportion of elderly people may have a significant influence on the labour market structure and sustainability of the social security system. According to the assessment by the International Credit Rating Agency "Standard&Poor's", total costs related to the ageing of population in Latvia may increase from the current 12.3% to 16.5% in 2050. Consequently state budget costs would also increase significantly, reaching 46% of GDP, increasing also the budget deficit and debt of the government[45]. Ageing of population is related not only to the increase in the lifespan, but also to the decrease of birth-rate and emigration of young and middle-age people that significantly deteriorates the state's demographic situation. Table 2.2. reflects trends of changes in the number of population in Latvia and EU.

Table 2.2. Number of population and distribution by age groups in Latvia and EU-27 (%, comparing to 1990)

YEARS	1990	2000	2008	2020
Total number of population in EU-27	100	102.6	105.8	109.2
Total number of population in Latvia	100	89.3	85.1	80.6
Below 20 years, in EU-27	100	91.0	85.9	83.6
Below 20 years, in Latvia	100	80.1	63.4	56.7
From 20 to 64 years, in EU-27	100	104.7	108.8	109.1
From 20 to64 years, in Latvia	100	89.1	87.7	82.9
Over 65 years, in EU-27	100	116.6	131.1	159.6
Over 65 years, in Latvia	100	112.0	123.9	126.7

The data in the table suggest that the expected increase in the proportion of elderly people in Latvia during the period of 30 years will be 26.7% that is significantly less than the average index of EU-27

44 CSB database.
45 Indāns I., *Migration policy and its challenges in Latvia*, Scientific Articles 2/2009, Latvian Christian academy, 2010.

countries, where it may reach 59.6%. However, it shall be taken into account that in Latvia, unlike in EU-27 countries, significant decrease of the total number of population was observed and it is expected to decrease until 2020, in particular, in the group of economically active population (from 20 to 64 years), in which the proportion of population in 2020 will decrease by 17.1 % compared to 1990, significantly affecting situation in the labour market and potential development opportunities of the state, increasing the burden of state social security and health care systems. Data contained in Table 2.1. suggests that also in future the demographic situation in Latvia will remain extremely tense, thus, any signs of significant improvements are unlike even despite the increase in the general lifespan of the population, since on-going deterioration of birth-rate, decrease of the proportion of young people and continuous emigration of population is observed. Expectations of significant re-emigration of people who have left Latvia is more a political wish, which currently, in authors' opinion, has no economic and social grounds.

Along with the systematic decrease of the number of population, processes of ageing of population deepen, as the number and proportion of population over the age of 65 is increasing, however, the number and proportion of the working-age population and up to 20 years is decreasing. As a result, in future, the level of demographic burden will increase. In 2010, the level of demographic burden- number of people having reached and not having reached the working-age on average per 1000 persons in the working-age – was 514 persons (incl. over the working-age -306), see Table 2.3.

Table 2.3. Level of demographic burden in the beginning of the year*[46]

	1990	91	92	93	94	95	96	97	98	99	2000	01	02	03	04	05	06	07	08	09	2010
Total	**771**	772	792	764	770	772	747	744	740	708	**698**	659	646	603	591	565	553	531	524	510	**514**
Up to working- age	**403**	404	409	377	374	370	358	349	338	319	**305**	287	274	256	245	232	222	214	210	207	**208**
Over working-age	**368**	368	383	387	396	402	389	395	402	389	**393**	372	372	347	346	333	331	317	314	303	**306**

* Not taking into account the results of census of 2011

Since 1990, the total level of demographic burden in Latvia has decreased systematically, and it is advanced by the decrease of the number of people not having reached the working-age (level of demographic burden until the working-age has decreased almost by half since 1990), as well as by obvious emigration of population in the working-age in seeking for better living.

46 CSB database.

2.2. AGE STRUCTURE OF THE SKILLS SUPPLY BY ECONOMICALLY ACTIVE, NON-ACTIVE AND EMPLOYED POPULATION GROUPS

Data on economic activity of population in division by age groups for the period 1990 to 2001 in the database of the Statistical Bureau of Latvia were not available to researchers, thus, analysis was performed on the development of situation during the last decade. Changes in the distribution of economically active population by age groups during the period 2002 to 2011 are provided in Tables 2.4. and 2.5.

Table 2.4. Economically active population distributed by age groups (in thsd.)[47]

MEN AND WOMEN	NUMBER (in thsd.)*										
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census in 2011)
15-24	135.0	135.8	133.1	134.9	147.6	155.0	152.0	142.6	131.8	118.9	102.6
25-34	272.9	272.0	272.3	267.2	271.1	273.1	279.9	280.3	289.4	289.1	244.1
35-44	298.9	300.9	294.6	289.6	288.8	284.4	290.5	286.2	279.5	277.2	250.4
45-54	260.3	262.9	268.3	269.1	272.3	282.2	285.8	289.2	287.0	283.5	261.6
55-64	127.6	127.9	137.1	140.5	146.3	151.9	159.2	154.4	146.2	156.7	148.1
65-74	28.7	26.5	30.9	34.2	41.3	44.5	48.2	34.7	23.1	21.7	21.5
15-64	1094.8	1099.6	1105.5	1101.3	1126.1	1146.6	1167.5	1152.7	1133.9	1125.3	1006.7

* Not taking into account the results of census of 2011

According to the results of the census of 2011, in Latvia, there were 1595.3 thousand people in the age of 15 to 74, of which 1 028.2 thousand or 64.4% were economically active. Data contained in Table 2.4 suggest the total decrease of the number of economically active population during the period 2002 to 2011 by nearly 90 thousand (considering the results of census of 2011); furthermore, a clear trend should be noted: the number of economically active population in the first three age groups (age of 15 to 44) is decreasing. In general, the largest decrease of the number of population (more than 14%) has been observed in the age group of 23 to 31[48], which may be explained by difficulties to find job in Latvia after graduation, thus, making young people to go abroad to seek for a job. This is verified by the employment statistics, since the unemployment level (proportion of job seekers) in the age of 20 to 29 is above the average in the state. Number of population in the age group of 45 to 54 is comparatively stable with no distinctive changes, while in the age group of 55 to 64, a significant increase in the number of economically active population can be observed. In the

47 CSB database.
48 Ibid.

age group of 65 to 74, however, decrease of the number of economically active population in 2009–2011 is related to economic crisis and temporary decision of the government (that was later cancelled) on restriction of economic activities of retired people. Unfortunately, many people at retirement age, who suspended their active working, later were unable to restore it. Indices in the table 2.5 clearly show changes in the distribution of economically active population by age groups and mark specific job offer trends in future time periods related to ageing of population.

Table 2.5. Economically active population distributed by age groups (in per cents) *[49]

MEN AND WOMEN	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
15–24	12.0	12.1	11.7	11.9	12.6	13.0	12.5	12.0	11.4	10.4	10.0
25–34	24.3	24.2	24.0	23.5	23.2	22.9	23.0	23.6	25.0	25.2	23.7
35–44	26.6	26.7	25.9	25.5	24.7	23.9	23.9	24.1	24.2	24.2	24.3
45–54	23.2	23.3	23.6	23.7	23.3	23.7	23.5	24.4	24.8	24.7	25.4
55–64	11.4	11.4	12.1	12.4	12.5	12.8	13.1	13.0	12.6	13.7	14.4
65–74	2.6	2.4	2.7	3.0	3.5	3.7	4.0	2.9	2.0	1.9	2.1
15–64	97.4	97.6	97.3	97.0	96.5	96.3	96.0	97.1	98.0	98.1	97.9

* Not taking into account results of census of 2011

The highest economic activity was observed in 3 age groups: from the age of 25 to 34; 35 to 44 and 45 to 54. According to the results of the selective labour research in 2011 in Latvia, there were only 21.5 thousand of economically active population in the age group of 65 to 74, while 191.7 thousand or 89.9% of all people in the age of 65 to 74 were economically inactive (see Table 2.6.). The major part (94.8%) of the economically inactive elderly population were not job seekers, as they were retired, and only a small part (5.2%) of economically inactive population in the age of 65 to 74 wanted to work, although, they did not seek for a job[50].

49 CSB database.

50 Elderly population in Latvia, CSB of the Republif of Latvia, Riga, 2012.

Table 2.6. Economic activity by age groups in 2011[51]

Age group of population	Total (in thsd.)	Economically active (in thsd.)	Proportion of economically active population (%)	Economically inactive (in thsd.)	Proportion of economically inactive population (%)
15-74	**1595.3**	**1028.2**	**100.0**	**567.1**	**100.0**
Out of those at the age of:					
55-59	131.3	104.3	10.1	27.1	4.8
60-64	117.8	43.8	4.3	74.0	13.1
65-69	105.2	14.4	1.4	90.8	16.0
70-74	107.9	7.1	0.7	100.9	17.8

Data in the table suggest that along with the increase in age, gradual decrease of economic activity has occurred, and consequently, in the employment level, in particular, when achieving the age of 60. If, in the age of 65, employment rate represents 18.8%, then, in the age of 75, only 3.9% of the population at the respective age are employed. From all the economically active population in the age of 65 to 74, 97.7% or 21.0 thousand were employed (2.4% of all employees in the age of 15 to 74). Majority of employed persons in the age of 65 to 74 (80%) were hired workers, while one fifth were self-employed persons. In 2011, 2.0 thousand people were employed in the age of 75 to 79, and 0.4 thousand of those over the age of 80[52]. According to the results of census of 2011, approximately half of the elderly population (in the age of 65 and more) were employed in five sectors: education, health care, public administration and defence, mandatory social security, retail trade and transactions with real estate. Comparatively large (16.9%) number of elderly population was employed in stock production and agriculture sector (branch A).

51 Elderly population in Latvia, CSB of the Republif of Latvia, Riga, 2012.
52 Ibid.

Table 2.7. Economically active men and women by age groups (in thsd.)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
NUMBER OF MEN (in thsd.)*											
15-24	77.9	79.5	78.8	79.6	87.4	89.5	88.2	81.8	71.5	67.0	57.3
25-34	148.8	148.1	147.6	145.0	147.1	149.3	152.3	151.5	156.3	156.1	129.8
35-44	148.8	148.9	145.4	145.7	145.3	144.5	146.2	144.2	140.8	142.3	126.1
45-54	122.0	124.1	128.1	128.8	130.9	134.5	135.6	136.4	136.8	134.8	122.5
55-64	66.8	64.0	68.0	68.9	71.0	73.5	74.6	68.8	65.0	71.5	66.5
65-74	15.3	13.8	15.5	19.2	21.2	21.6	24.8	17.5	10.2	9.4	9.3
15-64	**564.3**	**564.5**	**568.0**	**567.9**	**581.6**	**591.3**	**597.0**	**582.7**	**570.4**	**571.7**	**502.2**
NUMBER OF WOMEN (in thsd.)*											
15-24	57.2	56.3	54.3	55.3	60.2	65.5	63.7	60.7	60.3	51.8	45.3
25-34	124.1	124.0	124.7	122.2	124.0	123.8	127.6	128.9	133.1	133.1	114.3
35-44	150.2	152.0	149.2	143.9	143.5	139.9	144.3	142.0	138.8	134.9	124.2
45-54	138.3	138.9	140.2	140.3	141.4	147.7	150.2	152.9	150.1	148.7	139.2
55-64	60.7	63.9	69.1	71.7	75.3	78.4	84.7	85.5	81.2	85.2	81.6
65-74	13.4	12.7	15.3	15.0	20.1	22.9	23.4	17.2	12.9	12.3	12.1
15-64	**530.5**	**535.0**	**537.5**	**533.4**	**544.5**	**555.3**	**570.5**	**570.0**	**563.5**	**553.6**	**504.6**

* Not taking into account the results of census of 2011

When studying distribution of the economically active population by age groups from the aspect of gender (see Table 2.8), in general, **higher economic activity among men** comparing to women was noted in view of the smaller number of men, in particular, it was noted in the elderly age groups (proportion of men in the total number of population in Latvia represents 46%, while in the age over 65, proportion of men is only 32%), which in the future also might cause economic activity of elderly men capable supplying adequate, specific skills and certain psychological peculiarities characteristic to large part of men at the so called "silver" age. During the period 2002 to 2011, in the age group of 15 to 64, number of economically active men has decreased by 62.1 thousand (11%), while in the age group of 65 to 74, by almost 40%, resulting in decrease of proportion of this group in the total number of economically active men (see Table 2.8.).

Table 2.8. Economically active men distributed by age groups (%) *[53]

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
15-24	13.4	13.7	13.5	13.6	14.5	14.6	14.2	13.6	12.3	11.5	11.2
25-34	25.7	25.6	25.3	24.7	24.4	24.4	24.5	25.2	26.9	26.9	25.4
35-44	25.7	25.7	24.9	24.8	24.1	23.6	23.5	24.0	24.2	24.5	24.7
45-54	21.1	21.5	22.0	21.9	21.7	21.9	21.8	22.7	23.6	23.2	23.9
55-64	11.5	11.1	11.7	11.7	11.8	12.0	12.0	11.5	11.2	12.3	13.0
65-74	2.6	2.4	2.7	3.3	3.5	3.5	4.0	2.9	1.8	1.6	1.8
15-64	**97.4**	**97.6**	**97.3**	**96.7**	**96.5**	**96.5**	**96.0**	**97.1**	**98.2**	**98.4**	**98.2**

* Not taking into account the results of census of 2011

Similar, though, less explicit trends may be observed when viewing economic activity of women (see Table 2.7). During the period 2002 to 2011, in the age group of 15 to 64, number of the economically active women has decreased by 25.9 thousand (5%), while in the age group of 65 to 74, it has changed comparatively slightly (decrease by 1%). It largely explains the negative birth-rate trends, since the number of women at the so called fertile age is decreasing, which, along with degradation of the family institution and changes in public behaviour standards, may aggravate the demographic situation in Latvia even more that is in line with some demographic forecasts. The different distribution of the economically active population by age groups between men and women to a certain extent might be explained by different roles in the family and the existing public views on men and women that affect labour market demand for filling specific occupations and positions depending on the gender of the employee, considering their physical, mental abilities and communication peculiarities.

53 CSB database.

Table 2.9. Distribution of economically active population by education levels* [54]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
Economically active population (total men and women)													
TOTAL **number (in thsd.)**	1099.8	1106.8	1123.5	1126.0	1136.3	1135.6	1167.5	1191.1	1215.8	1187.4	1157.0	1147.0	1028.2
Higher education	213.9	217.9	227.9	213.8	241.6	253.1	263.8	281.2	316.5	319.0	321.8	335.4	301.9
Vocational or professional secondary education	454.5	425.0	438.7	454.5	442.0	424.3	430.6	420.4	429.0	418.3	413.3	401.0	361.5
General secondary education	275.8	259.7	276.6	286.4	293.8	294.5	302.6	315.3	307.0	302.2	290.1	278.0	249.5
Elementary education	135.2	186.3	166.0	160.2	148.5	153.6	159.3	161.8	154.5	141.8	126.9	125.5	109.4
Lower education than elementary	20.5	17.8	14.2	11.0	10.4	10.2	10.8	8.8	8.5	6.0	4.3	6.8	5.6
Not specified	...	...	...	...	...	...	...	3.6	...	...	...	...	...
Economically active men													
TOTAL number (in thsd.)	566.7	568.4	579.6	578.3	583.5	587.1	602.8	612.8	621.8	600.2	580.6	581.1	511.5
Higher education	92.9	88.8	96.1	87.6	98.1	100.2	100.7	109.2	119.7	119.8	118.6	119.7	106.2
Vocational or professional secondary education	240.1	225.1	223.5	235.1	234.3	226.0	233.8	227.1	237.5	226.2	222.8	224.4	197.8
General secondary education	137.7	128.8	139.0	143.4	149.2	152.7	149.3	158.2	154.2	155.3	150.8	145.1	128.9
Elementary education	84.2	117.4	111.8	104.9	95.0	100.6	111.3	110.5	104.2	94.5	85.6	86.3	74.3
Lower education than elementary	11.7	8.4	9.1	7.3	6.9	7.5	7.6	5.7	6.1	4.3	...	...	...
Not specified	...	...	...	...	...	...	...	2.2	...	...	...	...	...
Economically active women													
TOTAL number (in thsd.)	533.1	538.4	543.9	547.7	552.9	548.4	564.6	578.2	594.0	587.2	576.4	565.9	516.7
Higher education	121.0	129.2	131.8	126.2	143.5	152.8	163.1	172.0	196.9	199.2	203.2	215.6	195.7
Vocational or professional secondary education	214.4	199.9	215.2	219.4	207.7	198.3	196.8	193.4	191.5	192.1	190.6	176.6	163.8

54 CSB database.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
General secondary education	138.1	130.9	137.6	143.0	144.6	141.8	153.3	157.1	152.8	146.9	139.3	132.9	120.6
Elementary education	50.9	69.0	54.2	55.4	53.5	52.9	48.0	51.3	50.3	47.3	41.3	39.2	35.2
Lower education than elementary	8.7	9.5	5.1	3.8	3.6	2.6	3.2	3.1	2.4	1.8	...	...	...
Not specified	...	...	...	...	...	...	...	1.4	...	...	...	...	...

* Not taking into account the results of census of 2011

When reviewing the economically active population in distribution by the **education level** (see Table 2.9), it is clear that more than one third of the economically active population in Latvia has obtained vocational or professional secondary education, however, since 2000, the trend of increase in the number of economically active population having obtained higher education and of decrease of number of those with vocational or professional secondary education can be observed. No specific changes are observed in the education level groups with general secondary and elementary education.

When viewing education level within the framework of specific age groups, it is clear that majority of economically active population with the higher education is in the age group of 25 to 29 and 35 to 39. General secondary education is mainly obtained by economically active population in the age group of 20 to 24; in turn, professional secondary education is obtained by economically active population in the age group of 45 to 49 (see Table 2.10.).

Table 2.10. Distribution of economically active population by education levels in various age groups in 2010[55]

EDUCATION LEVEL AGE GROUPS	Primary school	General secondary	General secondary after vocational	Vocational secondary after elementary	Vocational elementary	Vocational after general secondary education	First level vocational higher education	Elementary education	Vocational after elementary	Academic (incl. Bachelor's, Master's Degree) or second level vocational higher
15–19	2622	10505		1059				19005	663	
20–24	936	**59038**	3909	30895	1046	5290	3008	**37347**	7626	14945
25–29	637	35011	2449	22984	1523	5526	3650	25617	4142	**38999**
30–34	1982	26232	319	18716	1822	3354	832	20142	4934	19052
35–39	273	37163	496	33132	2214	3315	890	16659	3990	**25311**
40–44		24405	875	39209	809	6258	873	7164	3415	13242
45–49		30844	2161	**46348**	2073	**12658**		8343	5636	14228
50–54		40611	1355	32815	2106	**10384**	112	11305	3575	16328
55–59	234	27564	196	21990	712	5777		11469	3205	12295
60–64	338	8567		2977	979	1285		3180	372	3239
65–69		459				601		1229	438	1418

Since 2000 an especially rapid increase (by more than 60 %) in Latvia was observed in the number of economically active women having obtained higher degree (considering the results of census of 2011). In turn, the number of men with higher education has increased only by 14%, thus, educational structure of economically active population has changed (see Table 2.11.).

55 Labour force survey data.

Table 2.11. Distribution of economically active population by education levels and gender (%)*[56]

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
MEN AND WOMEN – TOTAL													
Higher education	19.5	19.7	20.3	19.0	21.3	22.3	22.6	23.6	26.0	26.9	27.8	29.2	29.4
Vocational or professional secondary education	41.3	38.4	39.1	40.4	38.9	37.4	36.9	35.3	35.3	35.2	35.7	35.0	35.2
General secondary education	25.1	23.5	24.6	25.4	25.9	25.9	25.9	26.5	25.3	25.4	25.1	24.2	24.3
Elementary education	12.3	16.8	14.8	14.2	13.1	13.5	13.6	13.6	12.7	11.9	11.0	10.9	10.6
Lower than elementary	1.9	1.6	1.3	1.0	0.9	0.9	0.9	0.7	0.7	0.5	0.4	0.6	0.5
Men													
Higher education	16.4	15.6	16.6	15.2	16.8	17.1	16.7	17.8	19.2	20.0	20.4	20.6	20.8
Vocational or professional secondary education	42.4	39.6	38.6	40.7	40.2	38.5	38.8	37.0	38.2	37.7	38.4	38.6	38.7
General secondary education	24.3	22.7	24.0	24.8	25.6	26.0	24.8	25.8	24.8	25.9	26.0	25.0	25.2
Elementary education	14.9	20.7	19.3	18.1	16.3	17.1	18.5	18.0	16.8	15.8	14.7	14.9	14.5
Lower than elementary	2.1	1.5	1.6	1.3	1.2	1.3	1.3	0.9	1.0	0.7	0.4	0.9	0.9
Women													
Higher education	22.7	24.0	24.2	23.0	26.0	27.9	28.9	29.8	33.1	33.9	35.3	38.1	37.9
Vocational or professional secondary education	40.2	37.1	39.6	40.1	37.6	36.2	34.9	33.4	32.2	32.7	33.1	31.2	31.7
General secondary education	25.9	24.3	25.3	26.1	26.2	25.9	27.1	27.2	25.7	25.0	24.2	23.5	23.3
Elementary education	9.6	12.8	10.0	10.1	9.7	9.6	8.5	8.9	8.5	8.0	7.2	6.9	6.8
Lower than elementary	1.6	1.8	0.9	0.7	0.6	0.5	0.6	0.5	0.4	0.3	0.3	0.2	0.2

* Not taking into account the results of census of 2011

According to the data given in Table 2.11., currently, women with higher education dominate among the economically active women, and proportion thereof in the total number of economically active women has almost doubled since 2000; in turn, proportion of women with vocational education and with elementary education has decreased. In the educational structure of economically active men changes are less obvious – proportion of economically active men with higher education has increased slightly, while proportion of those with vocational or vocational secondary education has decreased.

Further, detailed analysis of distribution of the employed population **by profession / occupation** provided (see Table 2.12.). As shown in the table, 3 occupational groups dominate in total number of employed population in Latvia:

- Professionals (OC2);

56 CSB database.

- Service and sales workers (OC5);
- Elementary occupations (OC9).

Those are followed by Technicians and associate professionals (OC3) and craft and related trades workers (OC7).

In the group of elderly population (age of 65 to 74) in 2011, almost a half (44.4%) was employed in the occupational group "Managers and professionals", verifying their high proficiency. In turn, two fifths (38.5%) of the employed population in the age of 65 to 74 were employed in agriculture, fishery and elementary occupations, while less than one fifth (17.1%) – clerical support workers and customer service clerks[57]. According to distribution by the type of commercial activity, 40% of all employees in the age of 50 to 64 in 2011 were employed in manufacturing industry, wholesale and retail sale, and in education.

57 *Elderly population in Latvia*, CSB of the Republif of Latvia, Riga, 2012.

Table 2.12. Employed population by occupation*[58]

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
MEN AND WOMEN – TOTAL Number (thsd.)**	989.0	1006.9	1017.7	1033.2	1087.6	1119.0	1124.1	986.7	940.9	970.5	861.6
Managers (OC1)	93.8	89.9	104.8	101.3	95.6	94.0	100.8	93.1	95.3	97.4	87.2
Professionals (OC2)	113.3	110.9	119.4	120.4	140.5	151.7	164.5	169.0	157.6	160.9	146.0
Technicians and associate professionals (OC3)	131.1	125.7	118.1	134.1	151.8	181.4	186.5	154.7	125.9	116.7	105.7
Clerical support workers (OC4)	46.9	55.9	60.8	61.1	60.1	53.2	52.1	50.9	55.1	54.3	48.0
Service and sales workers (OC5)	130.9	138.1	136.8	147.7	138.6	140.9	138.7	131.9	135.3	144.2	129.4
Skilled agricultural, forestry and fishery workers (OC6)	83.0	84.3	76.5	63.4	70.0	56.5	46.0	44.1	39.9	37.1	32.4
Craft and related trades workers (OC7)	146.1	149.7	158.6	165.3	185.8	189.9	169.5	120.8	110.6	122.2	105.0
Plant and machine operators, and assemblers (OC8)	108.0	111.6	114.1	112.2	113.0	111.2	111.1	91.2	90.9	92.7	80.4
Elementary occupations (OC9)	134.9	139.6	127.1	125.7	129.1	137.1	150.9	126.9	126.1	140.1	123.0

* Not taking into account the results of census of 2011

**The total number includes employees of armed forces and persons, who have not specified their occupation.

Among men, the most popular occupational groups are craft and related trades workers (OC7), plant and machine operators, and assemblers (OC8), as well as elementary occupations. In turn, among

58 CSB database.

employed women, the greatest proportion is formed by occupational group of senior professionals (OC2) followed by the group of service and sales workers (OC5) that is clearly shown in Table 2.13. Distribution of the employed men and women by occupational groups is closely related to the education level discussed before (see Table 2.13.). Proportion of economically active men with vocational secondary education is higher than that of women, thus, proportion of employed men in craft and related trades workers' (OC7), as well as plant and machine operators, and assemblers' (OC8) occupational groups is significantly higher than that of women. However, generally, those are considered the "typical" male occupations. In turn, proportion of economically active women with higher education is much larger than that of men, allowing women to qualify for different positions. As it is shown in Appendix 1, more than one third (37.1%) of all the employed women but only one fifth (20.7%) of all the employed men are employed in senior professionals and occupational groups (OC2 and OC3). Service and sales workers (OC5) is considered the "typical" female occupational group, where 21.5% of women and only 8.1% of men are employed.

Table 2.13. Distribution of employed population by occupation and gender (%)*[59]

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
Men and women – total											
Managers (OC1)	9.5	8.9	10.3	9.8	8.8	8.4	9.0	9.4	10.1	10.0	10.1
Professionals (OC2)	11.5	11.0	11.7	11.7	12.9	13.6	14.6	17.1	16.8	16.6	16.9
Technicians and associate professionals (OC3)	13.3	12.5	11.6	13.0	14.0	16.2	16.6	15.7	13.4	12.0	12.3
Clerical support workers (OC4)	4.7	5.6	6.0	5.9	5.5	4.8	4.6	5.2	5.9	5.6	5.6
Service and sales workers (OC5)	13.2	13.7	13.4	14.3	12.7	12.6	12.3	13.4	14.4	14.9	15.0
Skilled agricultural, forestry and fishery workers (OC6)	8.4	8.4	7.5	6.1	6.4	5.1	4.1	4.5	4.2	3.8	3.8
Craft and related trades workers (OC7)	14.8	14.9	15.6	16.0	17.1	17.0	15.1	12.2	11.8	12.6	12.2

59 CSB database.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2011 (Recalculation according to the results of census of 2011)
Plant and machine operators, and assemblers (OC8)	10.9	11.1	11.2	10.9	10.4	9.9	9.9	9.2	9.7	9.6	9.3
Elementary occupations (OC9)	13.6	13.9	12.5	12.2	11.9	12.3	13.4	12.9	13.4	14.4	14.3
Men											
OC1	11.8	10.4	11.7	11.0	10.0	9.6	10.3	11.1	12.3	11.2	11.4
OC2	7.4	7.7	8.2	7.6	7.9	8.9	10.0	12.0	11.0	11.1	11.4
OC3	9.2	8.7	8.0	9.1	11.1	11.1	10.0	11.3	10.6	9.2	9.3
OC4	1.4	1.8	2.4	2.7	1.8	2.1	1.4	1.9	2.4	2.2	2.2
OC5	7.1	6.4	6.3	7.1	5.6	6.0	7.0	7.7	7.1	8.0	8.1
OC6	8.5	9.0	7.6	6.7	6.9	5.4	5.0	5.4	5.2	4.8	4.8
OC7	23.1	23.1	24.7	25.8	26.9	27.3	24.4	20.2	19.7	20.0	19.6
OC8	17.5	18.0	17.9	17.3	17.2	16.7	17.0	16.9	17.5	17.6	17.6
OC9	13.8	14.5	12.9	12.4	12.1	12.6	14.3	12.9	13.6	15.1	14.8
Women											
OC1	7.1	7.3	8.9	8.5	7.5	7.1	7.5	7.9	8.1	8.9	8.9
OC2	15.7	14.5	15.4	16.0	18.2	18.5	19.4	21.9	22.2	21.9	22.1
OC3	17.5	16.5	15.4	17.1	16.9	21.6	23.4	19.8	16.0	14.8	15.0
OC4	8.2	9.5	9.7	9.4	9.5	7.6	8.0	8.3	9.1	8.9	8.8
OC5	19.6	21.4	21.0	21.9	20.3	19.6	17.8	18.8	21.2	21.5	21.5
OC6	8.3	7.7	7.4	5.6	5.9	4.6	3.2	3.6	3.4	2.9	2.8
OC7	6.1	6.1	6.0	5.5	6.7	6.1	5.5	4.7	4.4	5.4	5.2
OC8	4.1	3.8	4.2	3.9	3.2	2.8	2.5	2.0	2.4	1.7	1.6
OC9	13.4	13.2	12.1	12.0	11.6	11.9	12.6	12.9	13.2	13.8	13.8

* Not taking into account the results of census of 2011

Data on age structure of employed population in different occupational groups at the 2 and 3-digit level are presented in Table 2.14. Labour survey data summarized in the table present the occupations at the 2 and 3-digit level, in which deficiency of labour shall be expected due to ageing in the following 10 years. When analysing labour survey data at the **2-digit level**, potentially the most problematic occupational groups are as follows:

- 32 (health associate professionals);
- 44 (other clerical support workers);

- 53 (personal care workers);
- 61 (market-oriented skilled agricultural workers),
- 72 (building and related trades workers, excluding electricians);
- 73 (handicraft and printing workers);
- 91 (domestic cleaners and helpers);
- 96 (refuse workers and other elementary workers).

Within an in-depth analysis across 3-digit level occupational groups, the conclusion can be drawn that in two 2-digit level occupational groups – 23 (teaching professionals) and 31 (science and engineering associate professionals) – in general, impact of ageing is not be expected; however, at the 3-digit level, labour supply deficiency due to ageing can be expected in the following occupational groups: 231 (university and higher education teachers) and 232 (vocational education teachers), and 313 (process control technicians). In occupational groups 231 and 232, the low proportion of young professionals may be explained with peculiarities of the specific area and opportunities of young professionals to develop their career in the abovementioned professions. In the occupational group 32 (health associate professionals), ageing is related to two 3-digit level groups: 321 (medical and pharmaceutical technicians) and 322 (nursing and midwifery associate professionals). In both occupational groups, there is a larger proportion of elderly employees and there is a little proportion of young employees possibly caused by the low remuneration in the abovementioned occupational groups and low motivation of young professionals to work in the abovementioned professions, as well as emigration of professionals (outside Latvia there is a high demand for professionals of various levels).

Table 2.14. Distribution of employed population (%) by age and occupational groups at the 2 and 3-digit level in Latvia in 2011[60]

Prof. groups	AGE GROUPS											
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50– 54	55–59	60–64	65–69	70–74
23	0.00	2.18	9.63	9.17	14.75	14.95	14.27	16.04	10.92	5.68	1.69	0.71
231	0.00	0.00	11.23	4.56	5.07	10.52	11.50	16.96	26.64	5.45	4.76	3.30
232	0.00	0.00	5.20	3.83	2.67	2.21	14.38	33.40	12.03	24.87	1.41	0.00
233	0.00	2.22	6.59	7.74	16.51	14.02	16.59	19.65	8.23	6.68	1.54	0.25
234	0.00	1.83	7.77	10.16	18.54	18.76	14.62	13.56	9.35	3.72	1.09	0.60
235	0.00	4.86	19.52	13.22	13.73	14.55	11.38	9.21	10.63	1.24	1.97	0.69
31	0.14	10.46	16.88	11.61	8.30	6.72	13.21	9.54	12.09	6.85	3.80	0.41
311	0.28	8.98	16.38	13.20	6.28	7.25	14.71	7.82	9.47	9.54	5.49	0.61
312	0.00	0.00	36.24	7.64	10.62	9.02	10.52	3.06	14.98	0.00	7.92	0.00
313	0.00	7.64	7.29	4.03	9.00	14.49	8.20	22.35	27.00	0.00	0.00	0.00
314	0.00	13.02	12.31	20.53	10.62	3.07	11.74	10.19	15.36	0.00	3.16	0.00
315	0.00	16.99	21.69	4.17	10.67	3.70	13.97	8.76	7.29	11.69	0.46	0.61
32	0.00	2.27	11.96	8.67	9.71	12.25	16.94	10.31	16.74	6.73	2.76	1.65
321	0.00	5.30	4.97	0.00	0.00	14.73	17.92	11.73	28.59	12.54	4.21	0.00
322	0.00	0.90	7.29	6.27	14.66	11.96	17.47	11.03	17.59	6.21	3.64	2.99
323	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
324	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00
325	0.00	3.24	27.35	20.17	6.23	11.75	12.42	7.09	7.57	4.18	0.00	0.00
44	0.00	11.88	12.56	1.17	9.06	10.88	6.09	12.72	23.36	2.09	9.16	1.02
441	0.00	11.88	12.56	1.17	9.06	10.88	6.09	12.72	23.36	2.09	9.16	1.02
53	0.29	5.65	6.22	5.14	17.56	6.40	18.72	13.28	15.82	8.58	2.13	0.22
531	0.49	5.95	4.98	4.78	20.49	5.46	19.97	11.75	16.92	7.79	1.06	0.37
532	0.00	5.22	8.00	5.67	13.33	7.76	16.92	15.50	14.23	9.72	3.67	0.00
61	1.00	6.50	12.00	8.61	7.16	11.38	11.68	11.44	18.50	5.77	4.10	1.87
611	1.12	8.23	10.12	9.87	9.65	11.37	9.26	10.59	18.92	5.61	3.87	1.40
612	0.94	4.59	16.83	7.78	4.10	12.05	11.05	10.98	20.47	4.04	4.27	2.90
613	0.00	0.00	0.00	0.00	0.00	6.92	43.58	24.25	0.00	19.66	5.60	0.00
72	0.00	11.39	10.61	12.28	8.05	9.93	13.80	10.33	16.73	6.65	0.14	0.09
721	0.00	7.73	10.30	13.44	6.68	10.37	10.76	16.15	16.10	8.18	0.31	0.00
722	0.00	6.72	9.29	11.80	6.50	12.74	11.50	8.69	25.89	6.60	0.00	0.26
723	0.00	17.23	11.86	12.01	10.08	7.42	17.36	8.38	9.68	5.83	0.15	0.00

60 Labour survey data.

Prof. groups	AGE GROUPS											
	15–19	20–24	25–29	30–34	35–39	40–44	45–49	50– 54	55–59	60–64	65–69	70–74
73	0.00	9.48	4.85	10.95	12.46	5.55	12.21	28.34	16.17	0.00	0.00	0.00
731	0.00	6.47	0.00	9.34	10.32	7.03	14.37	34.11	18.37	0.00	0.00	0.00
732	0.00	20.81	23.15	17.02	20.52	0.00	4.04	6.58	7.88	0.00	0.00	0.00
91	0.88	5.44	4.90	7.67	7.49	13.15	12.13	15.24	15.62	13.61	3.87	0.00
911	0.31	4.68	5.01	6.90	8.94	13.58	11.26	15.80	15.69	13.74	4.09	0.00
912	3.80	9.38	4.32	11.64	0.00	10.94	16.63	12.34	15.21	12.97	2.78	0.00
96	0.75	3.45	3.78	4.13	11.40	9.44	12.69	17.92	24.06	6.17	4.14	2.07
961	0.00	1.06	5.07	4.89	7.25	7.13	16.28	17.31	28.98	7.09	3.32	1.62
962	1.84	6.92	1.91	3.01	17.44	12.80	7.47	18.80	16.91	4.83	5.33	2.73

Occupational group 44 includes only one sub-group 441 (other clerical support workers). Thus, conclusions on ageing at the 2-digit level are based upon the data from the 3-digit level group. In turn, in the occupational group 53 (personal care workers), ageing is related to the following the 3-digit level groups: 531 (child care workers and teachers' aides) and 532 (Personal care workers in health services).

In occupational group 61 (market-oriented skilled agricultural workers) ageing is related to all three 3-digit level occupational groups: 611 (market gardeners and crop growers), 612 (animal producers), and 613 (mixed crop and animal producers). Ageing in these profession groups can be explained by the low motivation of young people to stay in the countryside and to relate their future to countryside, where there are comparatively hard working conditions, and weakly developed transport and social infrastructure (limited entertainment opportunities).

In occupational group 71 (building and related trades workers, excluding electricians), ageing of employees might be expected in one 3-digit level occupational group – 722 (blacksmiths, toolmakers and related trades workers). In this 3-digit level profession group, the low proportion of young employees can be explained by the technological changes and demand for adequate workers. In occupational group 73 (handicraft and printing workers), impact of ageing is related to the occupational group 731 (handicraft worker). In this group, the low proportion of young employees shall be explained by level of remuneration and demand for adequate professionals.

In occupational group 91 (cleaners and helpers), impact of ageing can be expected in both 3-digit level occupational groups: 911 (domestic, hotel and office cleaners and helpers) and 912 (vehicle,

window, laundry and other hand cleaning workers). This is due to remuneration and demand for adequate workers. In occupational group 96 (refuse workers and other elementary workers), impact of ageing can be expected in both 3-digit level occupational groups: 961 (refuse workers) and 962 (other elementary workers). The possible reasons are low remuneration, low motivation of young people to work in the abovementioned professions.

When analysing the labour survey data by age groups and by occupational groups, in general, one may conclude that the impact of ageing affects mainly lower qualification occupational groups with lower level of remuneration and low motivation of young employees and professionals to involve in the respective professions or specific occupational groups, for instance, 73 (handicraft and printing workers). However, there are specific occupational groups requiring high qualification, for instance, 231 (university and higher education teachers), where due to demographic and other factors, deficiency of labour may be observed.

Detailed distribution of economically active population by professions and age groups is presented in Figure 2.1.

Analysis of structure of economically inactive population and evaluation of skills was carried out based upon the labour survey primary database of 2010 of the Central Statistical Bureau available to researchers, as well as upon the publicly available data on economically inactive population. Analysis of economically inactive population is required to establish potential labour and skills supply and to assess opportunities of involvement thereof in labour market, if required. When carrying out analysis of the dynamics of changes in the number of economically inactive population in Latvia during the period 1996 to 2011, three stages may be specified:

- Until 2000, the number of economically inactive population increased;
- During the period 2000 to 2008, number of economically inactive population decreased.

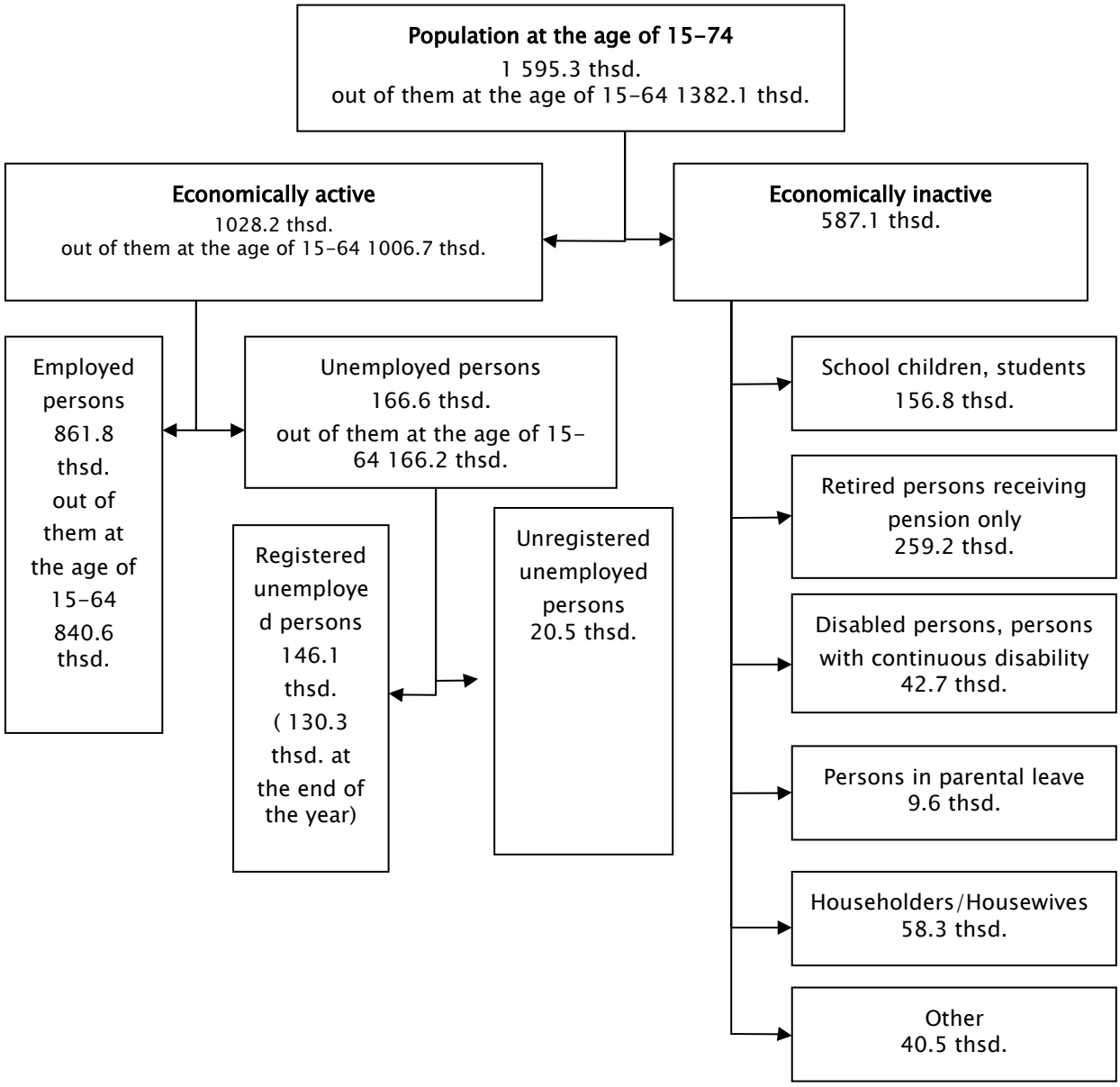
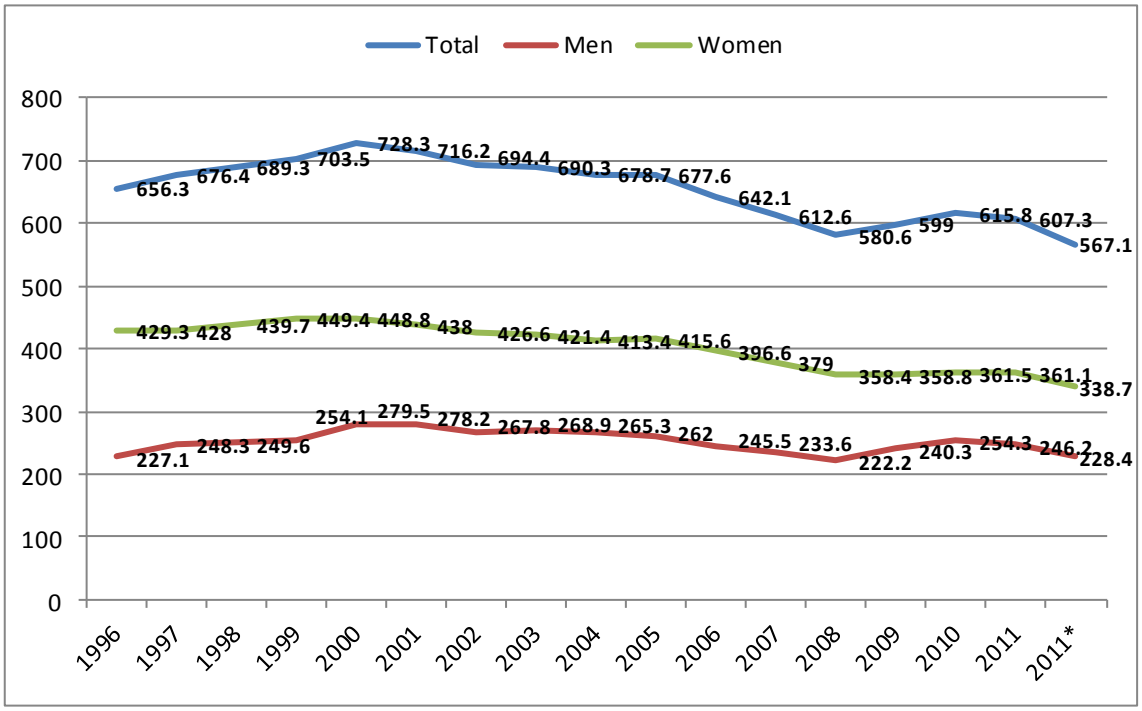


Figure 2.1. Distribution of population by economic activity in 2011[61]

In 2009–2010, due to economic crisis, number of economically inactive population increases and in 2011, when the economic situation stabilized, it reduced again (see Figure 2.2.)

61 CSB database.



2011* – Recalculation according to the results of census of 2011.

Figure 2.2. Number of economically inactive population in the age group of 15 to 74, thsd.[62]

Decrease of the number of economically inactive population after 2000 and increase as of 2008 can be explained by the general development of the state and specific phases of economic cycle – during prosperity, during increase in economic activities and demand for labour, number of economically inactive population decreased, and while during the crisis – increased. In 2011, compared to 2010, number of economically inactive population decreased by 40.2 thousand, suggesting positive trends in economy in general. Almost half of those (45.7%) were retired people, while the second largest group was school children and students (see Figure 2.3.).

62 CSB database.

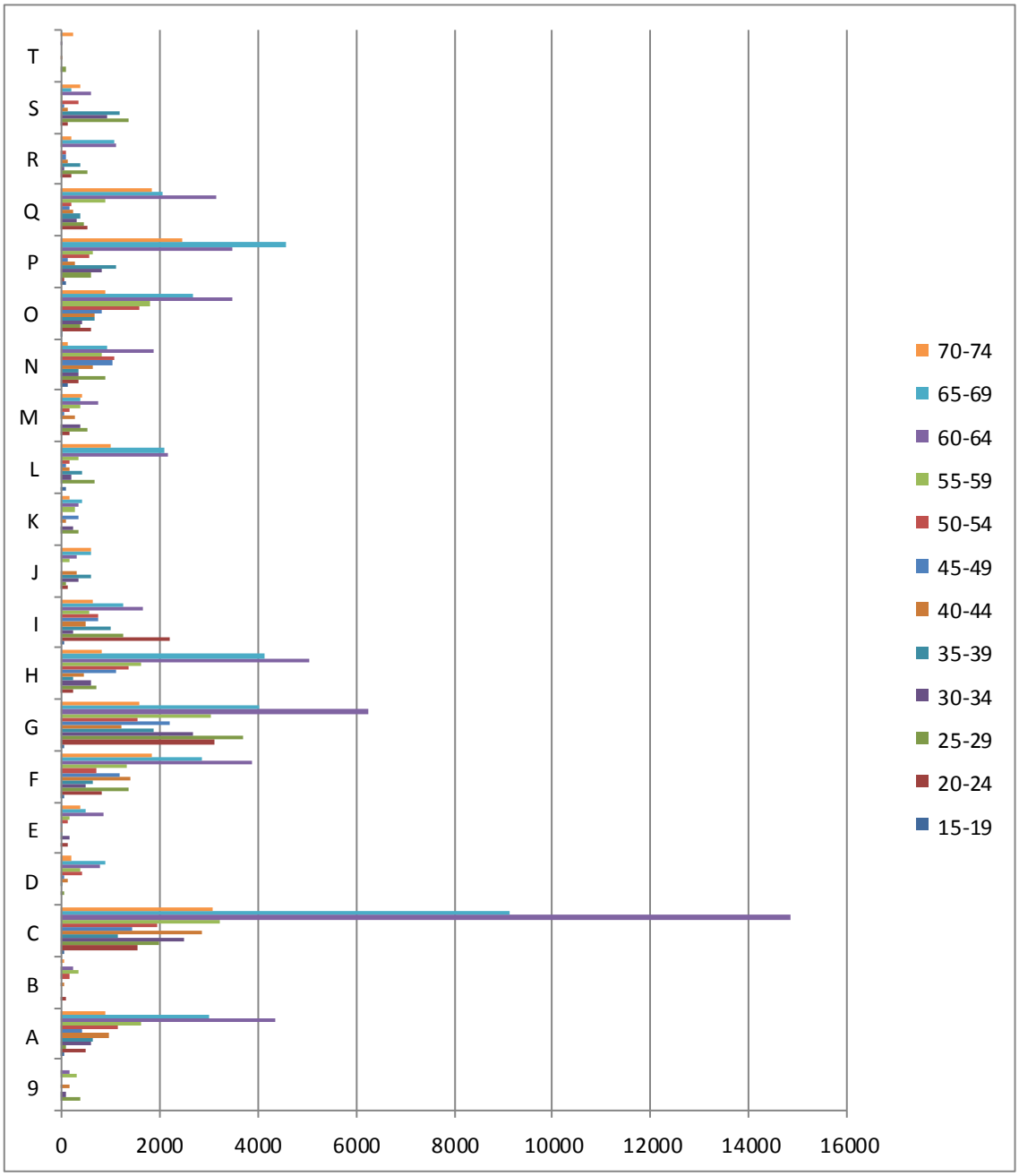


Figure 2.3. Distribution of economically inactive population by age groups and by the latest economic activity in 2010[63].

Assessing by gender, women represent the largest part of economically inactive population, and this trend can be observed throughout the entire period of time from 1996.

Distribution of economically inactive population by age groups and by the latest economic activity is presented in Table 2.15.

63 Figure prepared by authors, according to the Labour force survey data.

Table 2.15. Economically inactive population by activity status within the accounting week by age groups[64]

CODE	STATUS	AGE GROUPS												Total
		15–19	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70–74	
1	Working pupil/ student	48				39		35					119	241
2	Working pensioner												34	34
3	Working disabled person								25	97				122
4	Other working persons	371	340	193	224	318		353		71	208	431	502	3011
5	Job seeker	673	4250	5422	4054	3853	4727	4066	3692	4429	617	34		35817
6	Pupil/ student	116425	54473	2344	314		69	48			44	45		173761
7	Age pensioner						236	516	1312	3863	55375	91298	101450	254049
8	Early retired person due to economic reasons							116	91	830	11976	99	37	13149
9	Person who has ceased their business					154	32	126	105		128	96	347	989
10	Disabled person or continuously incapable person	462	1384	2264	2873	2911	4085	5539	8208	10570	5974	620	560	45449
11	Person in parental leave	396	2573	4360	2068	1407	350	55						11208
12	Householder/housewife	1461	6693	8066	7709	7941	6781	7072	8634	8583	2482	525	426	66373
13	Other status	192	737	913	133	202	437	97	149	146	114			3119

Assessing by the latest economic activity, the largest number of economically inactive population in 2010 included population with previous economic activity related to manufacturing (C), wholesale and retail sale (G), transportation and storage (H) sectors. In the respective branches of the national economy, number of employees is also larger. Assessing by the age of economically inactive population, the largest part is formed by population at pre-retirement and retirement age in the age groups of 60 to 64 and 65 to 69, respectively.

64 Table prepared by authors, according to the Labour force survey data.

Distribution of economically inactive population by age groups and by gender is presented in Figure 2.4.

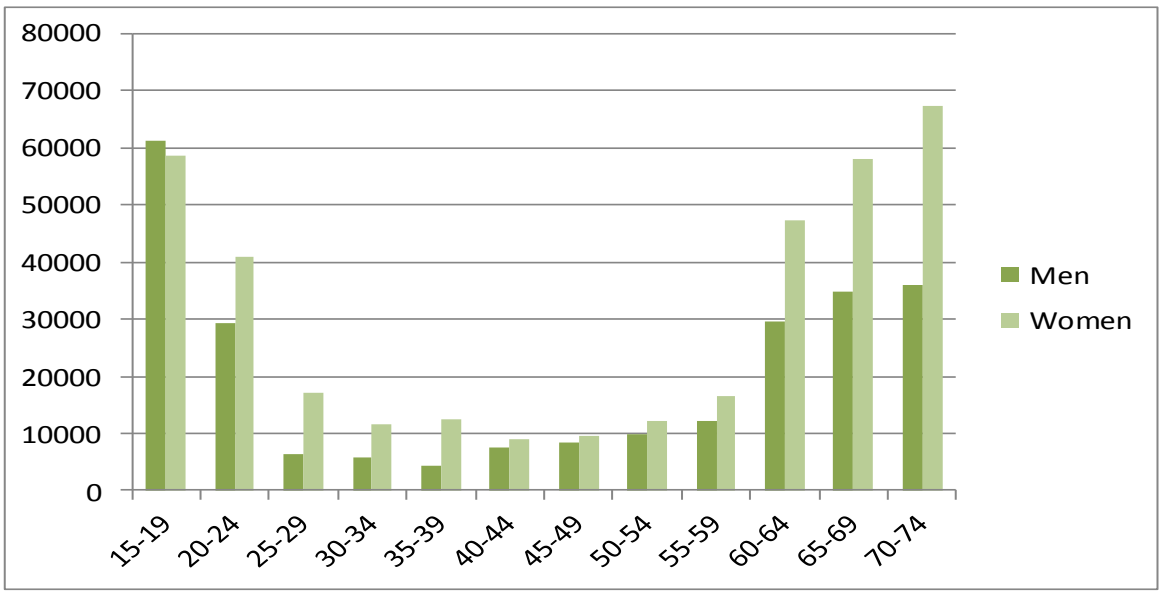


Figure 2.4. Distribution of economically inactive population by age groups and by gender 2010[65].

When assessing data on distribution of economically inactive population by age groups, the trend may be observed that significant part of economically inactive population is formed by young (age groups of 15 to 19, 20 to 24) and elderly (age groups of 60 to 64, 65 to 69, 70 to 74) population. Since the young population is formed by school children and students, it explains the large number of economically inactive population in these age groups; the large number of economically inactive population in elderly age groups may be explained by pre-retirement, which may be both voluntary and caused by market conditions. Assessing by gender, only in the age group of 15 to 19 number of economically inactive men is higher; in all the other groups, predominance of economically inactive women may be observed. The largest number of economically inactive population is observed in Riga region, followed by Riga suburbs and Latgale. The high number of economically inactive population in Riga and Riga suburbs may be explained by the total number of population in these regions; number of economically inactive population in Latgale region may be explained by economic development of the region, as well as by the comparatively high proportion of shadow economy.

Distribution of economically inactive population by activity status of the person during the reporting week by age groups is presented in Table 2.16.

65 Figure prepared by authors, according to the Labour force survey data.

Table 2.16. Economically inactive population by the sphere of successfully obtained higher education[66]

CODE	EDUCATION PROGRAMME	MEN	WOMEN	TOTAL
01	General education programmes	168757	230449	399206
14	Teacher education and education science	1244	10019	11262
21	Fine arts and applied arts programmes	1590	4747	6337
22	Humanities programmes		3281	3281
31	Public and human behaviour science programmes	1741	9959	11700
32	Information and communication science programmes	729	1541	2271
34	Business and administration science programmes	1741	23699	25440
38	Legal science programmes	1125	1055	2181
42	Wildlife science programmes		591	591
44	Physics and chemistry science programmes	516	1576	2091
46	Mathematics and statistics science programmes	187	600	787
48	Information technology and computer science programmes	737	658	1395
52	Craft and industry (industrial work) programmes	42350	11933	54283
54	Engineering education programmes	4470	17716	22186
58	Architecture and construction science programmes	9368	6459	15827
62	Agriculture, forestry and fishery programmes	5058	9786	14844
64	Veterinary science programmes	624	906	1530
72	Medical treatment, dentistry and pharmacy programmes	787	12882	13669
76	Nurse and healthcare education programmes	115	539	654
84	Transport service science programmes	2952	10541	13493
86	Civil defence (security of civil population) and military science programmes	1075	898	1972
99	Programmes in fields not known or not specified in the previous list	1078	1242	2321

66 Table prepared by authors, according to the Labour force survey data.

The highest number of economically inactive population is among population in the status of pensioner, pupil/student, householder/housewife and disabled person or person with a long-term incapability for work. The status of householder/housewife is assigned to 16284 men and to 50090 women. The number of disabled or continuously incapable persons increases along with age; however, starting from the age group of 60 to 64, number thereof decreases due to retirement. By status pupil/student, the largest number of economically inactive population is in the age groups of 15 to 19 and 20 to 24. By the status pensioner, number of economically inactive population increases along with age from the age group of 40 to 44.

Distribution of economically inactive population by their latest workplace occupation TOP15 is presented in Table 2.17.

Table 2.17. Economically inactive population by the latest workplace occupation (TOP15)[67]

OCCUPATION CODE	OCCUPATION	NUMBER OF ECONOMICALLY INACTIVE
9329	Manufacturing labourers not elsewhere classified	15466
5223	Shop sales assistant	11923
9112	Cleaners and helpers in offices, hotels and other establishments	8677
9613	Street sweepers	5245
5414	Security guards	4337
5120	Cooks	4235
9629	Elementary workers not elsewhere classified	3712
8332	Drivers, heavy truck	3676
7411	Building and related electricians	3404
4321	Stock clerks	3268
4311	Bookkeeping clerks	3253
8182	Steam engine and boiler operators	3114
1120	Managing directors and chief executives	2900
8322	Car, taxi and van drivers	2862
9333	Freight handlers	2789

67 Table prepared by authors, according to the Labour force survey data.

As shown in Table 2.17., the highest number of economically inactive population is in the group of elementary occupations (elementary workers not elsewhere classified, cleaners and helpers in offices, hotels and other establishments, street sweepers). The exception is heavy truck and lorry drivers (occupation code 8332), bookkeeping clerks (occupation code 4311), managing directors and chief executives (occupation code 1120) and car, taxi and van drivers (occupation code 8322).

Distribution of economically inactive population by education levels and by gender is presented in Table 2.18.

Table 2.18 Economically inactive population by education levels and by gender[68]

CODE	EDUCATION LEVEL	MEN	WOMEN	TOTAL
1	No school education	741	1075	1817
2	Lower than primary school	529	1381	1911
3	Primary school	19732	17512	37245
4	Elementary education	89586	103412	192998
5	General secondary education	56983	106142	163126
6	General secondary after vocational	1927	2001	3927
7	Vocational elementary	2241	1937	4178
8	Vocational after elementary	9859	4807	14666
9	Vocational secondary education after elementary	33523	56139	89662
10	Vocational education after general secondary education	9794	26294	36088
11	First level vocational higher education	989	1257	2246
12	Academic education	19697	38408	58105
13	Doctorate	643	635	1277
99	Not known		77	77

As shown in Table 2.18., the highest number of economically inactive population has obtained elementary education – 192 998 and general secondary education – 163 126. This index may be related to the education level of population and motivation to work and strive for development. The key trend observed is that the highest proportion of economically inactive population has obtained

68 Table prepared by authors, according to the Labour force survey data.

lower education level. A more detailed distribution of economically inactive population by successfully obtained sphere of higher education is presented in Table 2.19.

Table 2.19 Healthy years and expected lifespan in Latvia and EU[69]

GEO/years	2004	2005	2006	2007	2008	2009	2010	
EU	63.7	62.1	62.4	62.6	62.2	62	62.6	Healthy years from birth (women)
Latvia	:	53.2	52.5	54.1	54.6	56.2	56.7	
EU	62.2	60.7	61.7	61.7	61.1	61.3	61.7	Healthy years from birth (men)
Latvia	:	50.8	50.8	51	51.8	52.8	53.5	
EU	78.2	76.2	76.1	76.1	75.5	75.1	:	Proportion of healthy years in the expected lifespan (women)
Latvia	:	69.6	68.8	70.7	70.1	72	72.3	
EU	82.7	80.5	81.4	81.1	80	79.9	:	Proportion of healthy years in the expected lifespan (men)
Latvia	:	77.7	77.7	77.5	77.3	77.6	78	
EU	81.5	81.5	82	82.2	82.4	82.6	:	Expected lifespan from birth (women)
Latvia	76.2	76.5	76.3	76.5	77.8	78	78.4	
EU	75.2	75.4	75.8	76.1	76.4	76.7	:	Expected lifespan from birth (men)
Latvia	65.9	65.4	65.4	65.8	67	68.1	68.6	
EU	19.5	18.1	18.3	18.4	17.8	17.6	18.3	Healthy years in the age of 50 (women)
Latvia	:	13	11.3	12	12.1	13.4	13.6	
EU	18.4	17.2	17.7	17.7	17.1	17.3	17.6	Healthy years in the age of 50 (men)
Latvia	:	11.1	10.8	11.2	11.1	11.5	11.9	
EU	58.9	54.5	54.4	54.5	52.5	51.7	:	Proportion of healthy years in the expected lifespan in the age of 50 (women)
Latvia	:	44.4	38.9	40.7	40.1	43.7	44.4	
EU	65.4	61.2	61.9	61.5	58.9	59.1	:	Proportion of healthy years in the expected lifespan in the age of 50 (men)
Latvia	:	52.1	50.9	51.6	49.9	50.2	51.9	
EU	33.1	33.2	33.6	33.7	33.9	34.1	:	Expected lifespan in the age of 50 (women)
Latvia	29.2	29.3	29.1	29.4	30.1	30.6	30.6	
EU	28.1	28.2	28.6	28.7	29	29.2	:	Expected lifespan in the age of 50 (men)
Latvia	21.7	21.3	21.3	21.6	22.3	22.9	23	

EU (EU-15 2004, EU-25 2006, EU-27)

Assessing distribution of economically inactive population by education programme, the conclusion may be drawn that the largest number is formed by those having obtained general education programme – 399 206, followed by economically inactive population having obtained craft and manufacturing programmes – 54 283. Clear distinctions by genders may be observed among economically inactive population having obtained specific programmes. Among those having obtained teacher education and education science programme, 10 019 women predominate over 1 244 men; in business and administrative science programme – 23 699 are women, while 1 741 – men; in engineering education programme – 17 716 women, 4 470 men; in medical treatment, dentistry and pharmacy programme – 12 882 women, 787 men. One of the reasons of this dominance could be the significant proportion of women in the group of economically inactive

69 Eurostat database.

population having a status of housewife, meaning that certain part of women after completing these programmes due to various reasons remain in the status of housewives.

In general, it may be concluded that the largest part of economically inactive population has obtained low and general education, and has been previously employed in professions requiring low qualification. Thus, their involvement in the labour market requires additional funds for training and improvement of qualification.

2.3. EVALUATION OF FACTORS HAVING IMPACT ON THE ECONOMIC ACTIVITY OF POPULATION IN LATVIA

Economic activity of population is influenced by both mentality of population itself and concept of living related to the mentality, including material welfare standards, environment formed by other members of the society in various forms of manifestation: governmental and municipal institutions, non-governmental organizations, private businesses, public infrastructure and the existing legislative system.

It shall be noted that decisions made by population (individuals) on involvement in economic activities depend on their social status, demographic parameters and state of health, means for ensuring the existing standard of living, motivation and actual opportunities to get involved in the labour market in accordance with own interests and preferences.

The research, in accordance with the set tasks, does not reveal in detail issues related to economic activity of population as regards the specific character of individuals in relation to concept of living, their obligations and responsibility against other members of the family, career trends and adapting to specific social groups and strata, as well as wide range of other factors of sociological and psychological nature.

The main criteria in forming economic activity of population are the following:

- Distribution of population by age groups;
- Distribution of population by gender;
- Distribution of population by education and professional background in accordance with the demand in labour market in specific periods of time.

Consequently, those are specific groups of population with different parameters, which, when involved in the labour market, perform specific economic activities according to their wishes and possibilities defined not only by their abilities, skills and motivation, but also by the respective

situation in the labour market, environment and social infrastructure. The above factors may not only enhance decision-making as regards the economic activity of the population, but, in specific conditions, significantly reduce it. It is important to be aware of the fact that in such conditions, the principle of feedback is valid, namely, environment of specific stage of development does not occur by itself, but is the result of economic and social activity of population, and vice versa.

The possible scenarios (alternatives) of the development of the national economy in Latvia until 2030 developed previously during the labour market surveys were also based on such assumptions on mutual interrelation between economic activity of population and environment. Depending on each specific scenario, there are relations between the level of economic activity and efficiency thereof, and between the level of development of environment and social infrastructure. National economy development and living standard parameters defined by optimistic (rapid growth) scenario cannot be achieved by low level of economic activity, poorly developed environment and social infrastructure.

Thus, when considering the environmental and social infrastructure phenomenon created by individuals, several systematically formed and maintained interrelated and interdependent governmental, municipal and non-governmental organization policies that define background establishing preconditions for decision-making as regards economic activity of the population (see Figure 2.5).

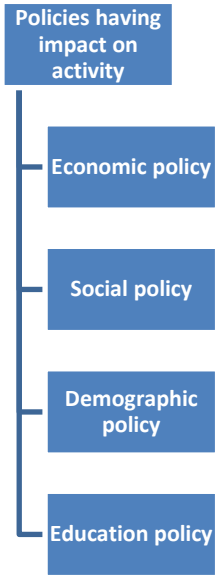


Figure 2.5. Decision policies having impact on economic activity of population

Viewing the traditional parameters describing efficiency of economic policy, such as growth of gross domestic product, condition of state budget, account balance and status of external debt, tax burden

and proportion of shadow economy, the general standard of living and differentiation of income, structure and proportion of the national economy sectors, as well as level of development of business environment, usually are the criteria considered to assess achievements by politicians and civil service. Without denying significance of their decisions and actions, it must be understood that economic activity of population and manifestation thereof in the actual life shall be considered uppermost in physical manifestation of these parameters. Economic policy factors having impact on economic activity of population are presented in Figure 2.6.

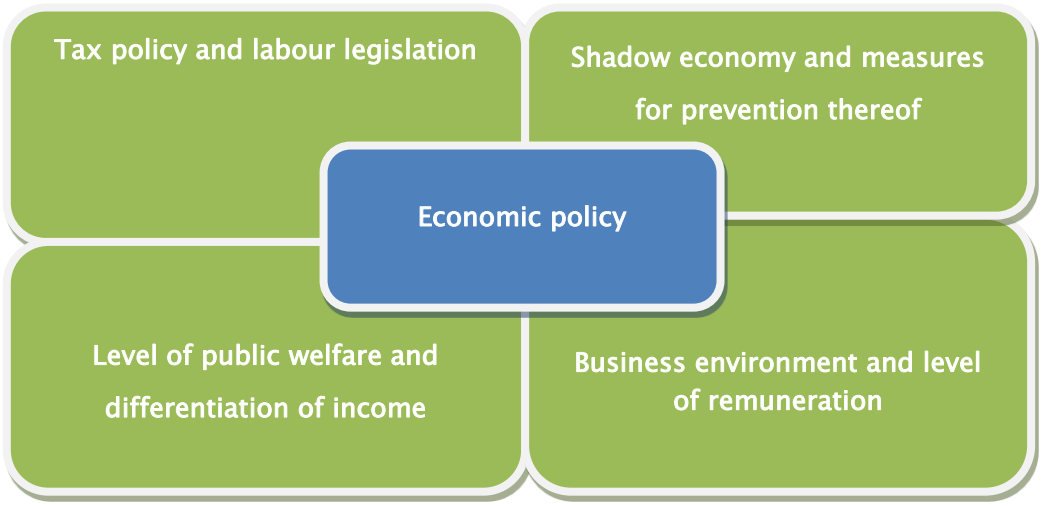


Figure 2.6. Economic policy factors having impact on the economic activity of population

Analysing factors impacting economic activity of population by sectors in Figure 2.6., interrelation between and impact of all four sectors may be observed. Underdeveloped, unbalanced and poorly implemented tax and labour legislation contributes to increase in proportion of shadow economy and aggravates business environment that, in turn, distorts competition in business, reduces efficiency of work and keeps low level of remuneration.

In Latvia, comparing to the old EU member states, salaries are low. In 2010, the average salary in Latvia amounted to EUR 716 that has slightly decreased comparing to the year before, when it was EUR 727[70]. Thus, from the point of view of employees, motivation issues occur in terms of economic activity and possible deviation thereof in legal and illegal sector, or on manifestation thereof when emigrating abroad. In such conditions, a "spellbound circle" occurs: poorly developed economy with low work efficiency is not able to ensure a competitive remuneration, but the long-term practice, seeking opportunities for increasing efficiency on account of cost reduction, has led to unenviable situation in the EU member states and intensified range of unfavourable manifestations in daily life of society. The abovementioned trends may clearly manifest in pessimistic development scenario of the

70 Eurostat database.

national economy that would materialize as a long-term economic and social stagnation of society. With such an unfavourable background, the state experiences issues of taxation and acquisition of necessary funds for the development of social infrastructure and fulfilling other significant state functions.

As regards the economic policy of the state developed and implemented for purposes of facilitation of economic activity of population, the social policy implemented by the state is of great importance as it manifests as social benefit and pension system policy and social integration of population. In the context of these policies, population shall be given assurance on their sustainability, availability to each individual in accordance with their social status, and in case of receipt of all these benefits and pensions, amount thereof and commensurability with cost of living during the respective periods of time. This interrelation of social policy is presented in Figure 2.7.

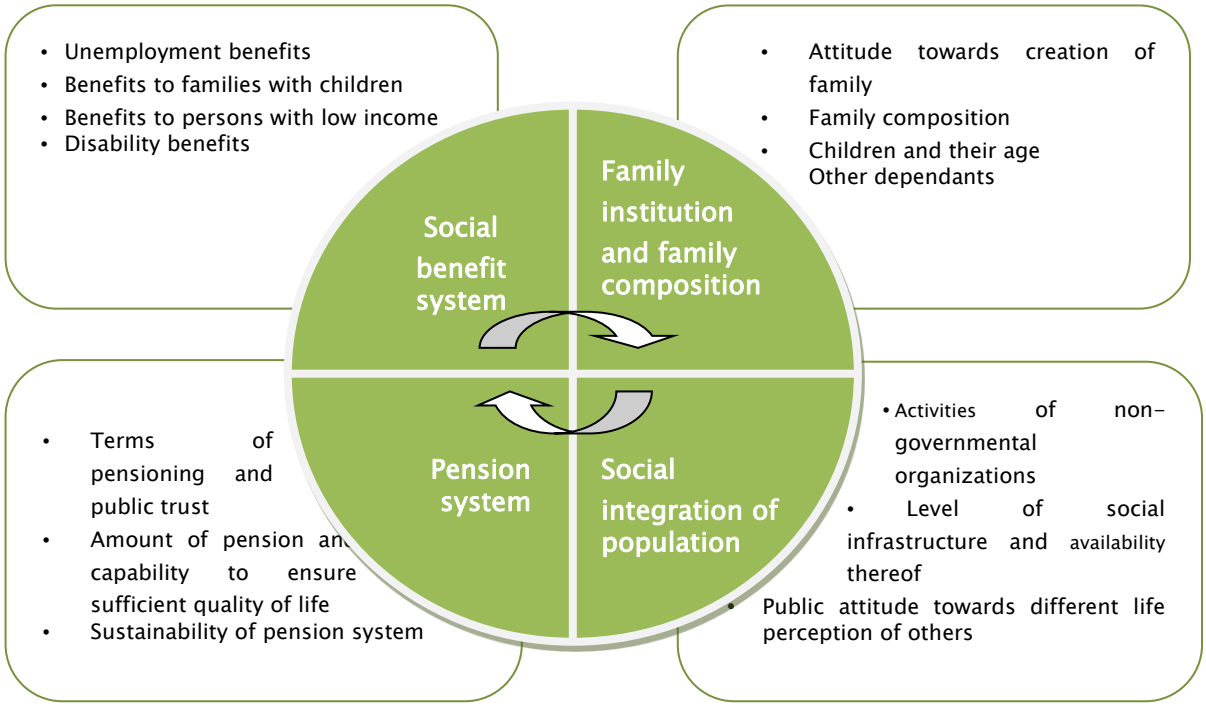


Figure 2.7. Impact of the social policy on economic activity of population

The actual manifestations of social policy pose range of questions to individual as a potential employee regarding economic activity in the long run. If, according to economic policy, the individual assesses his/her opportunities to obtain the job and adequacy of remuneration with the needs and opportunities that enhance making specific decisions on involvement in the labour market, solution of social issues may encourage or, vice versa, discourage them from getting involved in economic activities. Sustainability of pension system and adequacy of the amount of the possible pension to cost of living and to opportunity to ensure a specific standard of living, may influence decisions made

by individuals regarding loyal payment of taxes; social security against different accidents in life and in parenting of new generation on the other hand serves as a specific catalyser for individuals to decide to direct their economic activities to legal sector.

Another possible interrelation of policies manifests as an attitude of individual towards family institution as such, and understanding of giving birth and parenting new generation, as well as the attitude towards elderly generation and possible support for their existence. Everybody has a narrower or wider family circle that can have a significant impact on decisions of the individual regarding economic activities along with occupation career needs and wish to take a specific place in society. Factors related to demographic structure of the entire society and personal demographic characteristic of each individual that may have an effect on decisions of population on economic activities and specifics thereof are presented in Figure 2.8.

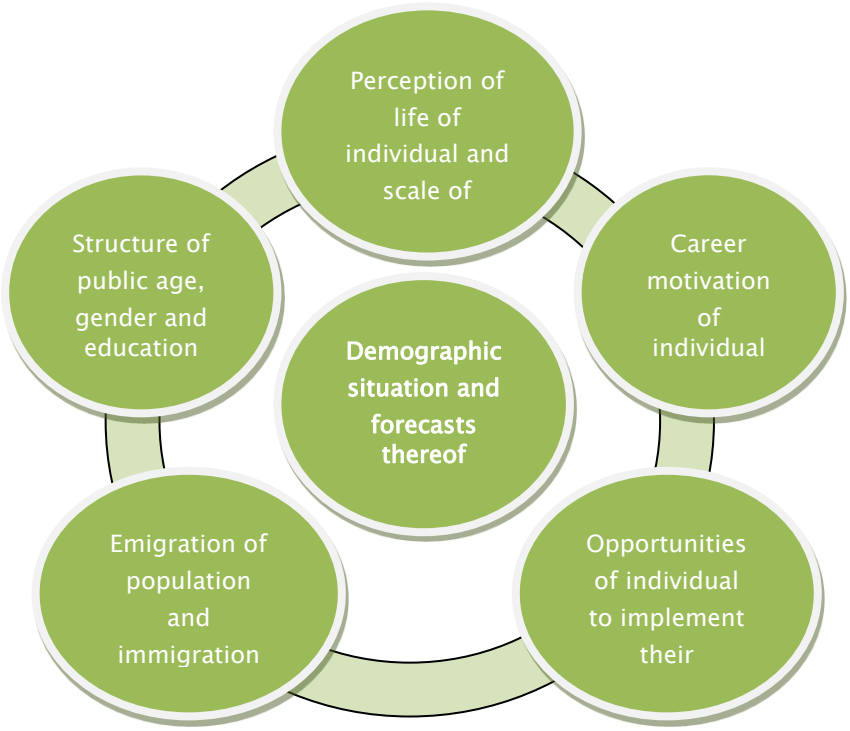


Figure 2.8. Demographic policy factors having impact on the economic activity of population

The current demographic situation and its development forecasts are fairly unfavourable to the balanced development of the Latvian national economy. Gradual ageing of society and low birth-rate may cause significant issues in the labour market of Latvia, since the abovementioned trends will affect decisions regarding economic activity in future in case of any alternative national economy development scenario. Furthermore, demographic situation affects both the current level of economy development (actual GDP and its growth rate) and the most significant factors of economic growth, and, consequently, the potential GDP. Development of the national economy, although, sufficiently

balanced, will change gradually that in the near future will allow no significant increase in work efficiency and making remuneration competitive at the international level. The same relates to the general standard of living compared to the level of the most developed EU member states, which can cause population in the working-age leaving for other developed countries in future, to aggravate the already tense demographic situation and have significant impact on decisions made by the population in relation to the economic activity in Latvia.

Economic activity of population is largely affected by education policy, availability of education by different education levels and quality and duration of education, as well as attitude of the society towards education and demand in the labour market for specific level of education in different occupational groups (see Figure 2.9).

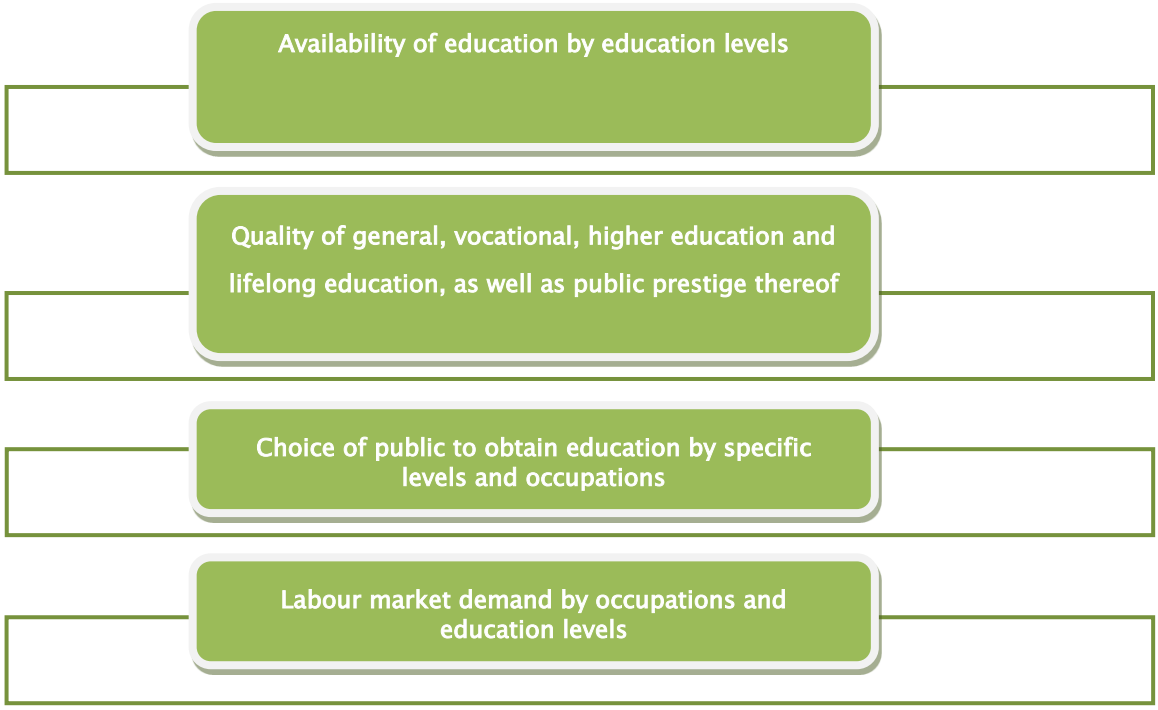


Figure 2.9. Impact of the education policy on economic activity of population

Summarizing the results of the analysis, it may be concluded that decisions of economic activity of population are influenced by complicated set of factors, development of which can be influenced by the government implementing economic, social, demographic and education policies corresponding to the specific situation. Within the last 20 years, the following factors have been identified as the **principal ones having impact on economic activity of the population** in Latvia:

- Salaries and tax burden;
- Labour legislation and shadow economy;
- Social benefits;
- Availability of social and transport infrastructure;

- Free movement of labour (after Latvia joined the EU) and opportunities of employment outside Latvia (different level of income and standard of living in the EU member states);
- Migration flows (intensive emigration of population from Latvia);
- Pension system (terms of pensioning, amount of pensions and opportunity to ensure sufficient quality of life, changes in pension legislation, incl. increasing in retirement age);
- Natural movement of population (incl. low birth-rate, early mortality, health care quality and lifespan);
- Education system (duration of education and availability by different education levels, quality of education and attitude of the society towards education);
- Structural changes in the national economy and demand in the labour market.

However, it shall be noted that the decisions regarding economic activity are made by specific individuals assessing their needs and opportunities to satisfy them. Significant factor in this assessment shall be loyalty of population and its support provided to different governmental activities, as well as opinion on their role in society and opportunities to influence various socioeconomic processes. The higher the society and economy have developed, the higher will be the economic activity of population.

3. FUTURE TRENDS OF SKILLS SUPPLY IN LATVIA UNTIL 2030

3.1. COMPARISON OF DEMOGRAPHIC FORECASTS IN LATVIA FROM VARIOUS SOURCES AND EVALUATION OF DIFFERENCES THEREOF

Changes in demographic situation are ones of the most significant factors having impact on labour supply. Developing labour market policy, the **expected lifespan**, and **duration of healthy life** (healthy years[71]) and trends in changes thereof shall be taken into account, reflecting the possible health condition of the society, and may be used as a criteria to establish job offer trends in elderly population. The expected healthy years in 2005 were approved as one of the structural indicators in the EU within the context of the Lisbon Strategy. The European Commission uses healthy years to assess health as factor determining productivity and economics, to measure employment opportunities among elderly population, to analyse the progress of health care availability, quality and sustainability[72]. The expected duration of healthy life is illustrated by the indicator of healthy years, combining the expected lifespan (mortality) and health condition (disability). The expected healthy life is not influenced by the number of population and its age structure, allowing to directly comparing the different units of population (by gender, by socio-occupational composition, and population of different countries)[73].

Analysing index of healthy years in Latvia (see Appendix 2), it shows that it significantly falls behind the average figures in the EU. In 2010, the expected duration of healthy life of women born in Latvia was 56.7 years, while in Europe it was 62.6 years; for men born in Latvia it was only 53.5 years (8.2 years less than in Europe). However, proportion of healthy years of the expected lifespan among Latvian men is higher than that of women (in 2010, for men at birth it was 78%, for women -72.3%, while in the age of 50 it was 51.9% for men and 44.4% for women) suggesting a cautious conclusion on possibly better health condition among men in Latvia compared to the health condition of women; although, this seems very unlikely. At the same time, differences in these figures and decrease thereof set specific tasks not only for public health protection, but also for implementation of healthy lifestyle on a broad scale as a significant preventive measure. Data in Appendix 2 show that the expected duration of healthy years in Latvia both of men and women is by almost 10 years shorter than the statistical expected lifespan, suggesting an unsatisfactory public health condition.

71 Healthy Years is the expected number of years, which the person of a specific age (new-born or person reached certain age) will live without serious or moderate health issues, if during their lives the current mortality and state of health will be maintained at all ages.

72 Results of the statistical scientific research, 2012. Scientific articles, CSB of the Republic of Latvia, Riga 2012.

73 Ibid.

Furthermore, the average lifespan in Latvia is by almost 10 years shorter than duration of healthy life of population in the EU member states. Similar trends may be observed also in studies carried out by Latvian researchers. For instance, Prof. J.Krūmiņš, analysing duration of the expected and healthy life in Latvia and in the EU member states, has concluded that in 2007, the expected lifespan of men in Latvia was 68.31 years, in the new EU member states it was 70.99 years, while in the EU 15 states – 77.94 years (women 78.09 years in Latvia, 79.12 years in the new EU member states and 83.47 years in the old EU member states); in turn, the expected duration of healthy life in Latvia was on average 63.8 years, in the new EU member states – 66.7 years, but in EU 15 states – 73 years[74]. According to other sources and calculations by the academician P.Zvidriņš, healthy years since the birth in 2007 in Latvia of men were 50.9 years, but women 53.7 years[75]. When analysing differences between the two figures, some contradictions may be observed, since the authors have used different databases of initial data (P.Zvidriņš – EUROSTAT population database, J.Krūmiņš – European Health for All database); however, general trends have been maintained. Similarly, this applies to other studies, where the results differ from the information in the database of the Central Statistical Bureau, for instance, the results of the research carried out by S.Feifere.

Analysing the expected lifespan in Latvia, there can be a positive trend noted: since 1990, the expected lifespan has increased, and the average expected lifespan of population born in 2011 was 74.0 years, including of men – 68.8 years, women –78.7 years (see Table 3.1).

Table 3.1 The expected lifespan (years)[76]

YEAR	TOTAL		MEN		WOMEN	
	At birth	In the age of 65	At birth	In the age of 65	At birth	In the age of 65
1990	69.5	14.4	64.2	11.9	74.6	16.2
2000	70.7	14.9	64.9	11.9	76.0	17.6
2011	74.0	164	68.8	13.3	78.7	18.5

Considering the expected lifespan across different age groups by gender in Latvia (see Figure 3.1.), significant difference between men and women can be observed.

74 Estonian Human Development Report 2010/2011, Eesti Koostoo Kogu, Tallinn, 2011.
75 Bērziņš A., Zvidriņš P., Depopulation in Latvia and other Eastern European countries, Results of the statistical scientific research 2010., Scientific articles, CSB of the Republic of Latvia, 2010.
76 Elderly population in Latvia, CSB of the Republic of Latvia, Riga, 2012.

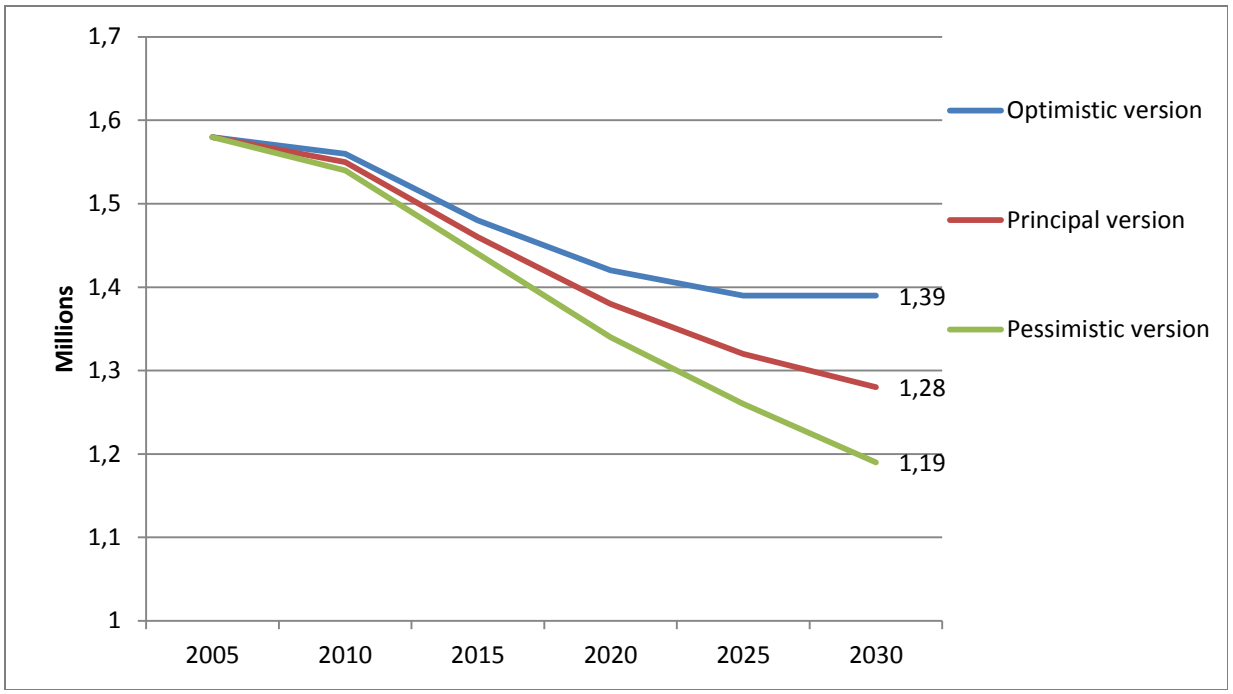


Figure 3.1. Forecasts of number of population in the working-age (15 to 64) in Latvia

Although, such a difference exists also in other EU states (for instance, in Finland and Sweden), it is significantly higher in Latvia (lifespan of women is by 10 years longer than that of men). As stated by the academician P.Zvidriņš, one of the differentiating factors having effect on the average expected lifespan in new-borns and difference thereof between men and women in Latvia, is the proportion of early mortality, in particular, that of men (see Table 3.2.).

Linear correlation ratio shows that there is a reverse interrelation between the proportion of mortality in the age up to 49 in the total number of mortality and the average expected lifespan of new-borns, i.e. by increase in the proportion of mortality in the age up to 49, the average expected lifespan of new-borns decreases, and vice versa[77]. Professor J.Krūmiņš, using the data of the World Health Organization, has carried out analysis of the interrelation between the level of development of states (GDP per 1 person) and the expected lifespan of new-borns; as a result, he has concluded that along with the increase in the level of economic development, increase in the lifespan becomes slower, since, during the course of economic development, even more significant role in further increase in lifespan is played by discoveries in medicine and biology, healthy lifestyle, and quality of health care[78]. Thus, without qualitative changes in these areas, Latvia has limited opportunities to achieve a rapid increase in lifespan.

77 Depopulation in Latvia, LU Academic publishing house, 2010.
78 Results of statistical scientific results, 2012. Scientific articles, CSB of the Republic of Latvia, Rīga 2012.

Table 3.2. Mortality among population by gender and age in Latvia[79]

	1990		1995		2000		2005		2011	
	Total	men	Total	men	Total	men	Total	men	Total	men
0 – 4	686	401	503	286	248	143	204	109	151	84
5 – 9	136	99	92	53	55	40	30	20	25	18
10 – 14	97	70	88	55	59	34	40	29	13	8
15 – 19	235	177	197	143	145	112	103	72	48	38
20 – 24	266	216	329	268	259	210	218	165	115	84
25 – 29	431	334	458	392	306	241	243	200	174	139
30 – 34	507	405	666	552	389	308	360	278	244	191
45 – 49	1262	884	1724	1256	1145	833	1159	851	796	566
50 – 54	1868	1350	2432	1780	1616	1163	1639	1199	1225	885
55 – 59	2338	1609	3262	2219	2059	1416	2003	1393	1665	1136
60 – 64	3151	1962	3561	2412	3039	2054	2636	1816	2107	1403
65 – 69	3345	1691	4344	2597	3558	2222	3568	2294	2584	1637
70 – 74	3019	1411	4269	1941	4297	2228	4127	2264	3696	2074
75 – 79	5043	1994	3429	1397	4271	1521	5013	2252	4049	1893
80 – 84	5219	1786	4619	1515	3166	977	4717	1364	4773	1813
85+	5831	1532	6600	1682	6049	1488	5325	1220	6050	1288
Total	**34812**	16951	**38931**	20343	**32205**	16155	**32777**	16601	**28540**	13857

Analysing changes in demographic situation in Latvia within the last 20 years, the following **trends** have been observed:

- Decrease of the number of population due to negative natural increase and emigration,
- Ageing of population by decrease of the number of population until the working-age and in the working-age,
- Increase in the proportion of population in the working-age due to gradual increase in retirement age,
- Decrease of the demographic burden due to decrease of the number of population in the working-age,
- Increase in the expected average lifespan.

79 CSB database.

Since 1991, number of population in Latvia has continuously decreased, and, in total, within 20 years (from 1991 to 2011) it has decreased by 626 thousand (see Table 3.3.).

Table 3.3. Changes in the number of population and factors having impact thereupon in Latvia from 1990 to 2011[80]*

YEAR	CHANGES IN NUMBER OF POPULATION – TOTAL	INCL. NATURAL INCREASE
1990	-9979	3106
1991	-15161	-116
1992	-57325	-3851
1993	-44771	-12438
1994	-40324	-17501
1995	-31049	-17336
1996	-24619	-14538
1997	-24123	-14703
1998	-21541	-15790
1999	-17533	-13448
2000	-27198	-11903
2001	-33422	-13265
2002	-21495	-12371
2003	-22853	-11286
2004	-27734	-11473
2005	-20871	-10898
2006	-18079	-10227
2007	-17113	-9084
2008	-30030	-6609
2009	-42440	-7853
2010	-45875	-10259
2011	-32842	-9715

* Number of population for the period 2001 to 1 January 2010 recalculated considering the results of census of 2011.

In the beginning of the 90s (from 1991 to 1995), the rapid decrease of the number of population was due to emigration to Russia and other former USSR states. During the second half of the 90s (from 1995 to 2000), migration flows were comparatively small and number of population decreased mainly as a result of the negative natural increase. Along with decrease of birth-rate, figures of natural increase worsened significantly (mortality exceeded birth-rate by almost two times). Situation in migration changed completely since 2001, but in particular, after Latvia joining the EU in 2004 and consequently opening of the EU labour market that resulted in significant number of population leaving Latvia every year (see Table 3.4.).

80 CSB database.

Table 3.4. Migration in Latvia from 1991 to 2011[81]*

YEARS	IMMIGRATION	EMIGRATION	NET MIGRATION
1991–1995	30872	168230	-137388
1996– 2000	18249	67069	-48820
2001– 2005	34180	113580	-79400
2006 – 2010	34587	143466	-108879
2011	7253	30380	-23127

* Emigration in 2001–2011 assessed using the number of population in the Population Register to 2011 and beginning of 2012, as well as number of population to 1 January 2011 recalculated considering the results of census.

As shown in the table above, within the last 10 years, more than 200 thousand people have left Latvia, but in general, number of population of Latvia since the census of 2000 has decreased by 13% (approximately by 307 thousand), as stated in Table 3.5.

Table 3.5. Number of permanent residents and changes thereof in Latvia from 2000 to 2011 (by gender)* [82]

	NUMBER OF POPULATION IN THE BEGINNING OF THE YEAR			BIRTH			DEATH		
	total	men	women	total	men	women	total	men	women
2000	2381715	1096888	1284827	20248	10357	9891	32205	16155	16050
2001	2354517	1083948	1270569	19726	10017	9709	32991	16537	16454
2002	2321095	1066744	1254351	20127	10313	9814	32498	16423	16075
2003	2299600	1055497	1244103	21151	10927	10224	32437	15893	16544
2004	2276747	1045245	1231502	20551	10595	9956	32024	15890	16134
2005	2249013	1032459	1216554	21879	11182	10697	32777	16601	16176
2006	2228142	1022999	1205143	22871	11642	11229	33098	16621	16477
2007	2210063	1014617	1195446	23958	12195	11763	33042	16360	16682
2008	2192950	1007821	1185129	24397	12442	11955	31006	15432	15574
2009	2162920	992812	1170108	22044	11202	10842	29897	14539	15358
2010	2120480	971034	1149446	19781	10246	9535	30040	14561	15479
2011	2074605	947939	1126666	18825	9649	9176	28540	13857	14683

* Considering the results of census of 2011

81 CSB database.
82 Ibid.

Since 2004, the negative balance of migration has exceeded the negative natural increase in population and is the main reason for decrease of the number of population. According to the data of the Latvian Tax Consultant Association, approximately 40 000–50 000 people leave Latvia every year, while approximately 12 000 people return, indicating that migration shall not be considered as a one-way process, and some part of population is interested to return to Latvia, at least temporarily. Furthermore, data from Office of Citizenship and Migration Affairs also show increase in the number of people returning to Latvia after living abroad. Within half-year in 2012, 1 287 Latvian citizens and 47 non-citizens with the former place of residence abroad in the Population Register, have declared place of residence in Latvia , which is almost the same number as in total in 2011, when 1 436 returns have been registered. A significant difference in labour costs is one of the reasons for mass emigration. However, remuneration is not the only reason for emigration. Often, the decision to work abroad is taken due to several factors: low income, difficulties in personal and/or professional life, bad work conditions, lack of opportunities, poor support networks on the state, municipal, family and friend level, lack of trust that the quality of living in Latvia will improve etc. Particularly obvious have become migration chains: people have followed their friends, family members, relatives and acquaintances from a specific place in Latvia, thus, creating situation that large number of population in the working-age leave the specific municipality, while in other municipalities the number of emigrants is smaller.

After assessment of former migration flows, several factors encouraging migration may be specified:

- Differences in salaries and benefits in Latvia and other EU member states;
- Differences in working conditions in Latvia and other EU member states;
- Future perspectives – confidence in sustainability of the working place (security aspect);
- Social security and stability when working in other EU member states;
- Education opportunities in Latvia and other EU member states;
- Openness of the EU labour market to Latvian labour (after joining the EU);
- Opportunity to be with family, relatives and friends;
- Insufficient mobility of the internal labour (insufficiently developed business, infrastructure and transport system in regions);
- Insufficiently developed forecasting of labour demand – supply allowing developing more effective offers to ensure vocational education programmes for labour market needs.

As a result of emigration, economic and social development of Latvia has suffered significant loss; however, emigration has also some positive consequences (see Table 3.6.).

As shown in the table, in case of emigration of labour, both possible benefits and costs related thereto should be considered significant and may be divided into three categories:

1. In case of loss of some part of labour, there can be no significant consequences on the total development of national welfare until emigration of labour affects non-qualified, unemployed persons. It is completely different, when emigration affects qualified employees, whose training has required significant investments; losing of such human capital affects the potential producing capacity and level of welfare of the donor state.

Table 3.6 Impact of emigration on the Latvian national economy

POSITIVE ASPECTS OF EMIGRATION	NEGATIVE ASPECTS OF EMIGRATION
- Opportunities of population to be employed increase, level of unemployment decreases in Latvia; - Necessity to pay unemployment etc. benefits decreases; - Improvement of working conditions is encouraged; - Salary level in Latvia increases (gradual decrease of differences in salaries and labour costs between Latvia and other EU member states); - Economic activity increases, categories of population formerly not demanded and/or were not sufficiently active in the labour market increase (students, householders/housewives, population at pre-retirement age, pensioners, disabled persons and other economically inactive population in the working-age); - Part of funds earned by emigrants is returned to Latvia increasing the level of income, and enhancing investments and other macroeconomic indicators (for instance, current payment account balance); - Knowledge, experience and contacts obtained abroad may be useful in Latvian companies; - Emigration of labour enhances employers to pay more attention to the personnel policy and motivation of employees.	- Lack of labour in specific occupations and/or sectors occurs in Latvia; - Number of population in the working-age reduces, demographic burden increases, - Slow increase in productivity (due to decrease of competition in the labour market); - Increase in inflation and worsening of their macroeconomic indicators (for instance, GDP growth rate); - Ageing of population increases, changes in age structure of population occur (due to intensive emigration of population in the working-age); - Reproductive potential of Latvia is put at risk; - Unbalanced condition of the regional development in Latvia becomes deeper; - Sustainability of the social security system of Latvia is put at risk; - Along with outflow of qualified labour, funds invested into training are lost; - Qualification of emigrant population decreases when working in inappropriate areas; - Social and economic rights of citizens of Latvia cannot be exercised, causing social discrimination; - Latvian national economy growth opportunities in future are put at risk.

2. Short-term leave of labour with return following afterwards can be assessed differently. There is an opinion that temporary emigrants, while working abroad, improve their knowledge and skills, unless they perform non-qualified work. However, the migration back,

in general, creates a little effect on the development of human capital. It may be explained by the following: 1) donor state not always is able to offer re-emigrants a job corresponding to their qualification with adequate remuneration, reducing their returning opportunities; 2) re-emigrants do not accept job with a low status and low remuneration due to their improved skills, and, thus, begin establishing new type of economic activity that do not fully use skills obtained abroad for the purposes of the society.

3. Positive factor for the economic development is transfer of assets generated by emigrated labour to their families, relatives at home or to their own bank accounts. These funds in short period of time may be used to finance trade balance deficit. In the long run, efficiency of such measures is limited, since the transferred funds will be mainly used for residential investments or for consumption, and only small part will be used for formation of productive capital. In turn, the increased consumption may cause significant increase in prices and salaries and encourage irrational placement of funds in the country (for instance, investment into real estate and other non-productive assets).

Apart from emigration, the situation in the labour market is largely affected by ageing of population. Since 1990, number of population over 65 in Latvia has increased by 69 thousand, i.e. 20%, notwithstanding decrease of the total number of population by 23% (see Table 3.7.).

Table 3.7. Population age structure in Latvia in the beginning of the year[83]

AGE GROUP	1990	1995	2000	2005*	2010*
0-4	208540	147995	95939	100019	111285
5-9	188693	192413	145315	94623	96863
10-14	174590	181469	186828	141801	92014
15-19	184734	164022	178114	181209	136229
20-24	185567	174534	161525	168616	163305
25-29	208932	168450	164998	152049	150846
30-34	199509	182457	159275	156310	140246
35-39	183005	181654	176859	151014	147065

83 CSB database.

AGE GROUP	1990	1995	2000	2005*	2010*
40-44	156741	164826	175344	166393	142531
45-49	178066	148414	155453	163434	156090
50-54	173604	155035	139680	143085	152242
55-59	161948	163021	142508	127475	131910
60-64	148821	139995	146561	128608	115518
65-69	**103071**	129160	120918	126869	**113856**
>70	**212319**	207135	232398	247508	**270480**
Total	**2 668 140**	**2 500 580**	**2 381 715**	**2 249 013**	**2 120 480**

* Considering the results of the census of 2011

The largest decrease of the number of population (in total by 271.6 thousand) from 1990 to 2010 was observed in the first three age groups (in the age of 0 to 15), which was due to the low birth-rate. The total birth-rate ratio decreased from 1.998 (in 1990) to 1.177 (in 2010). As a result, proportion of population until the working-age in the total number of population decreased from 22.7% to 14.2% (see Table 3.8.).

Table 3.8. Distribution of resident population by pre-working-age, working-age and post-working-age groups in the beginning of the year (%)[84]

	TOTAL	PRE-WORKING-AGE	WORKING-AGE	POST-WORKING-AGE
1990	100	22.7	56.5	20.8
1995	100	20.9	56.4	22.7
2000	100	18.1	58.8	23.1
2005*	100	15.0	63.4	21.6
2010*	100	14.2	64.7	21.1
2011*	100	14.2	64.2	21.6

* Considering the results of the census of 2011

At the same time, due to the gradual increase in pensioning age (since 1996), proportion of population in the working-age has increased**, while** proportion of population in the post-working-age has remained

84 CSB database.

almost unchanged. Due to decrease of the number of population in the pre-working-age, until 2009, decrease of the demographic burden could be observed (see Table 2.2.); however, since 2010, demographic burden level has increased again, mainly, as a result of increase in proportion of population in the post-working-age. Proportion of population over 65 in the total number of population has increased significantly since 1990 – in 1990 proportion of population over the age of 65 was 11.8%, in 2012, it was already 18.6%, as it may be observed in Figure 3.2.

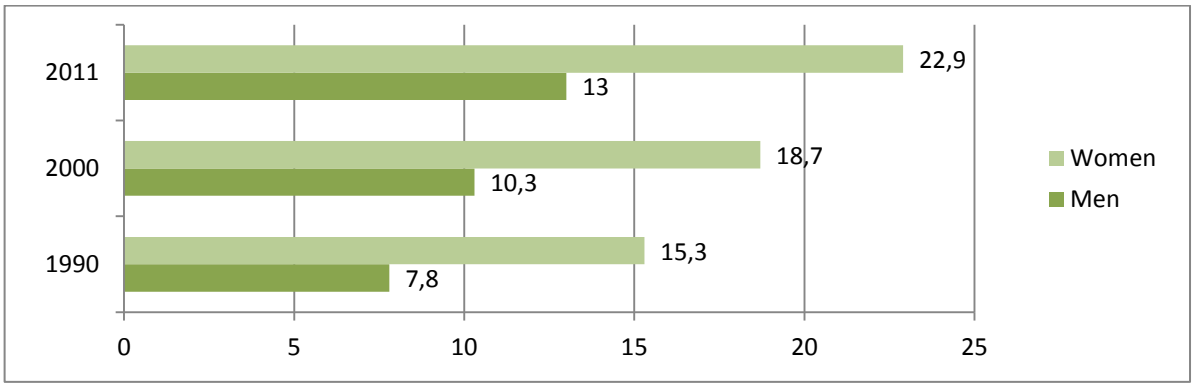


Figure 3.2. Proportion of elderly generation (in the age of 65 and more) in the total number of population of the respective gender (%) from 1990 to 2011[85]

After summarizing trends of demographic changes in Latvia during the last 10 years, several **factors** should be noted:

- Low birth-rate,
- High emigration of population,
- Comparatively poor health condition of population (low duration of healthy life) and high early mortality (in particular, of men),
- Increase in the number of population over the age of 65,
- Changes in legislation (establishing increase in proportion of population in the working-age in the total number of population),
- Increase in the level of economic development (enhancing increase in the average lifespan among population).

In future, although birth-rate will increase a little, it will still be too low to ensure the natural reproduction; thus, natural increase in Latvia will remain negative. Natural growth ratio (natural growth per 1000 people) will improve a little along with decrease of mortality, however, remaining negative. The total number of population will decrease and ageing of population will continue. Average lifespan will increase moderately along with improvement of quality of life and availability of health care; duration of healthy life will increase as well. Emigration due to free movement of labour and differences in income level between

85 *Elderly population in Latvia*, CSB of the Republic of Latvia, Riga, 2012.

Latvia and the more prosperous EU member states will continue at least until 2020. As a result, number of population in the working-age and the level of demographic burden will increase (in 2011, level of demographic burden was on average 558 persons out of 1 000 persons in the working-age, while in 2012 - 573 persons). The most significant decrease of population in the working-age shall be expected during the period 2015 to 2025, and in further perspective - after 2040. Until 2030, age structure of population will change as well - number of population under 15 - currently is one of the lowest in Europe (around 15%) - will decrease, while number of population over 65 will increase (after 2020, number of population over 65 will exceed the number of population under 18). This will cause an additional burden to social budget, as well as necessity for developers of the policy to reduce the negative impact of demographic trends on economy by use of appropriate laws (including developing appropriate migration policy and encouraging return of population (re-emigration), enhancing involvement of population in the labour market, changing social benefit system and increasing retirement age, intensifying mobility and productivity of labour).

This has been justified also by **demographic forecasts** developed by different institutions in Latvia. Decrease of the number of population, ageing and changes in age structure in Latvia has been forecasted already since the restoration of independence[86]. After Latvia joining the EU, in 2004-2005, Eurostat in cooperation with CSB and the Centre of Demography of the University of Latvia carried out calculation of demographic forecasts of Latvian population (based on the results of census of 2000). Those were included into the report of the Strategic Analysis Commission on demographic development in Latvia in the beginning of the 21st century[87]. Forecasts of the Centre of Demography of the University of Latvia were focused on the rapid future decrease of the number of population in the working-age (see Table 3.9). Moreover, a situation may occur when even with the current three level pension system, in 30 years, elderly age of Latvian pensioners may be put at risk.

86 Demographic forecast calculations of Latvian population have been carried out twice by scientists from the University of Latvia (LU) in 90-ies of the last century (in 1993, based upon data of census of 1989 and accounting data of the permanent population movement for 1989-1992, and in 1998-1999, mainly based upon statistical data of 1995-1997). In the beginning of the 21st century, forecasts of the number of population in Latvia were prepared also by other institutions, for instance, the Institute of Economics of the Academy of Science of Latvia, USA Census Bureau, World Bank, Population Division of UN Secretariat, Population Research Institute of Netherlands NIDI.

87 *Commission of Strategic Analysis, Demographical development in Latvia in the beginning of the 21st century*, Scientific articles 3(9)/2006, Chancellery of the President of the Republic of Latvia, 2006.

Table 3.9. Demographic forecasts of the European Commission for Latvia[88]

NUMBER OF POPULATION BY AGE GROUPS	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060
<5	108 192	100 379	87 252	77 663	74 758	75 281	74 302	70 842	66 071	61 749
5-9	113 256	107 678	100 088	87 168	77 683	74 989	75 569	74 676	71 295	66 410
10-14	98 791	112 336	106 984	99 467	86 603	77 223	74 592	75 255	74 434	71 020
15-19	93 704	97 871	111 619	106 347	98 904	86 162	76 856	74 323	75 059	74 192
20-24	142 449	93 048	97 612	111 637	106 634	99 517	86 889	77 802	75 365	75 804
25-29	179 891	140 736	92 183	97 180	111 455	106 936	99 963	87 619	78 708	75 894
30-34	168 548	177 038	138 864	91 009	96 223	110 835	106 464	99 751	87 603	78 424
35-39	152 035	165 558	174 637	137 159	89 914	95 437	110 069	105 920	99 375	87 063
40-44	154 932	149 000	162 953	172 309	135 505	89 070	94 658	109 350	105 352	98 689
45-49	148 080	151 205	145 962	160 116	169 650	133 758	88 119	93 826	108 490	104 436
50-54	160 316	143 328	146 996	142 427	156 706	166 506	131 583	87 000	92 786	107 225
55-59	152 394	153 044	137 631	141 861	138 047	152 527	162 509	128 855	85 558	91 299
60-64	127 652	142 527	144 211	130 650	135 467	132 609	147 180	157 428	125 339	83 522
65-69	106 470	116 354	131 221	133 933	122 358	127 792	125 886	140 529	151 014	120 717
70-74	99 639	93 832	103 738	118 346	121 954	112 550	118 469	117 611	132 204	142 782
75-79	87 936	82 021	79 085	88 697	102 659	107 092	100 087	106 459	106 758	121 071
80-84	55 625	64 627	61 611	61 398	70 110	82 783	87 701	83 437	90 023	91 498
Latvia >85	44 472	50 733	60 416	64 523	68 042	77 485	93 109	106 285	111 321	119 934
Total population	**2 194 382**	**2 141 315**	**2 083 063**	**2 021 890**	**1 962 672**	**1 908 552**	**1 854 005**	**1 796 968**	**1 736 755**	**1 671 729**

Deficiency of new tax payers may cause insufficient payments to the state budget for the state to pay its part of pension granted to currently employed persons. In 2006-2007, the Centre of Demography

88 European Commission (2012) "The 2012 Ageing Report", based upon Eurostat database.

of the University of Latvia, based upon the results of existing forecasts, made new calculations according to distribution by regions of Latvia. It was expected that the number of population in Latvia will decrease from 2.29 million in 2006 until 2.12–2.17 million in 2020, and 1.90–2.02 million in 2030[89]. At the initial phase of the period (until 2020), negative migration balance can be expected. After 2020, migration balance might become positive, forecasting that further economic growth of the state will be rapid enough for immigration to prevail[90]. After assessment of development of demographic situation after development of forecasts by the Centre of Demography of the University of Latvia, it must be admitted that the pessimistic forecasts have become true (providing that the number of population Latvia in 2010 will be only 2.19 million), which was mainly determined by the unexpected emigration volumes. In 2008, Eurostat made new calculations of forecasts for all EU member states for the period until 2060. Calculations indicated that the rate of decrease of the number of population in Latvia until 2060 will be one of the most rapid in the EU member states and, in general, number of population will decrease to 1.68 million, while the number of population in the working-age will be 2 times less than the current[91]. Furthermore, it can be expected that one out of three Latvian citizens in 2060 will be older than 65, while the median age of population will exceed the age of 50 (in 2008, it was less than 40 years). According to the latest (2012) forecasts of the European Commission (EC),[92] during the period 2010 to 2060, the total number of population in Latvia will decrease to 1.7 million (by 0.6 million or 26%), although, in general, number of population in EU-27 countries will increase by 3% (from 501.8 million in 2010 to 516.5 million in 2060). Particularly rapid decrease will occur in Latvia (by 16.4% or 670 thousand) will be observed in the number of population in the working-age (age of 15 to 64), while the number of population over the age of 65 will increase by 18.3% (see Table 3.10.).

89 European Commission (2012) "The 2012 Ageing Report", based upon Eurostat database.
90 *Demographical development in the regions of Latvia*, Center of Demography of LU, LU Akadēmiskais apgāds, 2009.
91 Eurostat, regional EUROPOP2008.
92 European Commission, "The 2012 Ageing Report", Economic and budgetary projections for the 27 EU Member States (2010-2060), European Economy 2/2012.

Table 3.10. Main figures of international migration in Latvia[93]

	TARGET SCENARIO		POOR GROWTH SCENARIO	
	2011–2020	2020–2030	2011–2020	2020–2030
Emigration, thsd. people	71.7	20.1	79.6	34.3
Immigration, thsd. people	46.9	155.7	41.8	107.5
incl. re-emigration of Latvian citizens, thsd. people	33.8	74.9	25.6	52.7
Proportion of re-emigrants in the total immigration, %	72%	48%	61%	49%
Total migration balance, thsd. people	-24.8	135.6	-37.8	73.2

Along with decrease of the number of population in the working-age, proportion thereof in the total number of population will decrease; in turn, ratio of involvement of labour (in the age of 20 to 64) will increase (up to 82.4% in 2020 and 83.1% in 2060[94]). According to forecasts by the European Commission, level of employment in Latvia until 2025 may slightly increase (by 0.5%), however, in the long run (until 2060), it will decrease (by 0.9%). Furthermore, according to demographic forecasts of the Ministry of Economics, number of population in Latvia in the middle and long run will continue to decrease; moreover, in the working-age, number of population will decrease more rapidly than the total number of population. However, MoE, unlike EC, when preparing forecasts, considered not only figures of natural movement of population, but also the international migration flows, thus, the total decrease of the number of population is expected to be less (until 2030, MoE target scenario provides decrease of the total number of population in Latvia by 6%, while EC – by 9%). MoE expects also decrease of the number of economically active population, however, in the middle run, it will decrease slower than the number of population in the working-age, but in the long run, it may even increase again, depending on the gradual increase in economic activity of population, in particular, in youth and pre-pension age groups[95]. Significant aspect in forecasts developed by MoE for reduction of negative consequences caused by the decreasing demography is migration. Both target and poor growth scenario as of2016-2017 provide positive migration balance that will increase in the following years along with the international migration. Until 2020, immigration of population will mainly consist of Latvian citizens returning; in turn, in 2020, repatriation flow will gradually decrease, and even more significant role in immigration will be given to immigrants from third countries, as well as from other EU member states (see Appendix 3). Furthermore, MoE expects a more significant decrease of emigration in the following 20 years that, according to evaluation by authors, is unlikely,

93 *Informative report regarding mid-term and long-term forecasts of the labour market*, Ministry of Economics, 2012.
94 Ibid.
95 Ibid.

as the abovementioned factors encouraging immigration will not change in such a short term. This is confirmed also by studies of several professionals (M.Hazans (LU)[96], O.Krasnopjorovs (LB)[97]). M.Hazans in his interview to website Nozare.lv (21.11.2011) has forecasted that high scale emigration from Latvia will continue for 3 to 4 years (including 2011), during which another 100 thsd. people will leave the country. Less than 10% are planning to return. If the government would develop a special programme, within 5 or 7 years 40 000 persons could return. Based on migration trends during recent years that suggest slower outflow of people, O.Krasnopjorovs forecasts that another 30 thsd. people could leave Latvia in 2012-2014[98].

Summarizing demographic forecasts described above, it may be concluded that until 2030 in Latvia:

- Depopulation and ageing of residents will continue both due to negative natural increase and emigration (migration balance might be positive as of 2020);
- Further changes in the age structure of population can be expected along with the increase in the number of population above the age of 65, and along with decrease of the average number of children and youth (younger than 18 years);
- Birth-rate will increase slightly and natural increase ratio will enhance,
- Level of demographic burden will increase,
- Number of population in the working-age will decrease more rapidly than the total number of population, however, along with the increase in economic activity level (labour involvement ratio), the number of economically active population might not decrease until 2030.

Demographic forecasts in Latvia viewed by various institutions and various sources mainly differ by different assumptions regarding migration flows -whether those are considered or not and irrespective of the scale of migration balance. Figures of natural movement (birth-rate and mortality) of population have no significant differences in the forecasts of various sources. According to evaluation performed by authors, demographic forecasts developed by MoE in 2012 are the most adequate for the current situation, since EC forecasts of 2012 migration flows have not been considered; in turn, forecasts of the Centre of Demography of the University of Latvia are comparatively old and have not been updated according to results of the census of 2011. Thus, developing their demographic forecasts, according to the previously described alternative scenarios of the development of the Latvian national economy and the respective projections of GDP, the basic

96 M. Hazans. Who lives in Latvia today? The actual demographical situation. Public presentation at the Faculty of Economics of the University of Latvia, 12.09.2011.

97 O. Krasnopjorovs, How many people have left Latvia and how many are planning to leave? 05.12.2011. Available at: http://www.makroekonomika.lv

98 Ibid.

forecasts authors used were those developed by the MoE (target scenario), adjusting figures of natural movement of population and migration flow.

Within the framework of the research, three different versions of demographic forecasts have been developed according to 3 different GDP projections (in case of dynamic, moderate and slow development). The latest data available from CSB database were used in development of forecast based upon the following **assumptions**:

- Mortality figures by age groups of men and women have been calculated, taking into account distribution of mortality proportion by years (based upon proportion of mortality of men and women in 2010 and 2011 of the five year age groups). In those age groups where the proportion was less than 1/1000, 0 was taken as a value. Exception is children under the age of 1 and those at the age of 1 for both genders it is assumed that, based upon conclusions on the high level of mortality among new-borns in Latvia, and statistically observed values, until the age of 1 proportion of mortality is 0.005, during the 1st year – 0.001;
- Birth-rate has been calculated considering number of women in the age of 16 to 44 and distribution of proportion of new-borns by the age of women;
- Gender of new-borns is equally possible, i.e. equal number of boys and girls can be born;
- For calculation of emigration and immigration volume, distribution of population both by age and gender was used (assumptions are made on the basis of changes in the proportion of immigration and emigration to reflect changes in the total number of population in case of dynamic, moderate and slow development).

Changes in the proportion of immigration and emigration by age groups have been applied since 2015, when it is supposed that the economic situation in Latvia and the EU will be stable. Within the calculations of immigration and emigration volumes both division of population by age and sex was taken into consideration on the basis of information provided by the CSB and recalculated according to the latest census. Previous assumptions on the GDP growth scenarios and changes in demand of the corresponding skills were taken into consideration within the development of forecasts. Developing projections of the GDP growth it was assumed that reporting period from 2012 to 2030 is be divided in 3 periods:

1. 2012-2014 – time for Latvia and other EU member states to keep on struggling or overcoming instability caused by financial crisis;
2. 2015-2020; all the forecasted in the scenarios will be taken into consideration or structural reforms will be implemented. In case of dynamic growth and implementation of significant structural reforms it will be assumed that initial impact of the reforms on growth rate will be more significant than usually, and the average annual GDP growth could be 7.50% per year. In

case of moderate GDP growth projection it is assumed that returning to the historically observed indicators might occur and growth rate will be at the average 5.0% per year in Latvia. In case of slow growth it is assumed that due to poor restructuring growth rates of the real GDP will be comparatively slower than usual, at average only 3.5% per year.

3. 2021–2030, stage of further growth.

During the initial period (2012–2014), while economics of Latvia and the EU in general would overcome the consequences caused by financial crisis it is assumed that the current migration rate would remain. Assumption was made that during the subsequent period (from 2015) emigration rate would decrease by half in case of slow and moderate development, but in case of dynamic development it would decrease by 60% of the emigration rate of the previous year. Assumption was based on the cognition that decision of individuals regarding migration is affected not as much by the difference in levels on income, as by the difference in growth rate of income levels in different regions, provided that regions are not as different that migration due to difference in skills would be burdened or there are no other unobservable factors depending on the individual potentially to be affecting the income level[99]. If it is supposed that emigration volumes observed during recent years were consequences caused by the crisis, then, on the basis of assumption that 2014 will be the last year reflecting direct impact caused by crisis, in the following year together with more foreseeable market development individuals, as rational decision makers, would return to decision-making based on assessment of fundamental indicators and less unobservable indicators – emotional judgments regarding economic perspective. Such a migration fall is not unique, it has been observed also historically; for instance, it is obvious in the aforementioned research by Bertoli and others (2013) that in 1999, when Ecuador turned out to be in crisis, emigration flow to Spain and the USA increased by more than 4 times, but after overcoming of crisis the emigration volume fell down to pre-crisis level within 1–2 years. In case of dynamic development the decline is higher with assumption that upon assessment of existence of structural reforms emigration trend could be lower. Emigration rate decrease of 50% and 60% was chosen so that in long term, according to the assumption that growth rates in Latvia will be slight, however, higher that in the EU in case of all three scenarios, theoretically the emigration rates should decrease; however, it is unlikely that they could drop down below 0.025% of the total number of population, i.e., emigration of the population caused by economic factors would not be allowed.

Immigration assumptions are related to assumptions on demand of skills (see the research "Strategically demanded occupations in Latvia in future") in case of three possible scenarios. In case

99 Bertoli S., et al. (2013). Crossing the borders: Self-selection, earnings and individual migration decision. Journal of Development Economics, 101, pp.75–91.

of slow development scenario, it was assumed that immigration proportion by age groups would increase only by the amount that allows retaining the common volume at the same level. In case of moderate development and also in case of dynamic development scenario there could be demand for employees able to perform usual tasks applying simple skills specific for the sector. In contradiction to the dynamic development scenario automation of the work tasks could be at lower level, wherewith demand for the employees able to perform abstract tasks (with the 3rd level education), i.e., able to provide flexible approach in different problem situations, would also remain. Dynamic development scenario includes also a more rapid increase in income level not only in comparison with the moderate development scenario but also according to the decisions in comparison with the EU. Differences of the income increase rates allow assuming that immigration rates, in case of dynamic scenario, could be higher than in the case of moderate development scenario.

In all scenarios decrease of the total number of inhabitants in Latvia has been forecasted in the period until 2030, however, the decrease rates are different (in case of dynamic development by 13.5%, in case of slow development up to 20%), and that is shown in Figure 3.3., as well as in Appendices 4 and 5.

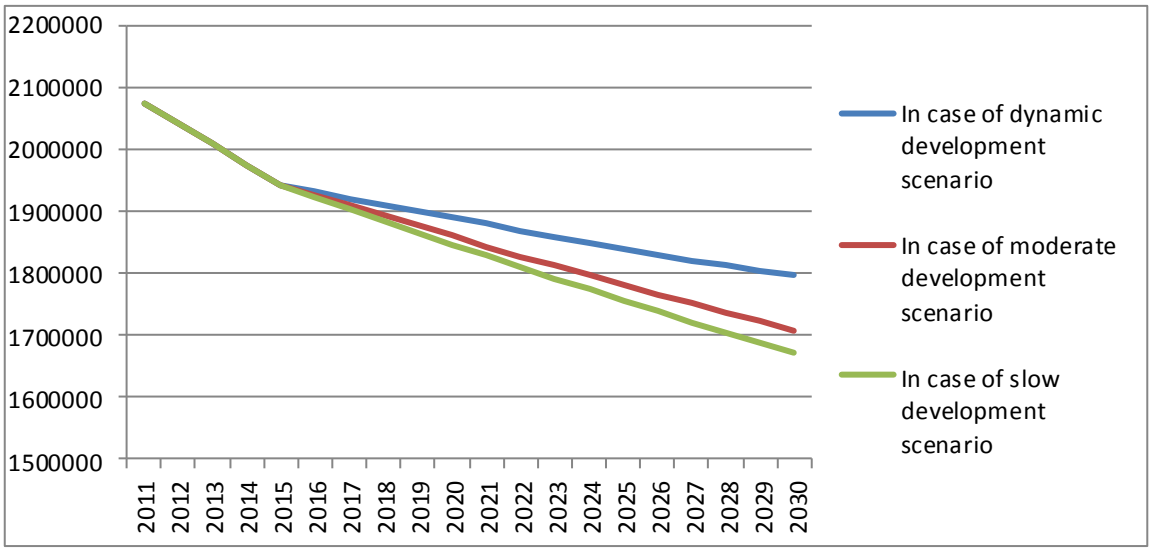


Figure 3.3. Changes in total number of population in Latvia from 2011 until 2030[100]

Decrease of the number of population during the following years will be determined by low birth-rate (negative natural growth), but in case of moderate and slow growth, negative migration balance as well (see Figure 3.4.). A rapid increase in birth-rate of population is limited both by current age and gender structure of population (number of women in the age of 16 to 44) and emigration of young population, and the existing traditions (in Latvia, there has never been a high birth-rate, the latest

100 Calculations by authors using CSB data.

summary birth-rate ratio 2.2 was in 1986-1987, when Latvia experienced the highest number of new-borns since 1946, namely, 42 thousand of new-borns per year[101]). Furthermore, a rapid increase in birth-rate is limited by instable economic situation and deficiency of complex support policy for young families.

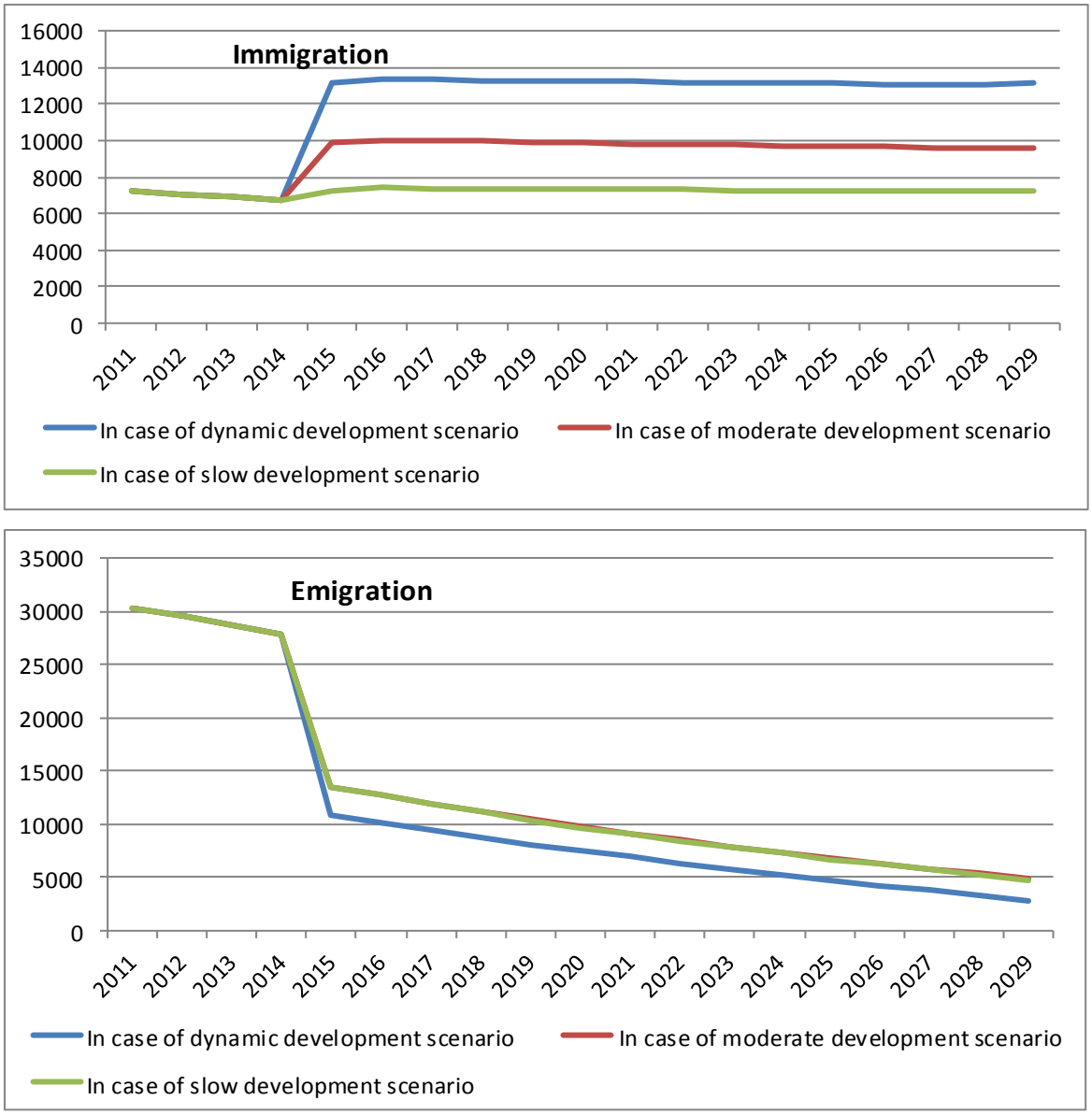


Figure 3.4. Migration flows of population in Latvia from 2011 until 2030[102]

As shown in Figure 3.4., gradual decrease of emigration volumes is be expected in all three cases, however, in the dynamic development scenario, it occurs at a significantly faster rate and along with rapid increase in immigration to Latvia, thus, already in 2015, positive migration balance is achieved

101 *Main indices of demographical statistics in 2011*, Informative review, CSB of the Republic of Latvia, Riga, 2012.
102 Calculations by authors using CSB data.

(see Appendix 4). In turn, in case of moderate and slow development, positive migration is expected only from 2020 and 2025 (see Figure 3.5., Appendix 5).

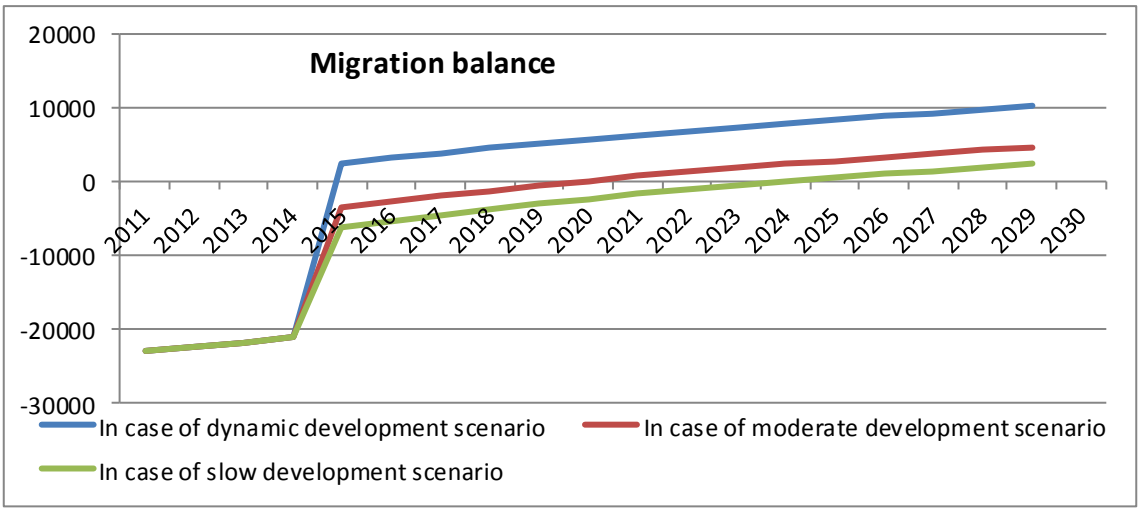


Figure 3.5. Migration balance in Latvia at different development scenarios[103]

In all three scenarios, decrease of the number of population until the working-age is expected, along with increase in the working-age and above the age of 65 (see Table 3.11.).

Table 3.11 Forecasts of the number of population in some age groups

	2011	2020			2030		
Age group		Slow development	Moderate development	Dynamic development	Slow development	Moderate development	Dynamic development
0-14 years	**294543**	271987	274323	279497	210008	215972	230994
15-64 years	**1398922**	1192050	1201804	1224776	1066087	1093605	1160545
above 65 years	**381140**	382612	383449	385040	395611	398797	404883

According to calculations, the most rapid increase in the number of population above 65 may be observed in the dynamic development scenario; however, proportion thereof in the total number of population in 2030 in case of dynamic development will be only 22.5% (see Figure 3.6.).

103 Calculations by authors using CSB data.

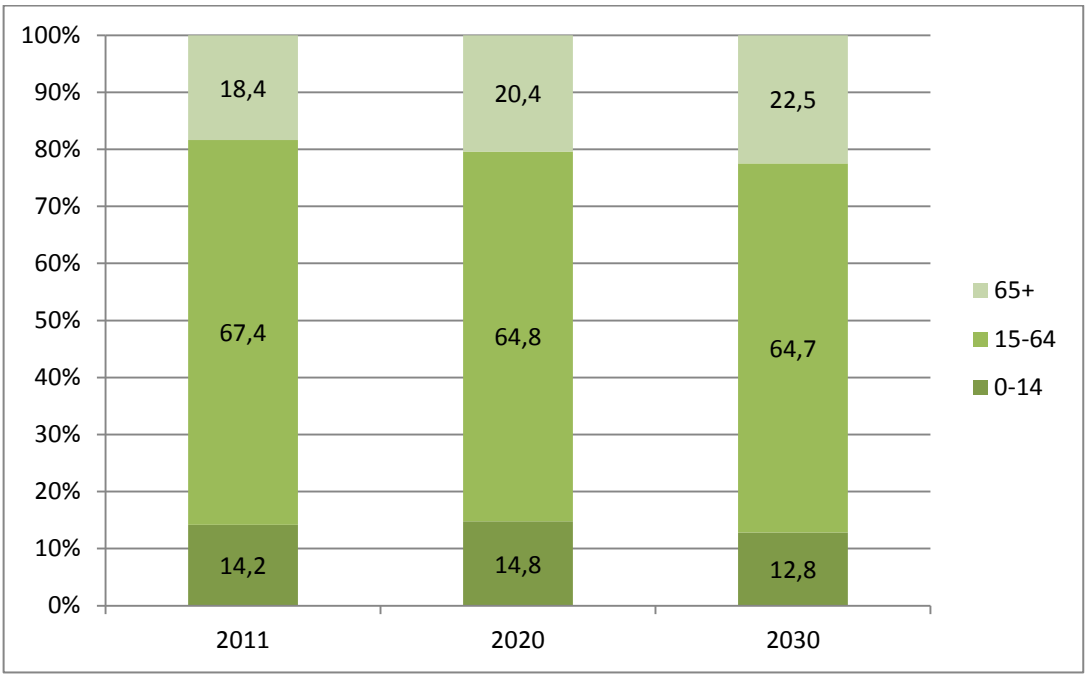


Figure 3.6. Proportion of specific age groups in the total number of population (%) in case of dynamic development scenario[104]

However, in case of moderate development, it was 23.3%, while in case of slow development scenario – 23.6% (in 2011, it was 18.4%). According to forecasts of the authors, proportion of population in the working-age in 2030 in case of dynamic development would be 64.6%, in case of moderate development – 64.0%, in case of slow development – 63.8% (in 2011, it was 67.4%). Decrease of the number of population in the working-age and ageing make developers of economic policy to seek for new solutions to ensure growth of GDP at least at the former level. One of solutions – improvement of economic activity level, especially, at pre-retirement age, and development of additional motivators to involve population having reached retirement age in the labour market.

104 Calculations by authors using CSB data.

3.2. CHANGES IN FACTORS HAVING IMPACT ON THE GENERAL ECONOMIC ACTIVITY OF POPULATION AND SKILLS SUPPLY UNTIL 2030

Considering the existing demography trends, future perspectives of the national economy development and globalization processes, and the prepared demographic forecasts, it shall be expected that economic activity of population in Latvia until 2030 will decrease, as both total number of population and the number of population in the working-age, as well as the number of economically active population will decrease. However, the level of economic activity will increase in future. If in 2011 level of economic activity (age of 15 to 74) was 64.4%, until 2020, it might form **68%**, but until 2030, if adequate labour market policy is implemented, it would increase to **70-73%**. The highest economic activity of population will be maintained in the age group of 25 to 54.

Increase in the economic activity level will be defined by population at pre-retirement age (age of 55 to 65) involving in the labour market more actively , and increase in the economic activity of population above the age of 65 (slower leaving labour market). Furthermore, potential increase in the economic activity in the age group up to 25 years could be observed, where currently there is a decrease of the economic activity, since young people are unwilling to get involved in the labour market both due to comparatively low remuneration and various personal reasons (family etc.). Involvement of economically inactive population in the labour market is significantly impacted by education and social policy that shall be elaborated to encourage householders/housewives, persons in parental leave and disabled persons to get involved in the labour market, offering part-time work, working from home, ensuring transportation to working place, offering flexible schedule etc. It shall be noted that the existing social benefit system fails to be motivating and to encourage economic activity, thus, it must be reviewed. Furthermore, pension system and terms of retirement shall be reviewed, motivating population to be employed as long as possible (even after reaching retirement age).

It shall be noted that increase in economic activity of population until 2030 will be facilitated by the following factors:

1. Improvement of situation in the labour market and increase in the average salary (reduction of the tax burden implemented by the government in the following years, is considered significant);
2. Increasing deficit of labour, providing more extensive working opportunities for range of economically inactive groups (housewives, students, population at retirement age etc.);
3. Changes in pension legislation;

4. Development of education system (including changes in education level);
5. Improvement of social benefit system that would motivate involvement of population in the labour market;
6. Family policy (largely affecting participation of women in the labour market);
7. Immigration of population.

Possible factors limiting economic activity until 2030 will be as follows:

9. Low birth-rate;
10. Slow GDP growth;
11. High proportion of shadow economy;
12. Tax and social benefit policy;
13. Emigration of population;
14. Development of technologies.

Driving forces for future changes having a significant effect on the labour skills supply in the authors' opinion could be as follows:

1. Longevity – along with increase in general lifespan, changes in the strategy of creation of career and training of employees will occur.
2. Technologies – along with the development of "smart" machines and equipment, further automatization of working places will be implemented, releasing labour from performing monotonous, uniform routine operations.
3. Computerized and controlled world – world of programmable systems is formed with mass implementation of various sensors and processors in all spheres of life.
4. New forms of mass media and new relations – new means of communication are developed among members of the public, requiring new skills for processing text and pictures and for mutual communication among individuals.
5. Restructuring of organizations that develop new production and value creation forms under the influence of social technologies develop new production and value creation forms.
6. Globally united world that in the centre of organizational operations establishes requirements for individual for diversity and ability to adapt to new situations.

Based on the identified impact of development driving forces, new labour skills will be formed, where intellectual development and creativity of the individual will be of high significance. Future Institute of the Phoenix University has identified connections between driving forces of future development and formation of new skills (see Table 3.12.).

Table 3.12. Labour skills and driving forces forming those[105].

FUTURE SKILLS	*DESCRIPTION OF SKILL*	*DRIVING FORCES FORMING SKILLS*
Research and defining of the essence	Ability to define the essence or significance of the said, seen matters	Development of "smart" machines and equipment
Social intelligence	Ability to contact and directly connect to others to enhance mutually effective response	Development of "smart" machines and equipment New forms of mass media and relations
Creativity and adaptive mind	Ability to think creatively, make decisions and assume liability outside various standard situations	Development of "smart" machines and equipment New forms of mass media and relations
Intercultural competence	Ability to operate in multi-cultural environment	New forms of structuration of organizations Globally untied world
Digitalized, calculable mind	Ability to transfer huge amount of data and information into abstract concepts, and to understand the essence of causality	Computerized and controlled world New structural forms of organizations
New understanding of media and skills of using thereof	Ability to assess critically and develop form content of the new media, and to use it for further successful communication	Longevity New structural forms of organizations New forms of mass media and relations
Interdisciplinarity	Ability to understand concepts of different disciplines	Longevity Computerized and controlled world
Developed, creative thinking	Ability to define and perform various tasks and work processes to achieve the required result	New structural forms of organizations, computerized and controlled world

After evaluation of former skills supply development trends, as well as forces driving future changes, authors have concluded that the most significant **factors having impact on skills supply in future** in

105 Future work skills, Institute for the Future for the University of Phoenix Research Institute http://cdn.theatlantic.com/static/front/docs/sponsored/phoenix/future_work_skills_2020.pdf.

Latvia will be the following:

1. Development of education system (offer and availability of education, number of school years, lifelong education),
2. Changes in demographic indices (in particular, migration flow that can partially compensate negative demographic trends),
3. Improvement of the social security system,
4. Technological progress,
5. Efficient operation of labour market,
6. Level of economic activity (participation);
7. Labour qualification (occupation).

The most significant factor, in the authors' opinion, will be the development of education system and changes in demographic indices, in particular, those related to migration flows that can partially compensate negative demographic trends.

<u>The impact of education on the skills supply.</u>

Description of the current skills supply. In 2011, higher education was obtained by 23.1% of all population in the age of 15 and above, vocational education or vocational secondary education – by 30.2%, general secondary education – by 23.8%, elementary education – by 18.7%. Among the economically active population, higher education was obtained by 29.4%, vocational education or vocational secondary education – by 35.2%, general secondary education – by 24.3%.

Factors having impact on skills supply in future. Development of the education system (educational supply and availability, the number of years of schooling, lifelong learning).

Description of the future skills supply. Proportion of population having obtained higher education, as well as vocational education or vocational secondary education will increase, proportion of population with general secondary education and elementary education will decrease. Number of population involved in the education of adult persons will increase.

<u>The impact of the labour age structure on the skills supply.</u>

Description of the current skills supply. In 2012, all population of Latvia in the working-age (in the age of 15 to 64) was 67.1%, while in the pre-working-age – 14.3%. Proportion of population above the age of 65 was 18.6%. Economically the most active was the age group of 25 to 54, the lowest activity was observed in the age group above 65 (only 2.1% of economically active population were in the age above 65).

Factors having impact on skills supply in future. Changes in demographic indices.

Description of the future skills supply. Birth-rate will slightly improve, however, it will still remain too low, thus, the natural increase in Latvia will remain negative. Average lifespan will increase moderately; duration of healthy life will increase as well. Ageing of population will continue (proportion of population in the age of 65 and more will increase to 23%). Total number of population, as well as the number of population in the working-age will decrease (in the age of 15 to 64), level of demographic burden will increase. Negative demographic trends could be partially compensated by labour immigration (positive migration balance may occur as of 2020).

The impact of the labour gender structure on the skills supply.

Description of the current skills supply. Economic activity of men is higher than that of women, although proportion of men in the total number of population is less than that of women (proportion of men in Latvia is 46%, while that of women – 54%).

Factors having impact on skills supply in future. Improvement of the social security system including changes in pension legislation.

Description of the future skills supply. Improvement of the social security system that would motivate involvement of economically inactive persons in the labour market. Increasing of retirement age, changes in terms of pensioning so as elderly population is employed as long as possible (even after reaching retirement age).

Impact of migration on the skills supply.

Description of the current skills supply. As of 2001 to 2011, more than 200 thousand people have left Latvia (the negative migration balance since 2004 exceeds the negative natural increase in population and shall be considered one of the main reasons for decrease of the number of population).

Factors having impact on skills supply in future. Technological progress.

Description of the future skills supply. Along with technological progress, further automatization of working places will be implemented, releasing labour from performing monotonous, uniform routine operations. Mental capacities and creativity of individual will become ever more significant.

Impact of labour health on the skills supply.

Description of the current skills supply. Health condition in Latvia is comparatively poor, high level of early mortality is observed (in particular, of men). In 2010, the expected duration of healthy life of women when born in Latvia was 56.7 years (in Europe on average 62.6 years); in turn, men – 53.5 years (8.2 years less than in Europe).

Factors having impact on skills supply in future. Efficient operation of labour market.

Description of the future skills supply. Increase in the average salary and productivity, increase in labour mobility.

Impact of labour qualification on the skills supply.

Description of the current skills supply. The largest number of employees is in the following occupations:

- Senior professionals (OC2);
- Service and sales workers (OC5);
- Elementary occupations (OC9);
- Professionals (OC3);
- Craft and related trades workers (OC7)

Factors having impact on skills supply in future. Labour qualification (occupation).

Description of the future skills supply. Along with the increase in education, labour supply in high qualification occupational groups will increase (senior professionals, professionals).

Impact of economic activity of population on the skills supply.

Description of the current skills supply. In 2011, in Latvia, there were 1 595.3 thousand people in the age of 15 to 74, out of them 1 028.2 thousand were economically active (64.4%).

Factors having impact on skills supply in future. Level of economic activity (participation).

Description of the future skills supply. Until 2020, it may reach **68%**, but until 2030, if implementing adequate labour market policy, it may increase to **70–73%**. The highest economic activity of population will be maintained in the age group of 25 to 54.

3.3. FORECASTS OF POPULATION DEMOGRAPHIC AND SKILLS SUPPLY IN LATVIA UNTIL 2030

Along with the decrease of the number of population and changes in age structure, situation in the labour market would become more and tenser in the future, disproportions between the demand and supply of the labour will grow. Incompliance of the volume and structure of labour supply with the actual labour demand tendencies will grow, shortage of labour in certain sectors, occupations, territories may arise along with certain excess in other ones. Disproportions in terms of separate age groups, education fields, occupations and skills may intensify, thereby population with corresponding education and experience will be forced to perform lower level works or search for work that corresponds more to their skills outside Latvia. Taking into consideration the comparatively slow ability of the offering side (including formal education and professional training system) to adjust to the changing conditions, disproportions of skill demand and supply will intensify during the next 5–7 years. Wherewith there will be shortage of specialists in such sectors as natural sciences, mathematics, information technologies, engineering sciences and production, and healthcare and social welfare in Latvia. Shortage of the technical specialists will occur provided that less and less number of youth is able and willing to obtain education in the corresponding fields. Number of secondary school students choosing to take centralized exams in chemistry, biology and physics, allowing qualifying for further studies in these fields, decreases with every year. In 2009 state's centralized exams in chemistry were taken by 5.76%, in physics by 2.1% and in biology by 15.19% of the total number of secondary school graduates, but in 2012 – only 4.35%, 9.12% and 9.57%[106] respectively, regardless of the fact that number of study places of these programmes financed by the state's budget increase with every year. At the same time interest of youth in social sciences, commercial science and law remains high. Total number students in these fields of education formed 39 213 in 2012/2013 academic year, regardless that state's financing decreases every year (number of study places in the field of social sciences financed by the state's budget has decreased by 2 004 places since 2001). Consequently, increase in the study places financed by the state's budget itself cannot guarantee increase in the number of students in the priority fields, other solutions must be found on how to attract youth to obtain natural and engineering sciences, as well as other fields

106 National Centre for Education, statistical data. Available at: http://visc.gov.lv/vispizglitiba/eksameni/statistika/2012/dokumenti/!visi1_eks_nek.png

important for the national economy currently being not too popular. In order to provide this, teaching methodology of exact sciences at the level of secondary education must be improved, and additional supporting instruments for the students must be introduced (attracting interested employers), simultaneously determining also the obligation of working for a certain period of time in the obtained specialty after graduation. Otherwise the funds invested by the state will turn out to be ineffective. Currently this is obvious in the group of education programmes – although many young people choose to study pedagogy and other education programmes, there is shortage of young specialists in schools, as due to the low salaries only approximately 1/3 of the graduates work in the obtained specialty after graduation. There is similar situation with healthcare specialists travelling abroad after the studies for much better remunerated, although lower qualification job in the specialty.

Taking into consideration the desirable structure of the national economy developed within the "Research on the strategically most demanded occupations in the future in Latvia", as well as alternative scenarios of the development of the national economy, the authors have determined education fields, generating potential supply excess in the future, as well as fields with foreseeable shortage of specialists (see Table 3.13.).

Table 3.13. Changes in supply of labour (comparing with the current) and affecting factors by the education fields

EDUCATION FIELD	STRUCTURE OF LABOUR (%)	SUPPLY IN THE GIVEN FIELD	FACTORS DETERMINING CHANGES
	2020	2030	
Education	Will remain constant	Will decrease	• Ageing of the current specialists • Diversity and availability of study programmes • Demographical situation (decrease of the number of children and youth)
Humanities and art	Will increase	Will increase	• Development of the sector and growth of proportion
Social sciences, commercial sciences and law	Will increase	Will increase	• Diversity and availability of study programmes

EDUCATION FIELD	STRUCTURE OF LABOUR (%)	SUPPLY IN THE GIVEN FIELD	FACTORS DETERMINING CHANGES
	2020	2030	
Natural sciences, mathematics and information technologies	Will remain constant	Will slightly increase	• Ageing of the current specialists • Attraction of specialists from abroad • Poor preparedness of the potential students in the exact subjects • Development of technologies
Engineering sciences, production and construction	Will decrease	Will remain constant	• Ageing of the current specialists • Attraction of specialists from abroad • Poor preparedness of the potential students in the exact subjects • Growth of the production proportion in GDP • Development of technologies
Agriculture	Will decrease	Will decrease	• Development of technologies Decrease of the sector in GDP
Healthcare and social welfare	Will increase	Will increase	• Demographical situation • Development of the sector and growth of proportion
Services	Will increase	Will increase	• Development of the sector and growth of proportion • Diversity and availability of study programmes

In the opinion of experts, active work on re-emigration plan must be carried out to raise interest and motivate part of the emigrated population to return to Latvia, especially those who have left to improve their qualification.

Regarding the regional labour policy, the experts consider that regional centres have to implement the policy around them, and take different measures to raise interest in creation of workplaces and concentrate them in the vicinity.

The experts believe that attitude of the employers has been discussed insufficiently. Employers have to change a lot and work on stimulation of employees, improvement of working conditions etc.

If necessary, qualitative migration policy must be implemented determining criteria to certain immigrant flows, taking into consideration demand of the labour market of Latvia. Immigration measures were assessed as measures to be implemented in case of urgency.

In the opinion of experts, possible solutions for the decrease of shortage of labour is stimulation of women's employment, increase in retirement age and efficient use of pre-retirement and retirement age.

Efficient social policy as one that supports new families, measures for improvement of demographical situation, free education at all levels also at the pre-school age, as well as improvement of healthcare and stable pension system would stimulate solution of the shortage of labour.

Experts were asked about the compensation of lack of labour stimulating re-emigration regarding the nationals of Latvia. Experts claimed that 10-15% of persons in emigration would be the minimum number of re-emigrated persons to return. It was emphasized that it would be of great value, if people would return after obtaining education, new skills and foreign language.

Experts expressed opinion that it might be complicated to return people, who have been away for 5-10 years, as they have made a new life abroad. It is possible to return the people, who have left during the last 3-4 years and have not fully enrooted themselves. There must be a motivation of them to return – economic growth must be sufficiently rapid, increase in salaries must be more rapid.

Precondition of real re-emigration is economic development, new work places and increase in salary, improvement of the social model, especially in terms of improvement of social guarantees of the persons in the working-age. In addition, increase in salary must be productivity-based to provide a long-term competitiveness of the national economy.

In the opinion of the experts, re-emigration is necessary to demonstrate to the emigrants that they are still important and necessary to Latvia. Secondly, to make the state authorities and administration consider that part of Latvians currently reside outside Latvia; they cannot be forgotten, and the services provided by the state must be aligned also with their needs. Only taking into consideration

these people and maintaining link with them may lead to their attraction back to Latvia someday or distant cooperation and use of their potential in the favour of Latvia.

Several experts consider that re-emigration policy will be of no benefit. Demographical trends are negative, and even returning of the people will lead to nothing. Leaving for abroad may be of benefit for some people, as it provides new knowledge, experience, skills etc. Separate experts also consider this will not happen (there will be no progress) within the next 5 years. The state will keep losing people within the next 2-3 years.

Experts were also asked for opinion regarding compensation of the shortage of labour by stimulation of third-country labour immigration.

Experts consider that currently it is not a popular solution, since it is neither cheap (remuneration must be at the level of average state's remuneration), nor simple. Correspondingly labour from the third countries will be mostly attracted in cases when some very specific skills are necessary (for example, building of ships), or there is a critical shortage of local labour. Radical extension of the opportunities is possible in professional and higher education for the students from third countries to ensure part of the graduates will stay in Latvia.

Experts unanimously admit that priority is to return the emigrated population, and only in case of shortage of labour the employers will think about attraction of labour from the third countries.

Experts consider that immigration should be comparatively well-thought and controlled, as there may not be any risk that the immigrants will have to live on benefits.

Some experts consider that currently it is not possible, as the labour of the third countries will be of use when some key knowledge is necessary. Productivity is necessary, but import in the long term will not be a solution.

Positive factor is that in such a way it is possible to attract labour in the working-age. It is of importance to ensure that the immigrants work legally. Positive factor is that they would become consumers therefore increasing the total demand. Consequently several companies can be established to provide this population, and this is a very positive indicator both for the increase in gross product and further development.

In the opinion of the experts, negative factor is that this may be low-skilled labour. This should be regulated with demands of specialists of certain occupations.

4. LABOUR MARKET RISKS RELATED TO THE AGEING OF POPULATION AND POSSIBILITIES OF RISKS REDUCTION

4.1 LABOUR MARKET RISKS RELATED TO THE DEMOGRAPHICAL SITUATION AND EXPERIENCE IN THEIR PREVENTION ABROAD

Long-term risks of the labour market are mainly related to the changes in labour supply due to ageing. Low birth-rate and negative natural reproduction indicators lead to decrease of the number of population in the working-age and number of employees, unless compensated by migrants; this may result in lack of labour in separate regions, sectors and occupational groups, as well as in decrease of economic growth rate and limit its development potential.

Along with increase in welfare level and average lifespan there will be an increase in the number of elderly working population and population in pension age in the long term, wherewith elderly-age dependency will grow. Foreign literature indicates impact of macroeconomic ageing on the national economy: ageing decreases labour supply and impacts GDP growth rates, productivity, investment, consumption indicators and savings[107]. Besides, ageing impacts the volume of tax revenue and creates pressure on expenses (both state pensions and healthcare expenses). Research of labour of Australia led to conclusion that in a long run ageing results in lower number of working hours, as elderly employees choose part-time work. Wherewith ageing creates both risk of shorter working hours and lower labour participation indicators in the long-term.[108]

Consequently volume of demand for employees of certain occupations will also change. This will therefore change the structure of sectors of the national economy, for example, in the field of education, demand for teachers of different level can decrease, at the same time number of social services employees and their efficiency in the social field shall be increased. All the above mentioned will adversely reflect also on the development of labour market, since the labour does not regenerate at a sufficient volume and in line with labour demand, and age structure of labour changes – available labour gradually grows old, but addition by the younger age groups is insufficient.

Tendencies of ageing of population and other aspects related to the demographical situation (low birth-rate, emigration) create various possible **risks** also for the labour market of Latvia:

107 Ageing and pension system reform: implications for financial markets and economic policies http://www.imf.org/external/np/g10/2005/pdf/092005.pdf.

108 Economic Implications of an Ageing Australia. Productivity Commission Research Report, 2005. http://www.pc.gov.au/__data/assets/pdf_file/0020/69401/ageing.pdf.

- age structure of the labour market supply changes, proportion of old working people increases;
- volume and structure of labour supply do not renew sufficiently and according to the actual tendencies of the labour demand;
- disproportions between age group of labour demand and supply in terms of occupations and skills;
- shortage of employees may arise in certain sectors, occupations, territories together with excess in others;
- social burden increases delaying not only development of entrepreneurship, but also possibly causing collapse of pension and social insurance system;
- general economic situation and quality of living of society deteriorates, and this may further intensify tendencies of ageing of population along with the further tendencies of birth-rate decreasing and emigration of population in the working-age.

However, a few advantages must also be noted that are typical for labour of elderly generation and can used by the employers. Experience, loyalty and skills, and grown children together with lower range of household problems giving more time for working with business matters, as well as participation in different activities beyond working hours (including programmes of lifelong education). At the same time it must be considered that labour of elderly age (50+) may face decrease of labour abilities due to deterioration of health condition, as well as difficulties to adjust to rapid changes in labour market (for example, in the field of technologies). Elderly labour can lack certain knowledge and skills obtained by younger labour, therefore the older employees are not able to perform the necessary professional duties.

Ageing and its impact on labour market is topical in majority of developed states, including EU member states. According to statistical data or 2010, in EU-27 countries the average labour market exit age is 62, and often the reason for termination of labour relationship is reaching the age of retirement. In Latvia the average labour market exit age is 63 (data of 2008), in Sweden – 64 (data of 2010), in Finland – 62 and in Great Britain – 63 (data of 2009). The earliest age for exit of labour market has been detected in Slovakia and Hungary, and this is demonstrated in Figure 4.1.

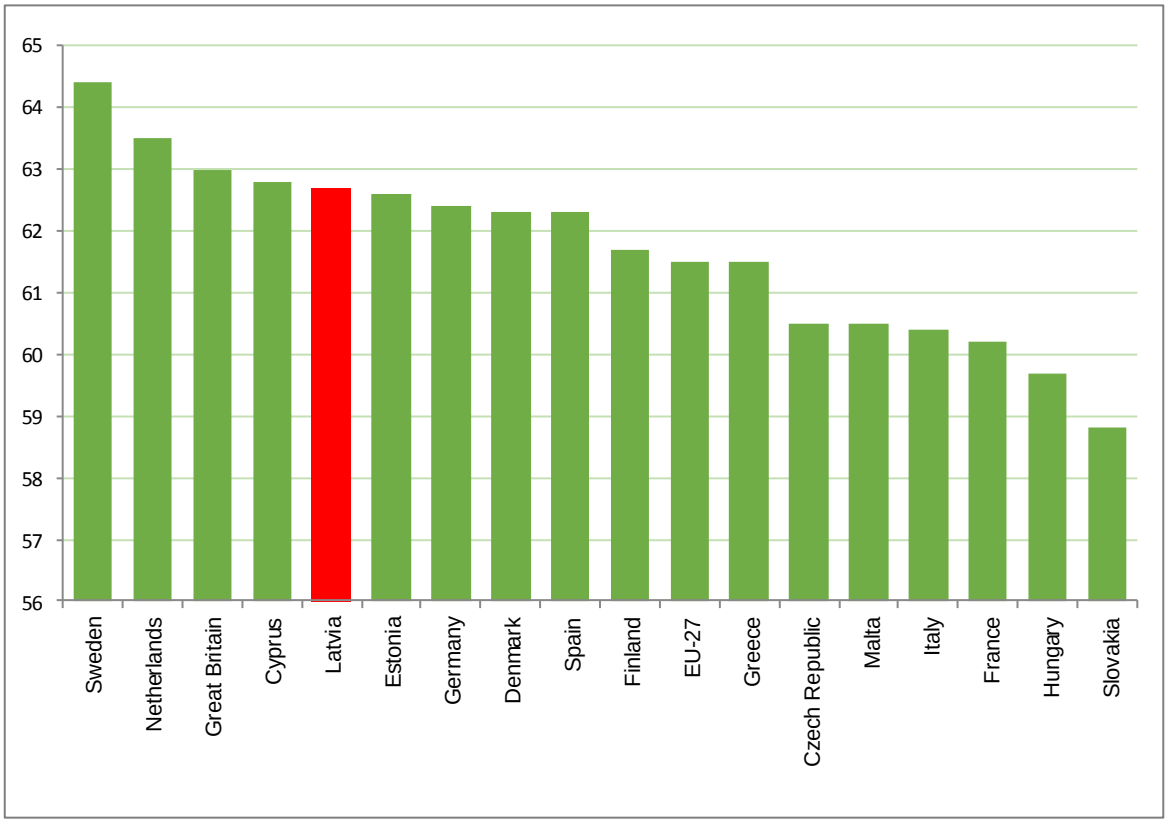


Figure 4.1. Average age at which the labour market is left in EU-27 countries and separate countries in 2009-2010 [109]

Increase in elderly employees in the EU could be partly explained not only by the factor of natural change, but also with pension reforms[110]. Involvement of the labour in the market is implemented applying different instruments – lifelong education, training, retraining and such but at the level of companies – adjustment of the labour conditions to the needs of elderly employees[111].

Labour market policy has been supported by different amount of funds in EU member states and it is measured by the proportion of GDP. Assessment of the statistical information available from *Eurostat* leads to conclusion that joint goals of the labour market policy are similar in the EU member states, their structure, however, corresponds to necessity of the labour market of each country.

According to the Swedish approach, keeping elderly generation labour and involvement of the unemployed in the labour market, at certain level solves increase in the burden of social expenses, and helps to provide long-term development of the national economy taking into consideration that indicators of natural change of the population do not improve significantly[112]. At the same time

109 Average exit age from the labour force. – Eurostat.
110 Active Ageing And Gender Equality Policies.– IRS, 2010 – p.9.
111 Employment and labour market policies for an ageing labour and initiatives at the workplace. National overview report: Sweden. – Eurofound, 2007.
112 Ibid p. 6

pension system reforms (determined by the necessity to extend the presence of labour in the labour market in order to provide the necessary welfare level in the old age) provide that the working person must stay in the labour market at average until the age of 65[113]. Results of the surveys of Swedish employers, however, showed that labour of elderly age would be hired with reluctance, although employers admit and appreciate competences and experience of this group of labour to be handed over to the younger generation. A bright example – education institutions that would be glad to hire employees of older age. The opposite situation is in the sphere of jobs where physical effort, necessity for quick adjustment to changes and similar skills are required. Thereby need for discussion in the public environment as regards involvement of elderly generation labour is stressed from the viewpoint of labour conditions (part-time job, adjusted working time, training), costs (health condition may cause continuous absence resulting in costs) and attitude[114].

Data of *Austria* show that necessity for labour market policy instruments has created changes in the structure of sector resulting in decreased demand for labour with certain skills[115]. According to the statistical data, unemployment indicator of Austria was one of the lowest in EU-27 countries in 2011 (4%) s. Budget of the Austrian State Employment Agency for the needs of labour market instruments reached EUR 1.2 million, and 377.8 thsd. persons have been registered for participation in these instruments. The main supporting measures implemented are the following: establishment of support centres, business starting programmes, maternity benefits etc. In 2011, retirement age was increased, consequently – among social partners – a necessity to improve labour conditions providing longer presence in the market arose (medical services, adjustment of jobs for elderly population)[116]. Training of elderly employees, employment measures, as well as part-time allowance for older workers should be noted among the active employment policy instruments[117].

In *Estonia* labour market policy instruments separating labour of elderly age include consultations of psychologist. Target group includes unemployed persons, among them – elderly unemployed population, unemployed persons with disabilities and others[118].

In *Finland* in the target groups of labour market policy instruments elderly unemployed persons have been separated in following measures:[119]

113 Employment and labour market policies for labour ageing and initiatives at the workplace. National overview report: Sweden. – Eurofound, 2007 – p. 7.
114 Ibid – p. 8.
115 Christopher Prinz, Gudrun Biffl. Ageing And Employment Policies: Austria. OECD, 2003 – p.154.
116 Labour Market POlicy in Austria 2011. – Federal Ministry of Labour, Social Affairs and Consumer Protection *BMASK* –p.15.
117 Ibid – p. 24
118 Labour market policy statistics. Qualitative report. Estonia 2011. – Eurostat.
119 Ibid.

- Workplace training, goal – to maintain skills and return the participants of the programme in the labour market: unemployed persons seeking employment, especially continuously unemployed persons and elderly persons.
- Employment subsidy, private companies, goal – to stimulate obtaining and improvement of skills with the employer. Target group: unemployed persons, among them continuously unemployed persons and elderly persons.
- Temporary government employment, goal – to decrease the risk of dropping out of the labour market and improve occupational skills and experience in the public sector. Target group – registered unemployed persons, among them continuously unemployed persons and elderly persons.
- Employment subsidy, municipalities, goal – to stimulate employment and decrease unemployment risk, to improve skills and experience. Target group – long-term unemployed persons, youth, disabled persons and elderly persons.
- Unemployed pension, goal – to provide income benefit for the continuously unemployed persons in the age of 60 to 64.

Statistical information available from Eurostat shows that on average 2% of the GDP are assigned for employment measures in the EU-27 countries, however, these indicators differ among different countries. The lowest indicators among the inspected countries are in Bulgaria, but the highest ones – in Spain (see Figure 4.2.).

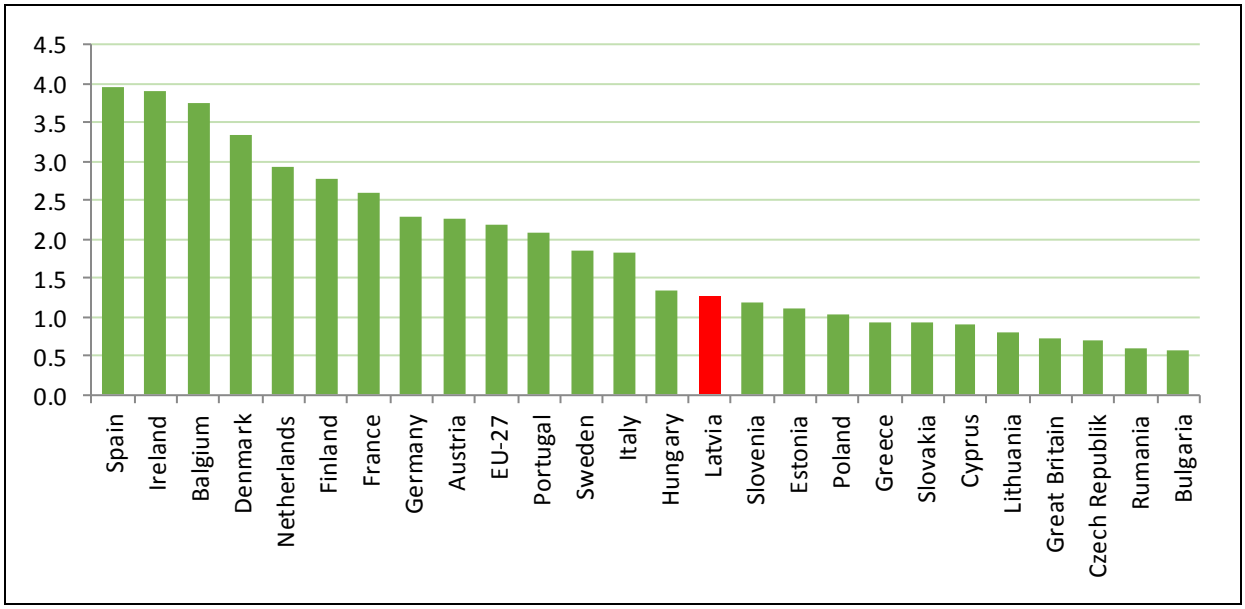


Figure 4.2. Financing of labour market policy instruments in EU member states in 2010[120]

120 Eurostat database.

Comparison of the amount of financing in the Baltic States leads to conclusion that its increase is mainly related to increase in unemployment (due to economic crisis), in addition, in 2010, a significantly larger amount than in neighbouring countries was assigned for employment support measures (see Figure 4.3.).

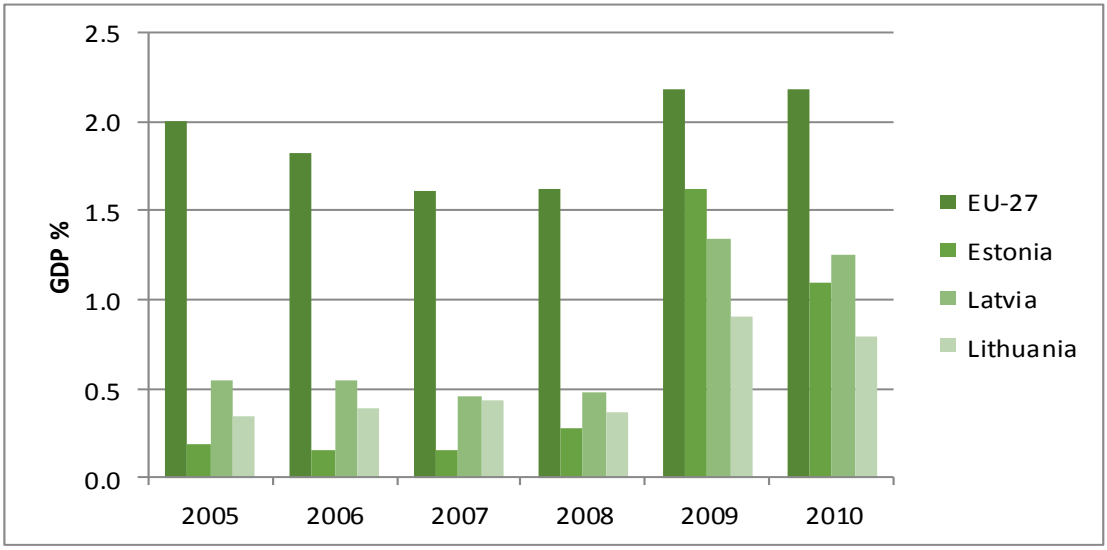


Figure 4.3. Total expenses of labour market policy (LMP) in several EU member states (% of GDP)[121]

Examining the proportion of financing assigned separately for training programmes of the GDP, data of 2010 show significant increase in Latvia, but decrease in Estonia and Lithuania. In addition, Latvia has spent even more for training programmes in 2010 (% of the GDP) than EU-27 countries on average (see Figure 4.4).

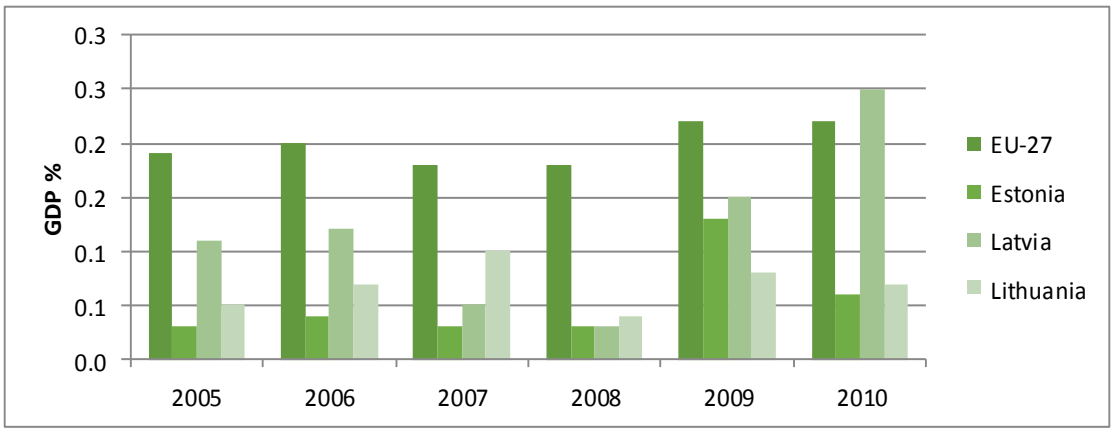


Figure 4.4. Expenses for the employee training programmes in several EU member states, % of GDP[122]

It must be noted that dynamics of the number of participants in the measures of labour market policy differ in different countries, and this concerns also to the Baltic States. Population of Lithuania has been the most active one so far, the population of Estonia, however, has involved themselves in

121 Eurostat database.
122 Ibid.

different supporting measures the least, and this can be explained both by the differences in number of population and differences in unemployment level (see Figure 4.5.).

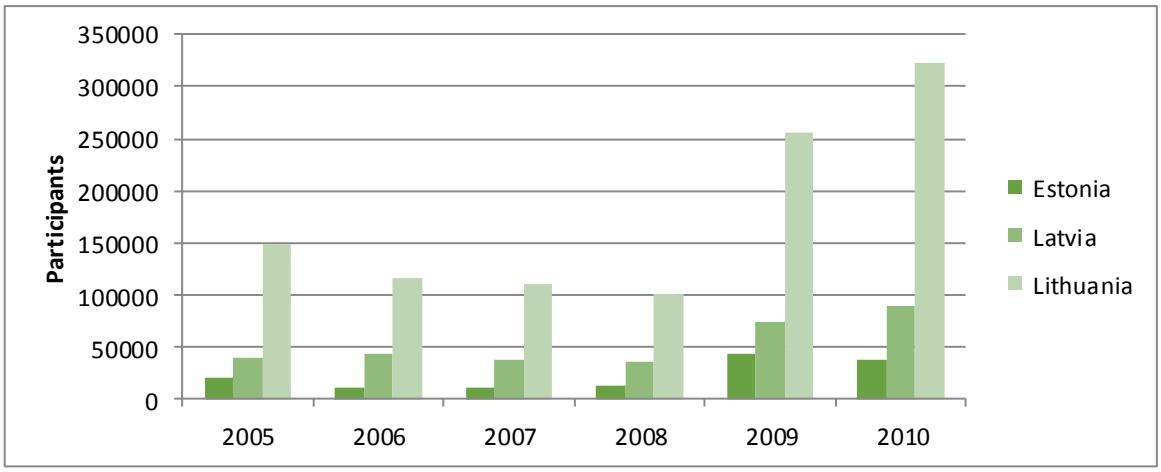


Figure 4.5. Number of participants in all employment stimulation measure programmes in the Baltic States[123]

The highest number of persons involved in all employment measures is in Lithuania, the number of persons involved in training programmes in Latvia, however, significantly exceeds the level of neighbours (see Figure 4.6.).

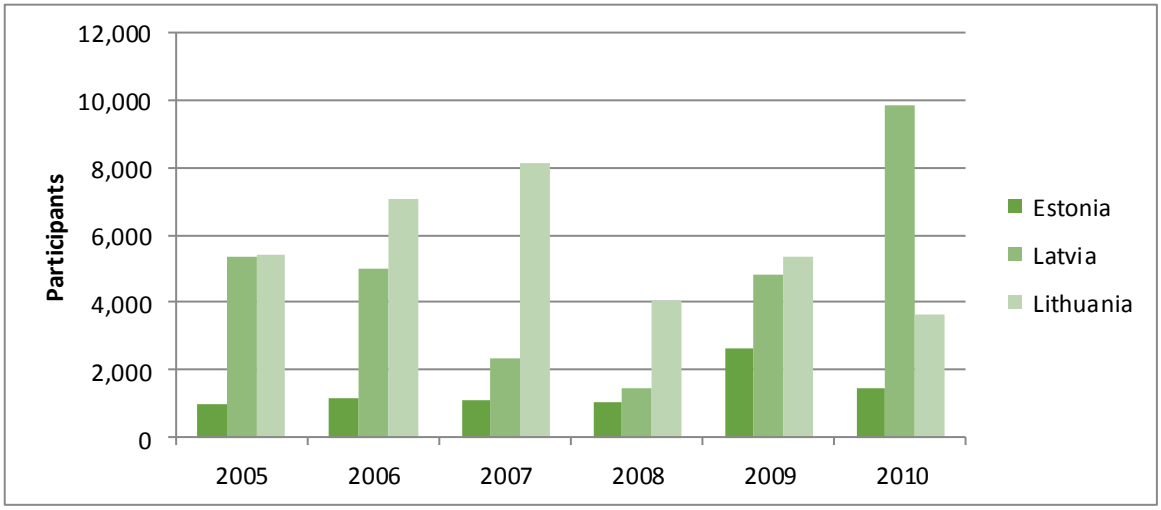


Figure 4.6. Number of participants in training programmes in the Baltic States[124]

There is also different labour market policy expenditure per each registered participant of labour market in the EU member states. Total expenditure (according to parity of purchasing capacity) during the period 2005 to 2010 in Latvia is on average EUR 4 000 per year, in Estonia – EUR 800, but in Lithuania – EUR 1 000 per year. In comparison: in Slovenia EUR 2 500 EUR per year, but in Finland – nearly EUR 10 000 per year. On average in the EU-27 expenditure for the implementation of

123 Eurostat database.
124 Ibid.

employee training and qualification programmes that are mainly oriented towards returning the unemployed persons in the labour market, amounted to EUR 6 000 per year per each participant of the labour market registered in an institution providing employment services[125].

However, employment measures are not sufficient to solve the labour market risks related to the ageing of population. In many countries, for example, in the USA, Canada, Australia and Switzerland, **migration policy** has been developed to attract foreign employees with the required qualifications. As experience of many countries shows, the so called selective labour import or strategic migration policy becomes more and more expressed in practice: allowing and stimulating entry of persons in the working-age with required skills and education in the labour market (for example, information technologies), but displacing persons arrived from the country with seemingly negative benefit and expenditure balance. According to Eurostat calculations, EU will have to attract approximately 20 million workers from the third countries within the next 20 years to solve the demographical crisis. According to the assessment of the EC, 85% of all non-qualified immigrants of the world arrive to the EU and 5% – to the USA; at the same time 55% of all qualified migrants travel to the USA and only 5% go to the EU[126]. Currently attraction of employees in the sectors with shortage of skilled labour (engineers, IT specialists and others) is the greatest challenge for Europe. Therefore, starting 2011, EU has introduced a system similar to the USA "*Green Card*" – "green cards" that would allow to attract skilled labour from Asia, Africa and Latin America. EU has developed several directives, including so called "blue card" system. The new system allows highly skilled guest workers and their families to live and work in certain EU member state for 2 years, afterwards the term may be prolonged and it is possible to move to work in other state. The developed "blue card" project provides that if any job is vacant due to lack of corresponding specialists amount the citizens of the EU, the immigrant would have to produce a diploma, prove at least three year professional experience, have a job offer (contract for at least 1 year) to obtain such a permit; after 5 year work in the EU the person will automatically obtain a permit for permanent residence. It must be noted that the "blue card" programme is not intended for the replacement of national systems established in several countries for attraction of skilled labour. Guest workers still would not be allowed to participate in adoption of political decisions, elections or referenda; however, they would be entitled for equal working conditions, including rights to equal remuneration, dismissal procedure, work load, social guarantees and mobility opportunities within the EU. So far the EU migration policy was more concentrating on better management of migration flows from Asia, Africa or other poorer regions, but the task of the new card is a purposeful attraction of professional specialists potentially

125 LMP expenditure (lmp_ind_exp) – Eurostat, Labour market policy database
126 I.Indāns, Highly qualified labour force of the third countries. International experience and situation in Latvia, Research, LU, 2010.

contributing their intellectual work to the development of the EU instead of strengthening economies of the USA, China or any other country.

It must be noted that several EU member states already take different measures for attraction of labour. To promote competitiveness of the economics of the United Kingdom under globalization conditions, government of the United Kingdom is stimulating inflow of highly skilled labour since 2002, implementing *Highly Skilled Migrants Programme.* As of July 2008 it was replaced by similar programme – *Tier1 (General).* It includes five-level point system. Upon obtaining the necessary amount of points (minimum-75), highly trained specialists can immigrate to the United Kingdom without a material support of emerging employers. Consequently they are allowed not only to work salaried employment in the United Kingdom but also register as self-employed persons, therefore stimulating development of private business. Physicians, scientists, engineers and other highly trained specialists are required with the help of this programme. Applicants must prove their knowledge of English, must have at least bachelor's degree and prove that they have had a sufficiently high salary in their homeland. Assessing impact of highly skilled immigrants on the economics of the United Kingdom, research recently carried out by the Economics and Entrepreneurship Research Centre showed that, for example, in 2006 their contribution to the GDP formed 5%. In case of the United Kingdom it must be taken into consideration that London is one of the global financial centres, and historically there is the highest concentration of highly trained labour in London – approximately 45% of all employees.

Since 1 February 2007 similar programme is implemented also in Ireland to quickly attract qualified specialists from the third countries in case of necessity. This applies to strategically important occupations with shortage of qualified labour. According to the scheme, receiver of Irish "Green Card" is entitled to work in the occupation indicated in the permit: the permit is valid for 2 years, with extension possibility. In order to receive the permit, there must be a corresponding qualification, and job offer by an Irish company must be produced. In order to apply for this permit, the minimum annual remuneration has been established (above EUR 60 000 per year, in exceptional cases- EUR 30 000). New conditions allow the holders of "Green card" apply immediately for entry of the family in Ireland, and thereby obtain permanent residence after 2 years. According to the forecasts of government, in Ireland every year 10 000 qualified immigrants could commence working like this, especially in the sectors as science and high technologies. Possibility to bring over the family and children is a very significant factor for the attraction of qualified foreign labour, as so far it was not possible, whereas, for example, in the USA and United Kingdom it was allowed. Statistical data show that during 14 months since the programme has been implemented, approximately 4 000 persons have received the Irish "Green card", but 3 000 permits have been issued to the family members.

Mainly those are citizens of India, Philippines and the USA, and guest workers from Brazil, Bangladesh, Australia, China, Japan, Egypt and Malaysia. Majority of the permits have been issued in the healthcare and IT sectors.

Czech Republic has also started to establish its own "Green card" system to attract qualified personnel from the countries outside the EU. This resembles more to the Irish than the USA system. This is a part of a plan on how to stop the demographical crisis expected in the upcoming decades and how to stop decreasing of number of the working-age population in the Czech Republic. Research carried out by the Ministry of Industry and Trade of the Czech Republic revealed that during the next 2 years the state's economics will need at least 5 000 foreign employees, among them 3 000 – with high qualification. Currently there are slightly more than 200 000 foreign citizens employed in the Czech Republic, and approximately 70 000 of them have arrived from countries outside EU. In October 2007 the government approved plan for attraction of third country citizens for employment in the Czech Republic. The new procedure became effective in 2009 and it provides three kinds of "Green cards": for highly trained employees with university diploma, for technical specialists with vocational school diploma and for top-managers. Government is planning to advertise this programme to show its differences from conditions offered by the USA and several European countries; embassies and consulates of the Czech Republic were involved.

Germany, as many other developed countries, recently has faced problem of the ageing of population. As currently the most urgent matter is development of career, higher income instead of establishing a family, at the same time, number of families willing to have children is not that high to provide the necessary number of population. If back in 1950 every sixth employee was older than 55, in 2010 it was every fifth, but forecasts show that in 2030 every fourth employee will be older than 55. There is also a tendency of self-reproducing regions in Germany, however, those are less developed in terms of technologies; and there are also regions with very low birth-rate, but with better development of technologies. Another typical tendency in Germany – majority of employed persons in the age above 65 is women and the number keeps growing, while the men work less, and this indicator keeps decreasing. It must be noted that Germany, unlike other EU member states, hesitated before opening borders for foreign immigrants. Population of Germany is not willing that foreign immigrants settle down permanently and establish families, as Germany is facing problems of integration of Turkish community. However, facing the real situation when birth-rate was comparatively low, it was inevitable that borders had to open for the EU guest-workers (it happened on 1 May 2011). Arrival of guest-workers would not only compensate the unfavourable demographic tendencies, but also fill the vacancies. However, upon opening of their labour market Germany made a tiny mistake time-wise; if the labour market had been opened earlier, the number of immigrants

would have been much higher and more qualified. Rapid emigration started in Europe during the years of crisis, when many qualified and experienced people went to search for better life, and on May of 2011 they had already settled down in other countries. Thus Germany cannot expect large number of qualified specialists to arrive, as it might wish. The most welcomed ones are healthcare professionals, metal processing specialists, electric engineers, mechanical engineers, employees of hospitality industry, including chambermaids, bartenders and waiters, as well as low-qualified employees for agricultural seasonal works. Approximate forecasts show that approximately 100 000 people will arrive to Germany during a year, and this tendency will remain similar in the future. Thus Germany hopes to reach the desirable effect trying to decrease ageing of population by attracting guest-workers of the EU.

Other view of migration arises from the point of view of public finances. Prevailing opinion is that one of significant risks related to immigration is the high expenditure of social services (schools, healthcare services, benefits and other) assigned for the needs of immigrants. Despite the lack of convincing evidence that expenditure of such services for immigrants systematically exceeds their contribution in accumulation of these funds, in many (especially economically developed) countries it is commonly considered that social expenditure for immigrants is very high, and it is mainly tied to the unemployment problem arising in the next generations of immigrants, as the immigrants' attitude towards their children's education and their future opportunities often do not stimulate competitiveness of the next generation in labour market thus creating potential contingent of unemployed persons in the future.

Summarizing empirical researches performed by other authors, a generalized cognition arises that the countries importing labour obtain certain benefits from this process, and the most expressed benefit is obvious in the periods of shortage of labour or when the local labour lacks motivation to increase the efficiency. A more controversial expression of this effect can be seen during the periods with an increased unemployment rate.

Foreign experts were interviewed during the research, interviews included questions about ageing of labour. One of the questions was about impact of ageing of labour on the EU labour market in future.

Experts expressed an opinion that age structure of the population is different in different countries and problems will arise in separate countries. Ageing will cause slowdown of development and difficulties in maintenance of welfare system.

In the opinion of experts, it will be necessary to more rely on knowledge and experience of older employees, and the potential problem the may arise would be maintenance of productivity at the previous level. More and more people will work in the fields of healthcare and social care.

As regards the ageing of labour, experts consider that demand for the care services will grow.

Experts believe that there will be shortage of employees in several sectors. There will be fields, where people will not want to work and where finding of qualified employees will be a problem. Employees will be offered training and retraining. All groups currently outside the labour market will be better integrated in the market.

Some of the experts expressed an opinion that number of employees decreases due to ageing, but since the unemployment rate is high, adjusting direction of the education, lack of labour should not be faced for the next 20 years.

There was an opinion among experts that the missing employees will be replaced by immigrants from non-European countries.

In the sectors in which manual work is used, mechanization will increase. Productivity will be increased.

Foreign experts were asked which sectors and occupations can expect the most significant decrease of labour supply due to ageing of labour.

In the opinion of experts, decrease of the labour is expected in the following sectors of the national economy:

- There will be a problem in sectors of basic services, as young people choose to acquire knowledge instead of working low qualified jobs.
- Sectors with low productivity and high manual work.
- Factory workers, industrial machinery operators.
- Agriculture.
- No growth is expected in construction sector for the next 20 years.
- In Sweden it will be difficult to find suitable employees in the public sector, so the work position will cease itself.
- Teachers, as the demand will decrease due to demographical crisis.

Experts consider that significant decrease of supply is not expected, because the market is dynamic and reacting to demand. If the prices are acceptable, the labour will arrive, as there is a free labour movement.

4.2. OPPORTUNITIES AND MEASURES TO DECREASE RISK OF AGEING IN LATVIA

Longer total lifespan of people (including the number of healthy years) is an indicator of development degree of every society potentially causing certain ageing tendencies of the society. These processes can be observed in the course of many centuries as general decrease of birth-rate, longer lifespan and increase in the total number of humans. However, in today's conditions in Latvia and many other countries general ageing of the society is mainly related not only to the critically low birth-rate, but also to number of factors resulting in premature death of humans or leaving the country due to geographical mobility. This creates not only decreasing tendencies of the total number of population, but also changes the age structure increasing the proportion of elderly population and jeopardizing state's economic and social development opportunities. For the interests of sustainable development of the state it is necessary to balance the age structure of population establishing preconditions for the society's reproduction in the desirable direction not only by trying to increase the birth-rate and implementing well-developed immigration and re-emigration policy, but also changing accents in the state's social economic policy.

Taking into consideration the growing age of the society creating new challenges for the growth and social cohesion, the EU declared 2012 a year for active ageing and solidarity between generations. Latvia declared four priorities within the European ageing year:

1. Stimulation of inter-generation cooperation;
2. Increase in value of elderly people in society;
3. Decrease of age discrimination in the labour market;
4. Promotion of active and healthy lifestyle.

Equal Opportunities Policy Division of the Ministry of Welfare was assigned as the institution in charge of implementation of the given priorities. Throughout the year according to the work programme developed by the Ministry of Welfare for the implementation of the Year of Europe in Latvia[127] number of events were implemented in all municipalities of Latvia. Elderly people were given an opportunity of practical cooperation and acquisition of new knowledge and skills (including computer skills – implemented in cooperation with *Lattelecom*) within the year. In order to initiate

127 European Year for Active Ageing and Solidarity between Generations (2012). Available at: http://www.lm.gov.lv/upload/eg2012/eg2012_progr_fin.pdf.

discussions on ageing and related problems in the environment of legislators, policy makers, employers and employees, as well as in the society in general a conference "Ageing of society: challenges and opportunities" was organized on 23 March 2012, where representatives of public and non-governmental organizations participated with presentations on different matters (education, health, employment and other). Generally the events implemented so far should be assessed as positive; however, there is a lack of complex programme, and cooperation between public institutions (Ministry of Welfare, State Employment Agency and other) and other interested parties.

After acquiring foreign experience in the decrease of ageing risks, the authors came to a conclusion that risk factors of the ageing of society can be divided in long-term and short-term. Long-term factors include birth-rate, healthcare, common values of society (culture and moral), because changes in these factors are not possible in a short period of time, and the result of impact of factors should be measured in a long-term perspective. Short-term factors were immigration and emigration, since their impact on ageing of society should be measured in a short-term perspective. Migration flows can also be regulated by implementation of appropriate migration policy. To decrease the occurrence of risks related to ageing of society, **complex measures** significantly improving life quality of the population, increasing its material welfare and improving life environment should be implemented. Such measures include:

- activities for the stimulation of healthy lifestyle of population expressed as a change of the population's attitude towards health, increase in the quality and availability rate of prevention and medical services, decrease of stress in working places and daily life;
- significant improvement of working conditions and traffic safety level to decrease number of injuries and premature deaths of employees and road users;
- significant improvement of life conditions for elderly people, improvement of availability of different services reducing social exclusion risk for these categories of population;
- expanding of social re-emigration policy and selective immigration policy to prevent possible disproportions between labour demand and supply in territorial and professional terms;
- changes in tax and labour legislation potentially stimulating creation of new work places especially for people at pre-retirement age, corresponding development of lifelong education.

Impact of healthcare measures on ageing of society could be assessed in two ways. Upon improvement of healthcare the statistical lifespan increases, and as a result there is ageing of society. However, at the same time healthcare improvements could have positive impact on retention of capacity of work positively affecting labour market and development of the national economy in

general. In the healthcare sector preventive healthcare measures should be emphasized, thus improving health of society, as well as making the healthcare sector economically more effective. Attempts to link healthcare services to tax payments could be mentioned as a positive example.

Migration affects ageing of society in a comparatively shorter period of time. Majority of the migrants are in the working-age. If emigration is dominating in the country, risks of ageing of society decrease, if there is no dominant, risks of ageing of society increase. Under conditions of Latvia everything should be done to reduce the flow of emigration, moreover emigrants should be convinced to return. Different researches regarding reasons of leaving Latvia show that material factors dominate; there is higher remuneration abroad, and better opportunities to get job, better social guarantees etc. However, public opinion is of importance. According to the human capital theory the current value of migration defines that material benefits are not the only ones that matter, psychological costs are also significant. If negativism and deprecatory attitude to the surroundings dominate in the society, psychological costs of the migration will be small or there will none, and as a result it will be difficult to convince large part of the population to stay. It is irrefutable that every effort must be made to increase the welfare level of society, however, it is very significant to change the public opinion forming it within the lines of development of state and nation.

In the long-term birth stimulating measures are significant, and the following would be urgent in Latvia:

- progressive children's benefits;
- tax exemptions depending on the number of children in family;
- material support for the new mothers ("mummy packs");
- sexual education / family values;
- change of public opinion;
- availability of the infrastructure necessary for children's care and development (kindergartens, schools, interest education and such);
- family events;
- grants to the new parents;
- tax on childlessness.

Progressive children's benefits would apply depending on the number of children in the family. New parents should be assigned higher benefit for every next child. This could be a stimulating measure for materially less provided parents, and for the new parents who are not sure, if they are materially capable to grow up several children. Amount of the benefit should be adequate, so that basic needs of the child could be provided (not LVL 8, like now). Besides, in the future it is important to exclude discrimination regarding amount of the benefit applied during the crisis in Latvia restricting amount

of the benefit. Thus many families with average income (exceeding the defined limit) refrained from decision on starting a family, as this would have significantly decreased the common welfare level of the family.

Similarly like progressive benefits the birth-rate would be stimulated by tax exempts depending on the number of children in the family, assigning additional tax exempt for every next child. This could be applied to the personal income tax.

Material support for the new mothers would more likely serve as a supportive and not stimulating measure. This measure could be differentiated according to the income level of the new parents and applied to those new parents who are actually in need of it.

Sexual education has a significant role in development of personality. This measure is of much higher quality, if sexual education and family values are explained and inculcated in family. School education is less meaningful.

Change in the public opinion is one of the most significant measures to be implemented for increase in birth-rate. Currently the family image with three children is not popular in the society. Media, advertisements, where mostly parents with one of two children are dominating has certain kind of meaning in that matter. Regardless of the fact that this is one of the most significant measures to be implemented, it is not simple, and the impact will be of long-term. The public opinion must be changed not only in relation to number of children in the family, but also in relation to the state and nation.

It would be important not only to promote the image of family, but also provide the availability of the infrastructure necessary for the children's care and development. Currently it is being implemented in separate municipalities (assignment of benefits in case of non-availability of municipal kindergarten), however, the Ministry of Welfare should solve these matters in complex manner, providing opportunity to new mothers to return to labour market as soon as possible.

Family events could be one of the practical steps to potentially change the public opinion. The more family events would be supported the more events would be organized and the more popular they would become in society. This would improve attitude of the society towards family values.

Grants for the new parents would be not only material support, but also quality improvement in the society in general. Part of the potential new parents is not sure they would be able to grow up their children and study; therefore, they choose one of these alternatives. Assigning grants to the new parents would increase birth-rate and ensure quality development of society.

If the above measures are promotional, tax on childlessness is as a repressive mean in relation to the childless part of society. However, this may not be applied automatically and each case must be assessed separately by developing appropriate regulations.

Impact of healthcare measures on ageing of society should be assessed in two ways. Upon improvement of healthcare the statistical lifespan increases, and as a result there is ageing of society. However, at the same time healthcare improvements could have a positive impact on retention of capacity of work positively affecting labour market and development of the national economy in general. In the healthcare sector preventive healthcare measures should be emphasized, thus improving health of society, as well as making the healthcare sector economically more effective.

CONCLUSIONS

- Ageing of population impacts skills supply; it increases the risk of deficit of the skills supply in the labour market causing disproportions between labour supply and demand from the aspect of age groups, occupation, and skills; furthermore, it is more difficult for elderly people to get adapted at the labour market in compliance with the demand and they have a higher level of non-conformance during the age of the rapid technological development. Ageing of population also has a negative impact both on the state budget and economic development increasing costs for care of elderly people and slowing the growth of GDP and reducing growth potential.
- The current skills supply in Latvia **by education** is divided evenly. About 30% of economically active people have a degree, 35% have a professional or vocational education, and 24% have general secondary education. The proportion of people with higher education will grow by 2030 and the proportion of people with general secondary and basic education will decrease, while the number of people involved in lifelong education will increase.
- Labour demand in future will change by the fields of education, determined by both structural economic changes, technological development, and demographic situation (changes in age pattern, migration, etc.), and by diversification and availability of education programmes. The structure of labour supply, if compared to the current situation, by 2030 will increase in the field of humanities and arts, social sciences, merchandizing and legislation, health care and social welfare, as well as in the field of services, while the field of supply of agriculture and education professionals it will decrease.
- In the **age structure** of skills supply people in the working-age (the age of 15 to 64) currently form 67.1% of the population, while by 2030 their proportion will fall to 64%; on the other hand, the proportion of people above the age of 65 will increase from the current 18% to 23%, resulting in an increase in demographic burden.
- The analysis of **sex pattern** of skills supply shows that economic activity of men is higher than that of women, though the proportion of men in the population is lower than that of women (the percentage of men in the total population of Latvia is 46%, while that of women is 54%).
- Labour **participation rate** in 2011 for people in the age of 15 to 74 was 64.4%. People in the age of 25 to 54 were the most active, while the lowest activity was observed in the

age group above 65 (only 2.1% of economically active people belong to the age above 65). The level of labour participation could reach 68% by 2020; however, by 2030 with the implementation of an appropriate labour market policy it could be increased up to 70-73%.

- In skills supply **by qualification** the largest number of employees currently is represented by professionals (OC2), sales and services workers (OC5), and those engaged in elementary occupations (OC9).
- The main factors determining changes in skills supply will be development of education system by 2030 (offer and availability of education, number of the education years, lifelong education), changes in demographic indicators (especially migration flows possibly partly compensating negative demographic trends), improvement of social insurance system (that could motivate involvement of the economically inactive population in the labour market) and amendments to pension legislation, as well as technological progress.
- According to the demographical forecasts developed by the researchers of the present research, decrease of the total number of population is expected in Latvia by 2030, however, decrease rates will be different (in case of dynamic growth of GDP – by 13.5%, in case of slow growth of GDP – by 20%) and will be mainly determined by the low birth-rate indicators (negative natural change), but in case of moderate and slow growth of GDP – also by a negative migration balance. Decrease of the number of population down to the working-age and in the working-age, as well as increase in number of population in the age above 65 (according to the performed calculations the most rapid growth of population in the age above 65 will be in case of dynamic growth of GDP, however, proportion of this age group in the total number of population in this case will form only 22.5% in 2030).
- Authors forecast a gradual decrease of the emigration volumes by 2030; this would occur in a much more rapid way in the scenario of dynamic development with simultaneous fast growth of immigration to Latvia, therefore positive migration balance will be reached by 2015. In case of moderate and slow development, however, positive migration balance is forecast only from 2020 and 2025.
- According to the authors' forecasts, proportion of the population in the working-age would form 64.6% in 2030 in case of dynamic development; 64.0% – in case of moderate development, 63.8% – in case of slow development (this indicator was 67.4% in 2011).
- Analysing data of labour inspection regarding age structure of employed population in different occupational groups at the 2 and 3-digit levels the occupations were identified,

where **shortage of labour** due to ageing is foreseeable by 2030. At the 2-digit level the potential problematic occupational groups are: 32 (health associate professionals), 44 (other clerical support workers), 53 (personal care workers), 61 (market-oriented skilled agricultural workers), 71 (building and related trades workers, excluding electricians), 73 (handicraft and printing workers), 91 (cleaners and helpers), 96 (refuse workers and other elementary workers).

- According to detailed analysis of occupational groups at the 3-digit level, it was concluded that there are two 2-digit level occupational groups – 23 (teaching professionals) and 31 (science and engineering associate professionals), where the ageing impact generally is not foreseeable, but at the 3-digit level due to ageing impact shortage of labour is foreseeable in three occupational groups: 231 (university and higher education teachers), 232 (vocational education teachers) and 313 (process control technicians). In occupational groups 231 and 232 the low proportion of young new specialists can be explained by the specific character of the sector (opportunities for young specialists to build career in the specified occupations).
- The current analysis of labour age structure shows that ageing mainly affects occupational groups of lower qualification with correspondingly lower remuneration level and low motivation of young workers and specialists to get involved in the respective occupations or specific occupational groups (for example, in occupational group 61 (market-oriented skilled agricultural workers), low motivation of youth to stay in the country is related to comparatively hard working conditions, as well as poorly developed transport and social infrastructure). However, there are separate occupational groups of medium high and high qualification (for example, healthcare specialists), where under the influence of demographical and other specific factors shortage of labour can occur in the future.

RECOMMENDATIONS

- The Ministry of Economics in cooperation with the Ministry of Foreign Affairs should work on the remigration plan and maintain communication with expatriate Latvian nationals to demonstrate that they are important and needed in Latvia and that it is necessary to bring them back, and to form remote contacts using their potential for the benefit of Latvia.

- To maintain the growth of GDP at least at the previous level, economic policy makers should seek new solutions to raise the level of economic activity and draw more attention to people in the pre-retirement age, as well as to the creation of additional motivators to attract retired persons and young people to employment.

- In order to ensure more professionals for future labour market needs the Ministry of Education and Science should more actively participate in the support of education programmes necessary for labour market, not only by formal assignment of state-funded study places, but also by means of provision of relevant study programmes using additional financial resources, modernizing studies infrastructure, attracting foreign academic staff, student exchange, practice etc.

- The Ministry of Education and Science should develop the system of vocational education both at secondary and higher level providing investments in infrastructure, content compliance, increase credibility of vocational education, and promotion of involvement of employers.

- The Ministry of Welfare should pay more attention to activities aimed at the support of young families and the improvement of demographic situation differentiating the amount of benefits depending upon the number of children, improving availability of pre-school and other education institutions etc., as well as to preventive healthcare measures that would facilitate the increase in healthy years.

- Government has to reduce tax burden for low income, as well as increase dependency benefits.

- Government has to develop an elaborated and acceptable immigration policy to facilitate inflow of highly qualified labour and restrict the possibility of abuse of the social system of the Republic of Latvia by immigrants living on benefits and avoiding employment.

- To enhance the conformity between the labour supply and demand the State Employment Agency should organize a training system for regular advance training and skill conversion training associated with application of new technologies, and to popularize the necessity of lifelong education.

- An elaborated education policy at all levels of education oriented towards the development of various skills with a special attention to attracting young people and enhancement of knowledge in mathematics, natural sciences, and other exact sciences is important for the improvement of skills supply.

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APPENDIXES

Appendix 1

Distribution of economically active population by age and occupational groups in 2010[128].

Indicated as current or last occupation													
	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 39 years	40 to 44 years	45 to 49 years	50 to 54 years	55 to 59 years	60 to 64 years	65 to 69 years	70 to 74 years	
Craft and related trades workers	107	2490	1787	5277	3078	6176	3600	1829	3437	0	347	0	28128
Other professionals	0	8926	12805	10972	10253	6371	6284	5480	3144	275	0	0	64511
Other senior professionals	0	2051	10891	6402	6423	3514	2144	3205	3177	1298	316	0	39421
Life science professionals	0	459	333	423	465	1546	392	579	568	235	336	0	5336
Physical and engineering science associate professionals	0	2542	5008	697	1721	1706	803	2071	401	261	0	0	15209
Physicists, chemists and related professionals	0	1174	3909	963	272	0	1925	389	1545	235	0	0	10412
Mining and construction labourers	108	8276	15400	14714	17152	10461	13009	10157	3003	2383	380	0	95043
Clerical support workers	132	4586	8527	4685	2459	4197	3568	3290	3083	578	0	0	35106
Personal and protective services workers	343	13492	11345	7447	9358	5106	14467	8018	7866	92	125	0	77659
Customer service clerks	0	5479	3185	668	590	121	944	933	380	450	0	0	12749
General managers	0	1272	2134	2896	10581	4408	2678	3560	1782	1111	0	0	30421

128 According to data of labour force surveys.

Skilled agricultural, forestry and fishery workers	0	2549	2369	2753	1485	1125	2608	1754	1457	1066	0	0	17165
Elementary occupations I Agricultural, fishery and related labourers	0	2540	1212	165	1158	655	1502	1018	1869	356	0	0	10475
Chief executives, senior officials and legislators	0	275	35	0	207	0	615	136	758	0	0	0	2027
Teaching professionals	0	0	0	272	0	578	0	453	0	0	0	0	1304
Metal, machinery and related trades workers	118	5339	2920	6888	4978	4488	9488	12067	8297	2778	0	0	57360
Shop salespersons, fashion and other models	1125	8449	11488	4939	6596	5689	8873	7249	4579	1100	0	0	60087
Automated-assembly-line and industrial-robot operators	502	706	2512	3413	10336	9143	8517	7450	4248	1163	829	0	48819
Subsistence agricultural and fishery workers	0	0	244	494	311	1146	1395	673	996	107	0	0	5364
Precision, handicraft, printing and related trades workers	0	1154	1795	298	661	0	918	0	0	429	0	0	5254
Labourers in mining, construction, manufacturing and transport	780	17112	21035	10254	14916	12288	9601	12631	6925	1007	0	0	106549
Stationary plant and related operators	0	1296	1151	1556	1583	1066	2661	2606	1450	117	376	0	13862
Other machine operators	0	1994	988	242	974	2969	1221	158	794	0	0	0	9340

and assemblers													
Sales and services elementary occupations	2123	5155	1737	2999	6901	4972	9005	13375	12713	1553	438	149	61120
Life science and health professional	0	0	695	0	1079	93	530	1096	1616	120	0	0	5229
Teaching professionals	0	2181	225	339	0	620	1313	2478	316	915	184	0	8572
General managers	0	0	2142	136	4190	532	2046	1943	1222	0	0	0	12212
not indicated	28517	64150	14621	7829	5716	7333	12185	13396	7811	3309	814	0	165682
no information	0	391	493	161	0	0	0	599	0	0	0	0	1644
TOTAL	33855	164040	140986	97882	123442	96301	122290	118589	83442	20937	4146	149	1006060

Appendix 2

LIFE EXPECTANCY BY AGE IN LATVIA AND EU-27 COUNTRIES (MALES AND FEMALES IN TOTAL)[129]

Latvia										EU -27								
2002	2003	2004	2005	2006	2007	2008	2009	2010	Age	2002	2003	2004	2005	2006	2007	2008	2009	2010
70.1	70.5	70.8	70.5	70.5	70.8	72.0	72.8	73.1	1	77.2	77.2	77.8	77.9	78.4	78.5	78.8	79.0	:
69.2	69.6	69.9	69.6	69.5	69.8	71.0	71.9	72.1	2	76.2	76.2	76.9	76.9	77.4	77.6	77.8	78.0	:
68.2	68.7	68.9	68.6	68.5	68.8	70.0	70.9	71.1	3	75.2	75.2	75.9	76.0	76.4	76.6	76.8	77.1	:
67.2	67.7	68.0	67.6	67.6	67.9	69.0	69.9	70.2	4	74.2	74.3	74.9	75.0	75.4	75.6	75.8	76.1	:
66.3	66.7	67.0	66.7	66.6	66.9	68.1	68.9	69.2	5	73.3	73.3	73.9	74.0	74.4	74.6	74.8	75.1	:
65.4	65.8	66.0	65.7	65.6	65.9	67.1	67.9	68.2	6	72.3	72.3	72.9	73.0	73.4	73.6	73.8	74.1	:
64.4	64.8	65.0	64.7	64.6	64.9	66.1	67.0	67.2	7	71.3	71.3	71.9	72.0	72.4	72.6	72.9	73.1	:
63.4	63.8	64.1	63.7	63.6	63.9	65.1	66.0	66.2	8	70.3	70.3	70.9	71.0	71.5	71.6	71.9	72.1	:
62.4	62.8	63.1	62.8	62.7	63.0	64.1	65.0	65.2	9	69.3	69.3	69.9	70.0	70.5	70.6	70.9	71.1	:
61.4	61.8	62.1	61.8	61.7	62.0	63.1	64.0	64.2	10	68.3	68.3	68.9	69.0	69.5	69.6	69.9	70.1	:
60.5	60.9	61.1	60.8	60.7	61.0	62.1	63.0	63.3	11	67.3	67.3	68.0	68.0	68.5	68.7	68.9	69.1	:
59.5	59.9	60.1	59.8	59.7	60.0	61.1	62.1	62.3	12	66.3	66.3	67.0	67.0	67.5	67.7	67.9	68.1	:
58.5	58.9	59.1	58.8	58.7	59.0	60.2	61.1	61.3	13	65.3	65.3	66.0	66.1	66.5	66.7	66.9	67.1	:
57.5	57.9	58.2	57.8	57.7	58.1	59.2	60.1	60.3	14	64.3	64.3	65.0	65.1	65.5	65.7	65.9	66.2	:
56.5	56.9	57.2	56.8	56.8	57.1	58.2	59.1	59.3	15	63.4	63.4	64.0	64.1	64.5	64.7	64.9	65.2	:
55.5	55.9	56.2	55.9	55.8	56.1	57.2	58.1	58.4	16	62.4	62.4	63.0	63.1	63.5	63.7	63.9	64.2	:
54.6	55.0	55.2	54.9	54.8	55.1	56.3	57.2	57.4	17	61.4	61.4	62.0	62.1	62.5	62.7	62.9	63.2	:
53.6	54.0	54.3	53.9	53.8	54.2	55.3	56.2	56.4	18	60.4	60.4	61.1	61.1	61.6	61.8	62.0	62.2	:
52.7	53.1	53.3	53.0	52.9	53.2	54.3	55.2	55.5	19	59.5	59.5	60.1	60.2	60.6	60.8	61.0	61.2	:
51.7	52.1	52.4	52.0	51.9	52.3	53.4	54.2	54.5	20	58.5	58.5	59.1	59.2	59.6	59.8	60.0	60.3	:
50.8	51.2	51.4	51.1	51.0	51.3	52.4	53.3	53.5	21	57.5	57.5	58.1	58.2	58.7	58.8	59.1	59.3	:
49.8	50.2	50.5	50.1	50.0	50.3	51.5	52.3	52.6	22	56.6	56.6	57.2	57.3	57.7	57.9	58.1	58.3	:
48.9	49.3	49.5	49.2	49.0	49.4	50.5	51.4	51.6	23	55.6	55.6	56.2	56.3	56.7	56.9	57.1	57.4	:
48.0	48.4	48.6	48.3	48.1	48.4	49.6	50.4	50.7	24	54.6	54.6	55.2	55.3	55.8	55.9	56.1	56.4	:
47.1	47.4	47.7	47.3	47.2	47.5	48.7	49.4	49.7	25	53.7	53.7	54.3	54.4	54.8	55.0	55.2	55.4	:
46.2	46.5	46.7	46.4	46.2	46.5	47.7	48.5	48.7	26	52.7	52.7	53.3	53.4	53.8	54.0	54.2	54.4	:
45.3	45.6	45.8	45.5	45.3	45.6	46.8	47.6	47.8	27	51.7	51.7	52.3	52.4	52.8	53.0	53.2	53.5	:
44.3	44.6	44.8	44.5	44.3	44.7	45.8	46.6	46.8	28	50.8	50.8	51.4	51.4	51.9	52.1	52.3	52.5	:
43.4	43.7	43.9	43.6	43.4	43.8	44.9	45.7	45.9	29	49.8	49.8	50.4	50.5	50.9	51.1	51.3	51.5	:
42.5	42.8	43.0	42.7	42.5	42.9	44.0	44.8	44.9	30	48.8	48.8	49.4	49.5	49.9	50.1	50.3	50.6	:
41.6	41.9	42.1	41.8	41.6	41.9	43.1	43.9	44.0	31	47.9	47.9	48.5	48.5	49.0	49.2	49.4	49.6	:
40.7	40.9	41.2	40.9	40.7	41.0	42.1	42.9	43.0	32	46.9	46.9	47.5	47.6	48.0	48.2	48.4	48.6	:
39.8	40.0	40.2	40.0	39.7	40.1	41.2	42.0	42.1	33	46.0	45.9	46.5	46.6	47.0	47.2	47.4	47.7	:
38.9	39.1	39.3	39.0	38.9	39.2	40.3	41.1	41.2	34	45.0	45.0	45.6	45.7	46.1	46.3	46.5	46.7	:
38.0	38.2	38.5	38.2	38.0	38.3	39.4	40.2	40.2	35	44.0	44.0	44.6	44.7	45.1	45.3	45.5	45.7	:
37.1	37.3	37.6	37.3	37.1	37.4	38.5	39.2	39.3	36	43.1	43.1	43.7	43.7	44.2	44.3	44.5	44.8	:

129 Eurostat database.

36.2	36.4	36.7	36.4	36.2	36.5	37.6	38.4	38.4	37	42.1	42.1	42.7	42.8	43.2	43.4	43.6	43.8	:
35.4	35.5	35.8	35.5	35.3	35.7	36.7	37.4	37.5	38	41.2	41.2	41.8	41.8	42.2	42.4	42.6	42.8	:
34.5	34.6	34.9	34.6	34.5	34.8	35.8	36.6	36.6	39	40.2	40.2	40.8	40.9	41.3	41.5	41.7	41.9	:
33.7	33.8	34.0	33.8	33.6	33.9	34.9	35.7	35.7	40	39.3	39.3	39.9	39.9	40.3	40.5	40.7	40.9	:
32.8	32.9	33.2	33.0	32.8	33.1	34.1	34.8	34.8	41	38.4	38.3	38.9	39.0	39.4	39.6	39.8	40.0	:
32.0	32.1	32.3	32.1	31.9	32.2	33.2	33.9	33.9	42	37.4	37.4	38.0	38.0	38.5	38.6	38.8	39.1	:
31.1	31.2	31.5	31.3	31.1	31.4	32.3	33.0	33.0	43	36.5	36.5	37.1	37.1	37.5	37.7	37.9	38.1	:
30.3	30.4	30.6	30.4	30.2	30.5	31.4	32.1	32.2	44	35.6	35.5	36.1	36.2	36.6	36.8	37.0	37.2	:
29.5	29.6	29.8	29.6	29.4	29.7	30.6	31.3	31.3	45	34.7	34.6	35.2	35.3	35.7	35.8	36.0	36.2	:
28.7	28.7	29.0	28.8	28.6	28.9	29.8	30.4	30.5	46	33.8	33.7	34.3	34.4	34.8	34.9	35.1	35.3	:
27.9	27.9	28.1	28.0	27.8	28.1	29.0	29.6	29.6	47	32.9	32.8	33.4	33.4	33.9	34.0	34.2	34.4	:
27.1	27.1	27.4	27.2	27.0	27.3	28.2	28.8	28.8	48	32.0	31.9	32.5	32.6	33.0	33.1	33.3	33.5	:
26.3	26.4	26.5	26.4	26.3	26.5	27.3	27.9	28.0	49	31.1	31.0	31.6	31.7	32.1	32.2	32.4	32.6	:
25.6	25.6	25.8	25.6	25.5	25.8	26.6	27.1	27.2	50	30.2	30.2	30.7	30.8	31.2	31.3	31.5	31.7	:
24.8	24.8	25.0	24.9	24.8	25.0	25.8	26.3	26.3	51	29.3	29.3	29.9	29.9	30.3	30.5	30.6	30.8	:
24.1	24.1	24.3	24.1	24.0	24.3	25.0	25.5	25.6	52	28.5	28.4	29.0	29.0	29.4	29.6	29.8	29.9	:
23.3	23.4	23.5	23.4	23.3	23.5	24.2	24.7	24.8	53	27.6	27.6	28.1	28.2	28.6	28.7	28.9	29.1	:
22.6	22.6	22.8	22.6	22.6	22.8	23.5	23.9	24.0	54	26.8	26.7	27.3	27.3	27.7	27.9	28.0	28.2	:
21.9	21.9	22.1	21.9	21.9	22.1	22.7	23.2	23.2	55	25.9	25.9	26.4	26.5	26.9	27.0	27.2	27.4	:
21.2	21.2	21.4	21.2	21.2	21.4	22.0	22.4	22.5	56	25.1	25.0	25.6	25.6	26.0	26.2	26.3	26.5	:
20.5	20.5	20.7	20.5	20.5	20.7	21.3	21.7	21.8	57	24.2	24.2	24.8	24.8	25.2	25.4	25.5	25.7	:
19.8	19.8	20.0	19.9	19.9	20.0	20.6	21.0	21.0	58	23.4	23.4	23.9	24.0	24.4	24.5	24.7	24.9	:
19.1	19.1	19.3	19.2	19.2	19.3	19.9	20.3	20.3	59	22.6	22.5	23.1	23.2	23.6	23.7	23.9	24.0	:
18.5	18.5	18.6	18.5	18.6	18.6	19.2	19.6	19.6	60	21.8	21.7	22.3	22.3	22.7	22.9	23.0	23.2	:
17.8	17.8	18.0	17.8	17.9	18.0	18.5	18.9	18.9	61	21.0	20.9	21.5	21.5	21.9	22.1	22.2	22.4	:
17.2	17.1	17.3	17.2	17.3	17.3	17.8	18.2	18.2	62	20.2	20.1	20.7	20.7	21.1	21.3	21.4	21.6	:
16.5	16.5	16.6	16.6	16.7	16.7	17.2	17.6	17.6	63	19.4	19.4	19.9	19.9	20.4	20.5	20.6	20.8	:
15.9	15.8	16.0	15.9	16.1	16.1	16.6	17.0	16.9	64	18.6	18.6	19.1	19.2	19.6	19.7	19.9	20.0	:
15.3	15.2	15.4	15.3	15.5	15.5	16.0	16.3	16.3	65	17.9	17.8	18.4	18.4	18.8	18.9	19.1	19.3	:
14.6	14.6	14.7	14.7	14.8	14.8	15.3	15.7	15.7	66	17.1	17.0	17.6	17.6	18.0	18.2	18.3	18.5	:
14.0	13.9	14.1	14.1	14.2	14.2	14.7	15.0	15.0	67	16.4	16.3	16.8	16.9	17.3	17.4	17.6	17.7	:
13.4	13.3	13.5	13.5	13.6	13.6	14.1	14.4	14.4	68	15.7	15.6	16.1	16.1	16.5	16.7	16.8	17.0	:
12.9	12.7	12.9	12.8	13.0	13.0	13.4	13.8	13.8	69	14.9	14.9	15.4	15.4	15.8	15.9	16.1	16.2	:
12.3	12.2	12.3	12.2	12.4	12.4	12.8	13.2	13.2	70	14.2	14.1	14.7	14.7	15.1	15.2	15.3	15.5	:

Life expectancy by age in Latvia and EU-27 countries(males and females in total)

Latvia										EU -27								
2002	2003	2004	2005	2006	2007	2008	2009	2010	Age	2002	2003	2004	2005	2006	2007	2008	2009	2010
64.4	65.4	65.5	64.9	65.0	65.3	66.5	67.7	68.0	1	74.0	74.1	74.7	74.8	75.2	75.5	75.8	76.0	:
63.5	64.4	64.6	63.9	64.0	64.4	65.6	66.7	67.1	2	73.0	73.1	73.7	73.8	74.3	74.5	74.8	75.0	:
62.6	63.5	63.6	63.0	63.1	63.4	64.6	65.7	66.1	3	72.0	72.1	72.7	72.9	73.3	73.5	73.8	74.1	:
61.6	62.5	62.6	62.0	62.1	62.4	63.6	64.8	65.1	4	71.0	71.1	71.7	71.9	72.3	72.5	72.8	73.1	:
60.6	61.6	61.7	61.0	61.1	61.4	62.6	63.8	64.1	5	70.1	70.2	70.8	70.9	71.3	71.5	71.8	72.1	:
59.7	60.6	60.7	60.1	60.1	60.5	61.7	62.8	63.1	6	69.1	69.2	69.8	69.9	70.3	70.5	70.8	71.1	:
58.7	59.6	59.7	59.1	59.1	59.5	60.7	61.8	62.1	7	68.1	68.2	68.8	68.9	69.3	69.5	69.8	70.1	:
57.7	58.6	58.8	58.1	58.2	58.5	59.7	60.8	61.2	8	67.1	67.2	67.8	67.9	68.3	68.6	68.8	69.1	:
56.8	57.7	57.8	57.2	57.2	57.5	58.7	59.8	60.2	9	66.1	66.2	66.8	66.9	67.4	67.6	67.9	68.1	:
55.8	56.7	56.8	56.2	56.2	56.5	57.7	58.9	59.2	10	65.1	65.2	65.8	65.9	66.4	66.6	66.9	67.1	:
54.8	55.7	55.9	55.2	55.2	55.6	56.7	57.9	58.2	11	64.1	64.2	64.8	65.0	65.4	65.6	65.9	66.1	:
53.8	54.7	54.9	54.2	54.2	54.6	55.8	56.9	57.2	12	63.1	63.2	63.8	64.0	64.4	64.6	64.9	65.1	:
52.8	53.7	53.9	53.2	53.2	53.6	54.8	56.0	56.3	13	62.1	62.2	62.8	63.0	63.4	63.6	63.9	64.1	:
51.8	52.8	52.9	52.2	52.3	52.6	53.8	55.0	55.3	14	61.2	61.2	61.8	62.0	62.4	62.6	62.9	63.2	:
50.9	51.8	51.9	51.3	51.3	51.6	52.8	54.0	54.3	15	60.2	60.3	60.9	61.0	61.4	61.6	61.9	62.2	:
49.9	50.8	50.9	50.3	50.3	50.7	51.8	53.0	53.3	16	59.2	59.3	59.9	60.0	60.4	60.6	60.9	61.2	:
48.9	49.8	50.0	49.3	49.3	49.7	50.9	52.1	52.3	17	58.2	58.3	58.9	59.0	59.5	59.7	59.9	60.2	:
48.0	48.9	49.0	48.4	48.4	48.8	49.9	51.1	51.4	18	57.3	57.3	57.9	58.1	58.5	58.7	59.0	59.2	:
47.0	47.9	48.1	47.4	47.4	47.8	49.0	50.1	50.4	19	56.3	56.4	57.0	57.1	57.5	57.7	58.0	58.3	:
46.1	47.0	47.1	46.5	46.5	46.9	48.1	49.2	49.5	20	55.3	55.4	56.0	56.2	56.6	56.8	57.1	57.3	:
45.2	46.1	46.2	45.6	45.5	45.9	47.1	48.2	48.5	21	54.4	54.5	55.1	55.2	55.6	55.8	56.1	56.4	:
44.3	45.1	45.3	44.6	44.6	45.0	46.2	47.3	47.6	22	53.4	53.5	54.1	54.2	54.7	54.9	55.1	55.4	:
43.4	44.3	44.4	43.7	43.7	44.1	45.3	46.3	46.7	23	52.5	52.6	53.2	53.3	53.7	53.9	54.2	54.4	:
42.5	43.4	43.4	42.8	42.8	43.1	44.3	45.4	45.7	24	51.6	51.6	52.2	52.3	52.7	53.0	53.2	53.5	:
41.7	42.4	42.5	41.9	41.9	42.2	43.4	44.5	44.8	25	50.6	50.7	51.2	51.4	51.8	52.0	52.3	52.5	:
40.8	41.5	41.7	41.0	40.9	41.3	42.5	43.5	43.8	26	49.7	49.7	50.3	50.4	50.8	51.0	51.3	51.5	:
39.9	40.6	40.7	40.1	40.0	40.4	41.6	42.6	42.9	27	48.7	48.8	49.3	49.5	49.9	50.1	50.3	50.6	:
39.0	39.7	39.8	39.2	39.1	39.5	40.7	41.7	41.9	28	47.7	47.8	48.4	48.5	48.9	49.1	49.4	49.6	:
38.1	38.8	38.9	38.3	38.2	38.6	39.8	40.8	41.0	29	46.8	46.9	47.4	47.6	48.0	48.2	48.4	48.7	:
37.2	38.0	38.0	37.4	37.3	37.7	38.9	39.9	40.1	30	45.8	45.9	46.5	46.6	47.0	47.2	47.5	47.7	:
36.4	37.1	37.1	36.5	36.4	36.9	38.0	39.1	39.1	31	44.9	45.0	45.5	45.6	46.0	46.3	46.5	46.8	:
35.5	36.2	36.2	35.6	35.5	36.0	37.1	38.1	38.2	32	43.9	44.0	44.6	44.7	45.1	45.3	45.6	45.8	:
34.7	35.3	35.3	34.8	34.6	35.1	36.3	37.2	37.3	33	43.0	43.1	43.6	43.7	44.1	44.3	44.6	44.8	:
33.8	34.4	34.5	33.9	33.8	34.2	35.4	36.3	36.4	34	42.0	42.1	42.7	42.8	43.2	43.4	43.7	43.9	:
33.0	33.5	33.6	33.0	32.9	33.4	34.5	35.5	35.5	35	41.1	41.2	41.7	41.8	42.2	42.4	42.7	42.9	:
32.1	32.6	32.8	32.2	32.1	32.5	33.6	34.6	34.6	36	40.2	40.2	40.8	40.9	41.3	41.5	41.8	42.0	:
31.3	31.8	31.9	31.4	31.3	31.7	32.7	33.7	33.7	37	39.2	39.3	39.8	39.9	40.3	40.6	40.8	41.0	:
30.5	31.0	31.1	30.5	30.5	30.8	31.9	32.8	32.8	38	38.3	38.3	38.9	39.0	39.4	39.6	39.9	40.1	:
29.7	30.1	30.2	29.7	29.6	30.0	31.0	32.0	31.9	39	37.4	37.4	38.0	38.1	38.5	38.7	38.9	39.1	:
28.9	29.3	29.4	29.0	28.8	29.2	30.2	31.1	31.1	40	36.4	36.5	37.0	37.1	37.5	37.7	38.0	38.2	:
28.0	28.5	28.5	28.2	28.0	28.4	29.4	30.2	30.2	41	35.5	35.6	36.1	36.2	36.6	36.8	37.1	37.3	:
27.2	27.7	27.7	27.3	27.2	27.5	28.5	29.4	29.4	42	34.6	34.6	35.2	35.3	35.7	35.9	36.1	36.4	:

26.5	26.9	27.0	26.5	26.4	26.8	27.7	28.5	28.5	43	33.7	33.7	34.3	34.4	34.8	35.0	35.2	35.4	:
25.7	26.1	26.1	25.8	25.6	26.0	26.9	27.7	27.7	44	32.8	32.8	33.4	33.5	33.9	34.0	34.3	34.5	:
24.9	25.3	25.4	25.0	24.9	25.2	26.0	26.9	26.9	45	31.9	31.9	32.5	32.6	33.0	33.1	33.4	33.6	:
24.2	24.6	24.6	24.3	24.1	24.5	25.3	26.1	26.1	46	31.0	31.1	31.6	31.7	32.1	32.2	32.5	32.7	:
23.4	23.8	23.8	23.5	23.4	23.8	24.6	25.3	25.3	47	30.2	30.2	30.7	30.8	31.2	31.4	31.6	31.8	:
22.7	23.1	23.1	22.8	22.7	23.0	23.8	24.5	24.5	48	29.3	29.3	29.8	29.9	30.3	30.5	30.7	30.9	:
22.0	22.3	22.4	22.0	22.0	22.3	23.0	23.7	23.7	49	28.4	28.5	29.0	29.1	29.4	29.6	29.8	30.0	:
21.4	21.6	21.7	21.3	21.3	21.6	22.3	22.9	23.0	50	27.6	27.6	28.1	28.2	28.6	28.8	29.0	29.2	:
20.7	21.0	21.0	20.6	20.7	20.9	21.6	22.2	22.2	51	26.7	26.8	27.3	27.4	27.7	27.9	28.1	28.3	:
20.0	20.3	20.3	19.9	20.0	20.2	20.9	21.4	21.5	52	25.9	25.9	26.5	26.5	26.9	27.1	27.3	27.5	:
19.4	19.6	19.6	19.3	19.3	19.6	20.2	20.7	20.8	53	25.1	25.1	25.6	25.7	26.1	26.2	26.4	26.6	:
18.7	18.9	19.0	18.6	18.7	18.9	19.5	20.0	20.1	54	24.3	24.3	24.8	24.9	25.3	25.4	25.6	25.8	:
18.1	18.3	18.4	18.1	18.1	18.3	18.8	19.3	19.4	55	23.5	23.5	24.0	24.1	24.5	24.6	24.8	25.0	:
17.5	17.7	17.7	17.4	17.5	17.7	18.1	18.6	18.7	56	22.7	22.7	23.2	23.3	23.7	23.8	24.0	24.2	:
16.9	17.1	17.1	16.8	16.9	17.1	17.5	17.9	18.1	57	21.9	21.9	22.4	22.5	22.9	23.0	23.2	23.4	:
16.3	16.4	16.5	16.3	16.3	16.4	16.9	17.3	17.4	58	21.1	21.1	21.6	21.7	22.1	22.2	22.4	22.6	:
15.7	15.9	15.9	15.6	15.8	15.9	16.2	16.7	16.8	59	20.3	20.3	20.8	20.9	21.3	21.5	21.7	21.8	:
15.2	15.3	15.3	15.0	15.2	15.3	15.6	16.1	16.1	60	19.5	19.6	20.1	20.1	20.5	20.7	20.9	21.1	:
14.6	14.8	14.8	14.5	14.7	14.8	15.1	15.6	15.5	61	18.8	18.8	19.3	19.4	19.8	19.9	20.1	20.3	:
14.0	14.2	14.2	14.0	14.1	14.2	14.6	15.0	14.9	62	18.0	18.1	18.6	18.6	19.0	19.2	19.4	19.6	:
13.5	13.7	13.7	13.5	13.6	13.7	14.0	14.4	14.4	63	17.3	17.3	17.8	17.9	18.3	18.4	18.6	18.8	:
13.0	13.1	13.1	13.0	13.2	13.3	13.5	13.9	13.9	64	16.6	16.6	17.1	17.2	17.6	17.7	17.9	18.1	:
12.5	12.6	12.6	12.5	12.7	12.8	13.0	13.4	13.3	65	15.9	15.9	16.4	16.5	16.8	17.0	17.2	17.3	:
12.0	12.1	12.1	12.0	12.2	12.3	12.5	12.9	12.8	66	15.2	15.2	15.7	15.7	16.1	16.3	16.5	16.6	:
11.5	11.6	11.6	11.5	11.7	11.8	12.0	12.4	12.3	67	14.5	14.5	15.0	15.1	15.4	15.6	15.8	15.9	:
11.0	11.1	11.1	11.0	11.2	11.3	11.5	11.9	11.8	68	13.8	13.8	14.3	14.4	14.7	14.9	15.1	15.2	:
10.6	10.6	10.6	10.5	10.7	10.8	11.0	11.4	11.3	69	13.2	13.2	13.6	13.7	14.1	14.2	14.4	14.5	:
10.2	10.2	10.2	10.1	10.2	10.3	10.5	10.9	10.8	70	12.6	12.5	13.0	13.0	13.4	13.5	13.7	13.9	:

Life expectancy by age in Latvia and EU-27 countries (males and females in total)

Latvia										EU -27								
2002	2003	2004	2005	2006	2007	2008	2009	2010	Age	2002	2003	2004	2005	2006	2007	2008	2009	2010
75.7	75.5	76.0	76.1	75.9	76.2	77.2	77.6	77.8	1	80.3	80.2	80.9	80.9	81.4	81.5	81.7	81.9	:
74.8	74.6	75.0	75.1	74.9	75.2	76.2	76.7	76.8	2	79.3	79.2	79.9	79.9	80.4	80.6	80.7	81.0	:
73.8	73.6	74.0	74.2	74.0	74.2	75.2	75.7	75.9	3	78.3	78.3	78.9	79.0	79.4	79.6	79.7	80.0	:
72.8	72.6	73.0	73.2	73.0	73.2	74.2	74.7	74.9	4	77.3	77.3	77.9	78.0	78.4	78.6	78.7	79.0	:
71.9	71.7	72.1	72.2	72.0	72.2	73.2	73.7	73.9	5	76.4	76.3	77.0	77.0	77.4	77.6	77.8	78.0	:
70.9	70.7	71.1	71.3	71.0	71.3	72.2	72.7	72.9	6	75.4	75.3	76.0	76.0	76.4	76.6	76.8	77.0	:
69.9	69.7	70.1	70.3	70.0	70.3	71.2	71.8	71.9	7	74.4	74.3	75.0	75.0	75.5	75.6	75.8	76.0	:
69.0	68.7	69.2	69.3	69.0	69.3	70.3	70.8	70.9	8	73.4	73.3	74.0	74.0	74.5	74.6	74.8	75.0	:
68.0	67.7	68.2	68.3	68.0	68.3	69.3	69.8	69.9	9	72.4	72.3	73.0	73.0	73.5	73.6	73.8	74.0	:
67.0	66.8	67.2	67.3	67.1	67.3	68.3	68.8	68.9	10	71.4	71.3	72.0	72.0	72.5	72.6	72.8	73.0	:
66.0	65.8	66.2	66.3	66.1	66.3	67.3	67.8	68.0	11	70.4	70.3	71.0	71.0	71.5	71.6	71.8	72.0	:
65.0	64.8	65.2	65.3	65.1	65.3	66.3	66.8	67.0	12	69.4	69.3	70.0	70.0	70.5	70.7	70.8	71.0	:
64.0	63.8	64.2	64.3	64.1	64.4	65.3	65.8	66.0	13	68.4	68.4	69.0	69.0	69.5	69.7	69.8	70.0	:
63.1	62.8	63.2	63.3	63.1	63.4	64.3	64.8	65.0	14	67.4	67.4	68.0	68.1	68.5	68.7	68.8	69.1	:
62.1	61.8	62.2	62.4	62.1	62.4	63.3	63.8	64.0	15	66.4	66.4	67.0	67.1	67.5	67.7	67.8	68.1	:
61.1	60.8	61.2	61.4	61.2	61.4	62.4	62.9	63.1	16	65.5	65.4	66.0	66.1	66.5	66.7	66.8	67.1	:
60.1	59.8	60.3	60.4	60.2	60.4	61.4	61.9	62.1	17	64.5	64.4	65.1	65.1	65.5	65.7	65.9	66.1	:
59.1	58.9	59.3	59.4	59.2	59.5	60.4	60.9	61.1	18	63.5	63.4	64.1	64.1	64.6	64.7	64.9	65.1	:
58.2	57.9	58.3	58.4	58.2	58.5	59.5	59.9	60.1	19	62.5	62.4	63.1	63.1	63.6	63.7	63.9	64.1	:
57.2	56.9	57.4	57.5	57.2	57.5	58.5	58.9	59.1	20	61.5	61.5	62.1	62.1	62.6	62.8	62.9	63.1	:
56.3	56.0	56.4	56.5	56.3	56.5	57.5	57.9	58.2	21	60.5	60.5	61.1	61.2	61.6	61.8	61.9	62.1	:
55.3	55.0	55.4	55.6	55.3	55.5	56.5	57.0	57.2	22	59.6	59.5	60.1	60.2	60.6	60.8	60.9	61.2	:
54.3	54.0	54.4	54.6	54.3	54.6	55.5	56.0	56.2	23	58.6	58.5	59.2	59.2	59.6	59.8	59.9	60.2	:
53.3	53.1	53.5	53.6	53.3	53.6	54.5	55.0	55.2	24	57.6	57.5	58.2	58.2	58.6	58.8	59.0	59.2	:
52.4	52.1	52.5	52.6	52.3	52.6	53.6	54.0	54.2	25	56.6	56.5	57.2	57.2	57.7	57.8	58.0	58.2	:
51.4	51.1	51.5	51.7	51.4	51.6	52.6	53.1	53.2	26	55.6	55.6	56.2	56.2	56.7	56.8	57.0	57.2	:
50.4	50.2	50.6	50.7	50.4	50.6	51.6	52.1	52.3	27	54.7	54.6	55.2	55.2	55.7	55.9	56.0	56.2	:
49.5	49.2	49.6	49.7	49.4	49.7	50.6	51.1	51.3	28	53.7	53.6	54.2	54.3	54.7	54.9	55.0	55.3	:
48.5	48.2	48.6	48.7	48.5	48.7	49.7	50.1	50.3	29	52.7	52.6	53.3	53.3	53.7	53.9	54.0	54.3	:
47.5	47.3	47.6	47.8	47.5	47.8	48.7	49.2	49.3	30	51.7	51.6	52.3	52.3	52.7	52.9	53.1	53.3	:
46.5	46.3	46.7	46.8	46.5	46.8	47.7	48.2	48.3	31	50.7	50.7	51.3	51.3	51.8	51.9	52.1	52.3	:
45.6	45.3	45.7	45.9	45.6	45.8	46.7	47.2	47.4	32	49.8	49.7	50.3	50.3	50.8	50.9	51.1	51.3	:
44.6	44.4	44.8	44.9	44.6	44.8	45.8	46.3	46.4	33	48.8	48.7	49.3	49.4	49.8	50.0	50.1	50.3	:
43.7	43.4	43.9	44.0	43.7	43.9	44.8	45.3	45.4	34	47.8	47.7	48.4	48.4	48.8	49.0	49.1	49.4	:
42.7	42.5	42.9	43.0	42.7	42.9	43.9	44.3	44.5	35	46.8	46.8	47.4	47.4	47.8	48.0	48.2	48.4	:
41.8	41.5	42.0	42.1	41.8	42.0	42.9	43.4	43.5	36	45.9	45.8	46.4	46.4	46.9	47.0	47.2	47.4	:
40.8	40.6	41.0	41.1	40.9	41.1	42.0	42.4	42.5	37	44.9	44.8	45.4	45.5	45.9	46.1	46.2	46.4	:
39.9	39.7	40.1	40.1	39.9	40.1	41.0	41.5	41.6	38	43.9	43.8	44.5	44.5	44.9	45.1	45.2	45.5	:
39.0	38.7	39.2	39.2	39.0	39.2	40.1	40.6	40.7	39	43.0	42.9	43.5	43.5	44.0	44.1	44.3	44.5	:
38.1	37.8	38.2	38.3	38.1	38.3	39.2	39.6	39.8	40	42.0	41.9	42.5	42.6	43.0	43.2	43.3	43.5	:
37.1	36.8	37.3	37.4	37.1	37.4	38.3	38.7	38.8	41	41.0	41.0	41.6	41.6	42.0	42.2	42.3	42.6	:

36.2	35.9	36.4	36.5	36.2	36.5	37.3	37.8	37.9	42	40.1	40.0	40.6	40.6	41.1	41.2	41.4	41.6	:
35.3	35.0	35.5	35.5	35.3	35.5	36.4	36.9	37.0	43	39.1	39.1	39.7	39.7	40.1	40.3	40.4	40.7	:
34.4	34.1	34.6	34.7	34.4	34.6	35.5	36.0	36.0	44	38.2	38.1	38.7	38.7	39.2	39.3	39.5	39.7	:
33.5	33.2	33.7	33.8	33.5	33.7	34.6	35.0	35.1	45	37.3	37.2	37.8	37.8	38.2	38.4	38.5	38.7	:
32.6	32.3	32.8	32.9	32.6	32.8	33.7	34.1	34.2	46	36.3	36.2	36.8	36.9	37.3	37.4	37.6	37.8	:
31.7	31.5	31.9	32.0	31.7	31.9	32.8	33.2	33.3	47	35.4	35.3	35.9	35.9	36.4	36.5	36.6	36.9	:
30.8	30.6	31.0	31.1	30.8	31.1	31.9	32.3	32.4	48	34.5	34.4	35.0	35.0	35.4	35.6	35.7	35.9	:
29.9	29.7	30.1	30.2	30.0	30.2	31.0	31.5	31.5	49	33.5	33.5	34.1	34.1	34.5	34.7	34.8	35.0	:
29.1	28.9	29.2	29.3	29.1	29.4	30.1	30.6	30.6	50	32.6	32.5	33.2	33.2	33.6	33.7	33.9	34.1	:
28.2	28.0	28.4	28.5	28.3	28.5	29.3	29.7	29.7	51	31.7	31.6	32.2	32.2	32.7	32.8	32.9	33.2	:
27.4	27.2	27.5	27.6	27.5	27.6	28.4	28.8	28.9	52	30.8	30.7	31.3	31.3	31.8	31.9	32.0	32.2	:
26.5	26.3	26.7	26.8	26.6	26.8	27.5	28.0	28.0	53	29.9	29.8	30.4	30.4	30.9	31.0	31.1	31.3	:
25.7	25.5	25.9	25.9	25.8	26.0	26.7	27.1	27.1	54	29.0	28.9	29.5	29.5	30.0	30.1	30.2	30.4	:
24.9	24.7	25.0	25.1	25.0	25.1	25.8	26.2	26.2	55	28.1	28.0	28.6	28.6	29.1	29.2	29.3	29.5	:
24.1	23.9	24.2	24.3	24.2	24.3	25.0	25.4	25.4	56	27.2	27.1	27.7	27.7	28.2	28.3	28.4	28.7	:
23.3	23.1	23.4	23.4	23.4	23.5	24.2	24.5	24.6	57	26.3	26.2	26.9	26.9	27.3	27.4	27.5	27.8	:
22.5	22.2	22.6	22.6	22.6	22.7	23.4	23.7	23.7	58	25.5	25.4	26.0	26.0	26.4	26.5	26.7	26.9	:
21.7	21.5	21.8	21.8	21.8	21.9	22.6	22.9	22.9	59	24.6	24.5	25.1	25.1	25.5	25.7	25.8	26.0	:
20.9	20.7	21.0	21.1	21.1	21.1	21.7	22.1	22.1	60	23.7	23.6	24.2	24.2	24.7	24.8	24.9	25.1	:
20.1	19.9	20.2	20.3	20.3	20.3	20.9	21.3	21.3	61	22.9	22.8	23.4	23.4	23.8	23.9	24.1	24.3	:
19.3	19.1	19.4	19.5	19.5	19.5	20.1	20.5	20.5	62	22.0	21.9	22.5	22.5	22.9	23.1	23.2	23.4	:
18.5	18.3	18.6	18.8	18.8	18.7	19.3	19.8	19.8	63	21.2	21.1	21.7	21.7	22.1	22.2	22.3	22.6	:
17.7	17.6	17.9	18.0	18.0	18.0	18.6	19.0	19.0	64	20.3	20.2	20.8	20.8	21.2	21.4	21.5	21.7	:
17.0	16.8	17.1	17.2	17.3	17.2	17.9	18.2	18.2	65	19.5	19.4	20.0	20.0	20.4	20.5	20.7	20.9	:
16.2	16.0	16.4	16.4	16.5	16.5	17.1	17.4	17.5	66	18.7	18.6	19.1	19.1	19.6	19.7	19.8	20.0	:
15.5	15.3	15.6	15.7	15.8	15.7	16.3	16.7	16.8	67	17.9	17.7	18.3	18.3	18.7	18.9	19.0	19.2	:
14.8	14.6	14.9	14.9	15.0	15.0	15.6	15.9	16.0	68	17.1	16.9	17.5	17.5	17.9	18.1	18.2	18.4	:
14.1	13.9	14.2	14.2	14.3	14.3	14.8	15.2	15.3	69	16.3	16.1	16.7	16.7	17.1	17.3	17.4	17.6	:
13.4	13.2	13.4	13.4	13.6	13.5	14.1	14.4	14.5	70	15.5	15.4	15.9	15.9	16.3	16.5	16.6	16.8	:

Appendix 3

Demographic forecasts in case of a dynamic development scenario (2011–2030)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total population in the beginning of the year	**2074605**	**2041763**	**2008483**	**1975043**	**1941540**	**1930836**	**1920429**	**1910053**	**1899692**	**1889314**	**1878973**
incl. males	947939	933114	918046	902901	887695	884089	880654	877255	873895	870540	867225
incl. females	1126666	1108649	1090437	1072143	1053844	1046747	1039775	1032798	1025797	1018774	1011748
Emigration of population	**30380**	**29613**	**28809**	**27928**	**10816**	**10122**	**9432**	**8762**	**8119**	**7507**	**6921**
incl. males	15097	14293	13941	13548	5261	4934	4609	4291	3983	3690	3407
incl. females	15283	15320	14869	14380	5555	5188	4823	4471	4135	3817	3514
Total immigration of population	**7253**	**7052**	**6910**	**6758**	**13204**	**13356**	**13334**	**13309**	**13277**	**13249**	**13229**
incl. males	4087	3977	3906	3829	7502	7608	7616	7624	7626	7629	7633
incl. females	3166	3074	3004	2928	5703	5749	5717	5685	5651	5621	5596
Mortality	**28520**	**29438**	**29740**	**29915**	**29998**	**30247**	**30536**	**30834**	**31071**	**31252**	**31309**
incl. males	13687	14112	14210	14278	14300	14411	14536	14656	14765	14838	14869
incl. females	14833	15326	15529	15637	15698	15836	16000	16178	16306	16414	16440
Birth-rate	**18805**	**18719**	**18199**	**17582**	**16906**	**16606**	**16259**	**15926**	**15535**	**15169**	**14824**
incl. boys	9639	9359	9099	8791	8453	8303	8130	7963	7767	7584	7412
Continued											
incl. girls	9166	9359	9099	8791	8453	8303	8130	7963	7767	7584	7412
Natural increase	**-9715**	**-10719**	**-11541**	**-12333**	**-13092**	**-13641**	**-14277**	**-14908**	**-15537**	**-16083**	**-16485**
incl. males	-4048	-4752	-5111	-5487	-5847	-6108	-6407	-6694	-6998	-7254	-7457
incl. females	-5667	-5966	-6430	-6846	-7245	-7533	-7871	-8215	-8539	-8829	-9027
Net migration	**-23127**	**-22561**	**-21899**	**-21171**	**2388**	**3234**	**3902**	**4547**	**5158**	**5742**	**6308**
incl. males	-11010	-10316	-10034	-9718	2241	2674	3008	3333	3643	3939	4226
incl. females	-12117	-12245	-11865	-11452	148	561	894	1214	1516	1804	2082

Continued

	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total population in the beginning of the year	**1868796**	**1858656**	**1848684**	**1839021**	**1829721**	**1820872**	**1812353**	**1804003**	**1796423**
incl. males	863994	860764	857600	854560	851682	848945	846304	843653	841479
incl. females	1004803	997892	991083	984461	978040	971927	966049	960350	954944
Emigration of population	**6354**	**5805**	**5284**	**4772**	**4272**	**3784**	**3306**	**2834**	
incl. males	3132	2865	2610	2359	2113	1872	1635	1401	
incl. females	3222	2941	2674	2413	2158	1912	1671	1433	
Total immigration of population	**13202**	**13172**	**13146**	**13126**	**13114**	**13106**	**13112**	**13133**	
incl. males	7633	7630	7627	7626	7626	7627	7635	7652	
incl. females	5569	5542	5519	5500	5488	5479	5477	5481	
Mortality	**31432**	**31420**	**31295**	**31181**	**31060**	**31080**	**31293**	**31003**	
incl. males	14952	14970	14942	14908	14934	15015	15219	14988	
incl. females	16480	16450	16353	16272	16127	16065	16073	16015	
Birth-rate	**14444**	**14081**	**13770**	**13527**	**13369**	**13238**	**13137**	**13123**	
incl. boys	7222	7040	6885	6764	6685	6619	6568	6562	
incl. girls	7222	7040	6885	6764	6685	6619	6568	6562	
Natural increase	**-16988**	**-17339**	**-17525**	**-17653**	**-17691**	**-17841**	**-18156**	**-17879**	
incl. males	-7731	-7930	-8057	-8145	-8249	-8395	-8651	-8426	
incl. females	-9258	-9409	-9468	-9508	-9442	-9446	-9505	-9454	
Net migration	**6848**	**7367**	**7862**	**8354**	**8842**	**9322**	**9806**	**10299**	
incl. males	4501	4766	5017	5267	5513	5755	6000	6251	
incl. females	2347	2601	2845	3087	3329	3568	3806	4048	

Appendix 4

Demographic forecasts in case of a moderate development scenario (2011–2030)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total population in the beginning of the year	**2074605**	**2041763**	**2008483**	**1975043**	**1941540**	**1924831**	**1908447**	**1892125**	**1875846**	**1859576**	**1843362**
incl. males	947939	933114	918046	902901	887695	880898	874281	867709	861184	854674	848209
incl. females	1126666	1108649	1090437	1072143	1053844	1043933	1034166	1024416	1014662	1004902	995153
Emigration of population	**30380**	**29613**	**28809**	**27928**	**13520**	**12728**	**11943**	**11186**	**10466**	**9788**	**9147**
incl. males	15097	14293	13941	13548	6576	6203	5834	5476	5132	4808	4499
incl. females	15283	15320	14869	14380	6944	6524	6109	5711	5333	4980	4648
Total immigration of population	**7253**	**7052**	**6910**	**6758**	**9903**	**10041**	**10006**	**9969**	**9926**	**9885**	**9850**
incl. males	4087	3977	3906	3829	5626	5719	5714	5708	5697	5686	5677
incl. females	3166	3074	3004	2928	4277	4323	4292	4262	4228	4198	4173
Mortality	**28520**	**29438**	**29740**	**29915**	**29998**	**30209**	**30458**	**30715**	**30909**	**31046**	**31059**
incl. males	13687	14112	14210	14278	14300	14387	14489	14583	14665	14711	14714
incl. females	14833	15326	15529	15637	15698	15821	15970	16132	16244	16335	16344
Birth-rate	**18805**	**18719**	**18199**	**17582**	**16906**	**16511**	**16073**	**15653**	**15179**	**14736**	**14319**
incl. boys	9639	9359	9099	8791	8453	8256	8037	7827	7590	7368	7159
incl. girls	9166	9359	9099	8791	8453	8256	8037	7827	7590	7368	7159
Natural increase	**-9715**	**-10719**	**-11541**	**-12333**	**-13092**	**-13698**	**-14385**	**-15062**	**-15730**	**-16310**	**-16740**
incl. males	-4048	-4752	-5111	-5487	-5847	-6132	-6452	-6757	-7076	-7343	-7555
incl. females	-5667	-5966	-6430	-6846	-7245	-7566	-7933	-8305	-8655	-8967	-9185
Net migration	**-23127**	**-22561**	**-21899**	**-21171**	**-3617**	**-2686**	**-1936**	**-1217**	**-540**	**97**	**703**
incl. males	-11010	-10316	-10034	-9718	-950	-485	-120	232	565	879	1178
incl. females	-12117	-12245	-11865	-11452	-2667	-2202	-1816	-1449	-1105	-782	-475

Continued

	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total population in the beginning of the year	**1827325**	**1811338**	**1795536**	**1780061**	**1764947**	**1750284**	**1735942**	**1721784**	**1708373**
incl. males	841833	835464	829168	823010	817011	811156	805398	799657	794356
incl. females	985492	975874	966368	957051	947937	939128	930544	922126	914017
Emigration of population	**8531**	**7942**	**7392**	**6857**	**6340**	**5843**	**5364**	**4898**	
incl. males	4200	3914	3646	3385	3131	2885	2648	2416	
incl. females	4331	4028	3746	3472	3209	2958	2716	2482	
Total immigration of population	**9808**	**9765**	**9725**	**9689**	**9658**	**9630**	**9612**	**9607**	
incl. males	5663	5648	5632	5618	5603	5590	5582	5581	
incl. females	4145	4117	4093	4071	4054	4040	4030	4026	
Mortality	**31136**	**31076**	**30896**	**30742**	**30572**	**30542**	**30672**	**30327**	
incl. males	14768	14755	14688	14631	14623	14669	14808	14571	
incl. females	16368	16321	16208	16111	15949	15873	15864	15757	
Birth-rate	**13872**	**13451**	**13088**	**12796**	**12591**	**12413**	**12266**	**12208**	
incl. boys	6936	6725	6544	6398	6295	6206	6133	6104	
incl. girls	6936	6725	6544	6398	6295	6206	6133	6104	
Natural increase	**-17264**	**-17626**	**-17808**	**-17945**	**-17982**	**-18129**	**-18406**	**-18119**	
incl. males	-7832	-8030	-8144	-8232	-8328	-8463	-8675	-8466	
incl. females	-9432	-9596	-9664	-9713	-9654	-9666	-9732	-9652	
Net migration	**1277**	**1824**	**2333**	**2832**	**3318**	**3787**	**4249**	**4709**	
incl. males	1463	1734	1986	2233	2473	2705	2935	3165	
incl. females	-186	89	347	599	845	1082	1314	1544	

Appendix 5

Demographic forecasts in case of a slow development scenario (2011–2030)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total population in the beginning of the year	**2074605**	**2041763**	**2008483**	**1975043**	**1941540**	**1922190**	**1903192**	**1884285**	**1865448**	**1846649**	**1827935**
incl. males	947939	933114	918046	902901	887695	879398	871295	863250	855267	847314	839422
incl. females	1126666	1108649	1090437	1072143	1053844	1042792	1031898	1021035	1010181	999335	988512
Emigration of population	**30380**	**29613**	**28809**	**27928**	**13520**	**12704**	**11899**	**11125**	**10390**	**9700**	**9049**
incl. males	15097	14293	13941	13548	6576	6191	5810	5442	5091	4760	4445
incl. females	15283	15320	14869	14380	6944	6514	6089	5683	5299	4940	4604
Total immigration of population	**7253**	**7052**	**6910**	**6758**	**7262**	**7420**	**7405**	**7389**	**7367**	**7346**	**7329**
incl. males	4087	3977	3906	3829	4126	4225	4227	4228	4225	4222	4219
incl. females	3166	3074	3004	2928	3137	3195	3178	3161	3142	3125	3110
Mortality	**28520**	**29438**	**29740**	**29915**	**29998**	**30190**	**30420**	**30656**	**30829**	**30944**	**30935**
incl. males	13687	14112	14210	14278	14300	14375	14464	14546	14614	14646	14634
incl. females	14833	15326	15529	15637	15698	15814	15956	16110	16215	16299	16300
Birth-rate	**18805**	**18719**	**18199**	**17582**	**16906**	**16477**	**16006**	**15555**	**15053**	**14584**	**14143**
incl. boys	9639	9359	9099	8791	8453	8238	8003	7778	7526	7292	7071
incl. girls	9166	9359	9099	8791	8453	8238	8003	7778	7526	7292	7071
Natural increase	**-9715**	**-10719**	**-11541**	**-12333**	**-13092**	**-13713**	**-14414**	**-15101**	**-15776**	**-16360**	**-16792**
incl. males	-4048	-4752	-5111	-5487	-5847	-6137	-6461	-6768	-7088	-7354	-7563
incl. females	-5667	-5966	-6430	-6846	-7245	-7576	-7953	-8333	-8689	-9007	-9229
Net migration	**-23127**	**-22561**	**-21899**	**-21171**	**-6257**	**-5285**	**-4494**	**-3736**	**-3023**	**-2354**	**-1720**
incl. males	-11010	-10316	-10034	-9718	-2450	-1966	-1583	-1215	-866	-538	-226
incl. females	-12117	-12245	-11865	-11452	-3807	-3318	-2910	-2522	-2157	-1816	-1494

Continued

	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total population in the beginning of the year	**1809423**	**1790990**	**1772771**	**1754913**	**1737441**	**1720445**	**1703794**	**1687361**	**1671706**
incl. males	831633	823868	816194	808678	801335	794154	787086	780063	773491
incl. females	977790	967122	956578	946235	936106	926292	916709	907298	898215
Emigration of population	**8425**	**7830**	**7276**	**6738**	**6220**	**5723**	**5246**	**4782**	
incl. males	4142	3853	3583	3320	3065	2820	2583	2353	
incl. females	4283	3977	3693	3419	3155	2904	2663	2429	
Total immigration of population	**7308**	**7284**	**7261**	**7242**	**7226**	**7212**	**7206**	**7208**	
incl. males	4213	4206	4198	4190	4183	4176	4173	4175	
incl. females	3094	3078	3064	3052	3043	3036	3033	3033	
Mortality	**30989**	**30906**	**30699**	**30525**	**30331**	**30276**	**30368**	**29985**	
incl. males	14673	14645	14558	14488	14464	14492	14600	14347	
incl. females	16316	16262	16141	16037	15868	15784	15768	15638	
Birth-rate	**13674**	**13235**	**12855**	**12549**	**12329**	**12136**	**11975**	**11904**	
incl. boys	6837	6617	6428	6275	6164	6068	5988	5952	
incl. girls	6837	6617	6428	6275	6164	6068	5988	5952	
Natural increase	**-17315**	**-17672**	**-17843**	**-17976**	**-18002**	**-18140**	**-18393**	**-18081**	
incl. males	-7836	-8027	-8131	-8214	-8299	-8424	-8613	-8395	
incl. females	-9479	-9644	-9713	-9762	-9703	-9716	-9780	-9686	
Net migration	**-1118**	**-546**	**-15**	**503**	**1006**	**1489**	**1960**	**2426**	
incl. males	71	353	615	870	1118	1356	1590	1822	
incl. females	-1189	-899	-630	-367	-112	133	370	603	