WP 33
26 April 2010

UNITED NATIONS STATISTICAL COMMISSION and ECONOMIC COMMISSION FOR EUROPE

STATISTICAL OFFICE OF THE EUROPEAN UNION (EUROSTAT)

CONFERENCE OF EUROPEAN STATISTICIANS

Joint Eurostat/UNECE Work Session on Demographic Projections
(28-30 April 2010, Lisbon, Portugal)

Item 11 – Beyond population projections by age and sex

Tertiary education enrolment trends and projections in Latvia

Zane Cunska[1], Baltic International Centre for Economic Policy Studies and University of Latvia

ABSTRACT

Demography affects student enrolments in higher education because the size of younger age cohorts is a partial determinant of the number of students. Though, the relationship between HE enrolment levels and the size of the younger age cohorts is not straight forward. This study assesses the demographic potential of higher education student population and projects middle term future development of the tertiary education enrolment in Latvia. The approach used in this study is the enrolment-ratio trend extrapolation method, which uses two components – the readily available population projections and development trends computed from the observed age-specific enrolment ratios in base years – to estimate the future tertiary student population in Latvia and its age structure. Three enrolment trend scenarios are developed in the study: stable enrolment ratio scenario, global education trend scenario, and the crisis scenario. All the three alternative scenarios project falling enrolment in the coming decade, but at a different level, as well as increasing proportion of the non-traditional age students in tertiary education.

1. INTRODUCTION

The most noticeable trend in higher education in Latvia in recent decades appears to be its expansion, often referred to as the "massification" of higher education. So far the growth in enrolment rates have been related to both positive demographic trends and increase of accessibility of higher education (via access to study loans, wide selection of study forms and programmes). Demographic development though poses growing concerns about the future of higher education in all developed countries. Most European countries are facing an unprecedented aging population situation, with aging and depopulation hitting especially hard the Eastern European countries, incl. Latvia. In the years to come significant expansion of young-age population is not projected in any European country (Eurostat, EUROPOP2008). As a consequence, the impact on education system is inevitable.

The aim of the paper is to assess the demographic potential of the higher education student population and project middle term future development of the HE enrolment in Latvia.

The paper is structured as follows: first, the previous literature on estimating student numbers is analyzed both for Latvia and for rest of the world, concentrating on the methodological approaches used. Secondly, the methodology used is described and trend assumptions set out. Thirdly, three alternative development scenarios are developed and calculated for the time period 2010-2020, conclusions and recommendations drawn.

[1] Email: zanec@lu.lv.

2. SURVEY OF LITERATURE

2.1 Forecasting enrolment

The most comprehensive analysis of tertiary education demography has been performed by OECD, which in the report (OECD, 2008)[i] concludes "even though the situation varies markedly across OECD countries, growth in the size of higher education systems should remain the norm within the OECD area, allowing for just a few exceptions." (Ch 2, Vincent-Lancrin), and "highlights the fact that demography has only recently become a concern in debate on higher education policy, and that the past growth of systems in OECD countries has had little to do with demographic changes. The increase in rates of admission to higher education has been of greater importance than the size of age cohorts." (Ch 5, Teichler and Bürger).

Among other things, the report concludes that: (1) student participation will continue to expand and will in most cases be evident from growth in the size of higher education systems. Contraction will affect only a small number of countries; (2) women will be in the majority in the student population; (3) the mix of the student population will be more varied, with greater numbers of international students, older students and those studying part-time, etc. (4) the social base in higher education will probably continue to broaden. Latvia, not being an OECD country, is not analyzed in the report. With domestic knowledge about the Latvian HE system, we have reason to think though that Latvia may be among the countries affected by contraction, but this will be analyzed later in the paper.

According to the World Bank estimations (Chawia, 2007[ii]), by 2025 in Latvia the number of pupils in primary schools will shrink by 25% and in secondary schools by 20%, but the most significant fall is expected in the number of students in higher education – by 40%.Also Mizikaci (2007)[iii] places attention to the shrinking youth population in Europe and associated effects on higher education systems. She notes that the severest declines will be observed in Estonia, Latvia and Slovenia. Where more than half of the 18-23 age group in 2005 will disappear by 2050. For those countries immigration would not be enough to compensate for the natural decline, especially because they record negative net migration (i.e. emigration for Latvia, Lithuania, Poland, zero net migration for Estonia). In all eastern block countries higher education is under risk due to low fertility rates and emigration, and fail to enrol foreign students. Following the discussions in the Salzburg seminar on the future of higher education, Baumgartl (2007b[iv]) states that due to shifting demographics in Europe some HE institutions will suffer from a lack of students in the very near future, and that "the present and future body of HE population (schooling, students, staff, related institutions, programs) should be examined".

So far in Latvia, the effects of demography on tertiary education system have not been explicitly studied. The EU Structural Funds funded Ministry of Welfare Labour market projects (2005-2006) studied the graduate life paths and study outcomes, another project studied labour market developments and modelled profession supply and demand in the following years, yet another project studied conformity of HE programmes with labour market requirements.

Latvian Ministry of Education and Science appears to be mostly interested and concentrating on forecasts for labour market demand, and in cooperation with employers have developed a model for forecasting demanded number of specialists by study field. The budget financed study places are allocated according to this model.

Occasionally the issue of demographic effects on higher education system has been mentioned in media, where (most often) university representatives are cited expressing concerns about diminishing secondary graduation. Overall, these are exactly the higher education establishments where the issue is raised and discussed, usually in form of guessing, since it is crucially important for their development strategies. In the context of the writing of the Latvian sustainable development strategy a few analytical discussions on the issue have taken place in the period 2008-2010. None of the above have been based on or resulted in a research paper.

2.2 Forecasting methods

Many methods have been used in enrolment forecasting depending on the aim and purpose of the projections and the availability of data. The first basic distinction is made between the institutional (i.e. micro) level projections and the country or more generally global (macro) level projections. The micro level projections are extensively used by institutions that try to predict the level of enrolment, especially in the US. The macro level projections are usually developed by international institutions or independent researchers/research centres. Given the exercise of this paper that is to explore the HE enrolment at country level, we feature here only the most important macro level studies in the literature.

The OECD (2008) report on future of HE uses trend extrapolation methodology and argues that it is the turning points that in fact play the most important role in demographic trends, and conclude that demographic trends cannot be extrapolated directly, but only explored through forward-looking scenarios incorporating political and economic factors. The projection

approach used in OECD report uses the UN population projections as basis and calculates enrolment with the extrapolated trends.

Ahuja and Filmer (1995)[v] adopted a very similar approach by taking existing UN population projections and superimposing onto them an educational distribution estimated for two broad age groups (ages 6-24 and 25+) from a given set of enrolment ratios and UNESCO projections.

The research by Wolfgang Lutz with colleagues, resulting in a number of publications (Lutz et al (2007)[vi], Samir et al (2008)[vii]) adopts a more advanced approach for projections of educational attainment for 120 countries. They apply the demographic methodology of multi-state population projections, based on multi-dimensional expansion of the life table and of the cohort-component projection method. This method allows for longer term projections as they are based in population age and gender structure and take into account also the impact of education on fertility and mortality; the approach, though is very data demanding and requires a complete matrix of the composition of the population by age, sex, and levels of education attainment for different points in time. They estimate the education attainment in four wide education groups (no education, primary, secondary and tertiary), whereas our study attempts to quantify the tertiary enrolment.

Guo (2002)[viii] compares accuracy of forecasting models and concludes that more complex models are not necessarily more accurate than simpler ones.

3. DATA AND METHODS

The higher education in terms of this paper is understood as in the Bologna context – the tertiary education, corresponding to ISCED 1997 level 5 (first stage tertiary education) and level 6 (second stage tertiary education). The level 5 includes here both 5A and 5B. ISCED 5 minimum entry requirements are diplomas of ISCED 3A, 3B or 4A, are of at least 2 years of cumulative theoretical duration and do not lead directly to the award of an advanced research qualification. In the Latvian context therefore these are university college study programmes, all bachelor and professional bachelor programmes, all master and professional master programmes, as well as adult education programmes. The ISCED 6 programmes lead to the award of an advanced research qualification; they are devoted to advanced study and original research and not based on coursework only. In Latvian context these are all doctoral programmes. The analysis here is performed for all fields of education together.

All other things being equal, demography directly affects student enrolments in higher education because the size of younger age cohorts is a partial determinant of the number of students. Around 80% of students in higher education in Latvia are less than 35, and 60% are below 25, the relative impact of younger age cohorts has a major bearing on student enrolment levels. If rates of entry to higher education, together with survival rates, the average length of courses and other student-related factors (age, etc.) remain unchanged, countries in which those cohorts decrease in size will normally experience a fall in their student enrolments (OECD, 2009).

Though, the relationship between HE enrolment levels and the size of the younger age cohorts is not a straight forward. Many factors can offset the effect of change of cohort size, such as changes in the access rates to HE, change of length of study programmes, change in drop-out rates, legislative and policy changes that affect labour market requirements, financing and costs of the programme, the economic and labour market situation in the country.

We can identify four main methods that are used for education enrolment projections, each one having its pros and cons:
Enrolment ratio method, based on projected ratio of students in education and the projected increases in the age groups for the respective education level;

(1) Survival rates method is based on survival of each cohort to the next year or next level of education;

(2) Regression models can be of various forms, such as linear, exponential, autoregression models etc., and projected number of students is estimated as a function of variables that are perceived to have influence. Provided sufficiently long timelines are available, modelling enrolments with regressions have infinite variations by including various variables and testing their significance;

(3) Multistatus (increment-decrement) life tables method is the most advanced, but also the most data demanding and requires life-course data. It explicitly uses the population structure and transition coefficients from one state to another, allows to estimate transition matrices and calculate the expected time spent in each status, typical age for entering studies or graduating and several other indicators that none of the previous methods is capable of supplying.

The approach taken in this paper is the enrolment-ratio method, which is classic for estimating sub-populations and uses two components – the readily available population projections and development trends both (1) extrapolated from the observed ratios in base years[ix], and (2) estimated based on expert opinions and rationality.

The term enrolment ratio is defined as the proportion of students in a given age group enrolled in higher education programmes. This can be expressed by formula $r_{xt}=E_{xt}/T_{xt}$ where r_{xt} stands for the enrolment ratio of the population at age x on year t, E_{xt} denotes the number of x years old students in tertiary education on year t, and T_{xt} the total age x cohort size on year t. E, which is the variable of our interest, can be determined once r_{xt} and T are known. Analogously, the projected future E can be estimated from credible projected values of r_{xt} and T. The fundamental problem of enrolment projection work is to assign values for them[x].

For T, we use Eurostat population projections EUROPOP2008 convergence scenario[xi], which describes the possible future demographic developments assuming that across countries fertility and mortality converge to the "forerunners" by 2150[2]. Alternative ways would be to use UN population projections, also available for Latvia or National projections.

The Eurostat projections are developed in close cooperation with the Latvian Centre for Demography that work out national forecasts. As a result national and Eurostat forecasts coincide. The United Nations use somewhat different approach suggesting 4 different scenarios (Medium, High, Low, and Constant-Fertility variant). The assumptions on parameters behind these variants are obtained pretty technically from the past statistics and from country groupings in regions. Consequently the UN projections appears to be very standard in contrast to the Eurostat projections that are more individualized and use extensive expert opinion. Two another forthcomings are that UN does not attach any validity estimates to any of the scenarios and estimates are not readily accessible for single-year age groups. Overall according to author judgement the Eurostat projections are more credible and are used therefore.

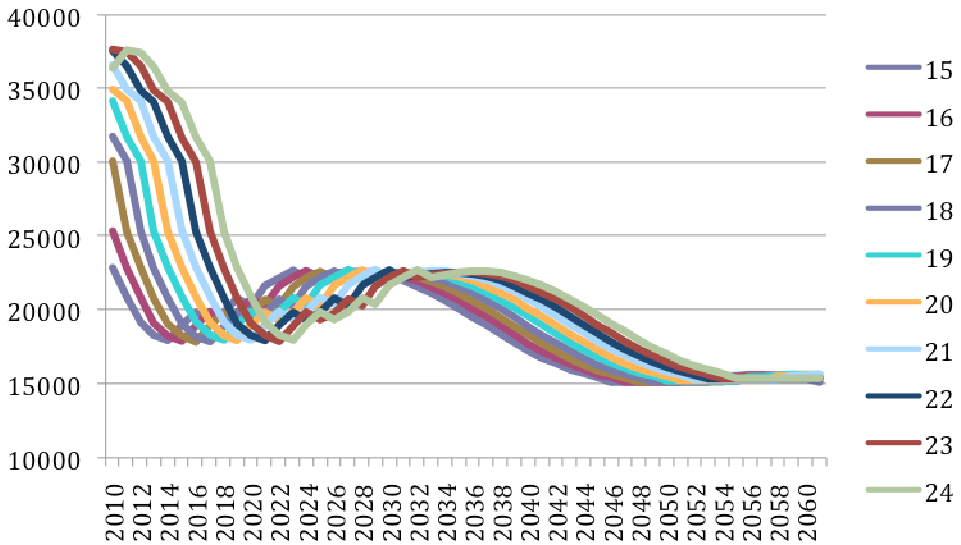
Also, the Eurostat population databases are used throughout this research, making separate pieces easy to compare. The time period for projections used is 2010 – 2020, limited by the reliability of trends assessed. The projections already take account of birth, death and migration rates, and we assume the rates being equal for population in and outside tertiary education. The model inherits all the assumptions made for the projections.

4. TRENDS

The demographic situation in Latvia is characterized by a negative natural rate of increase and by ageing. The depopulation started in early nineties and still continues. Especially the size of younger age cohorts decrease. This is connected to the fact that in the beginning of the nineties the birth rate fell sharply. 18-20 years later the smaller youth population has reached the higher education system and the labour market. As evident from the population projections (Figure 4.1.), the population aged 15-24 will fall by about 40% in the coming 10 years, and would remain equally low in foreseeable future (EUROPOP2008). This fact has to be seen in context of the previous experience of a rising young population associated with high the birth rates in 1980s.

[2] In the Eurostat EUROPOP2008 (European Population Projections, base year 2008) convergence scenario, the population projections describe the possible future demographic developments assuming that across countries fertility and mortality converge to the "forerunners", and international migration flows will converge to zero net migration in the same convergence year with the one assumed for fertility and mortality. The methodology consists essentially of setting the values of the demographic indicators for the convergence year (e.g. 2150), i.e. the year in which the theoretical convergence would be achieved, and of appropriately interpolating from the starting value for each country and each demographic component (fertility, mortality). The national values for the year of interest (target year, 2060) are derived (Source: Eurostat).

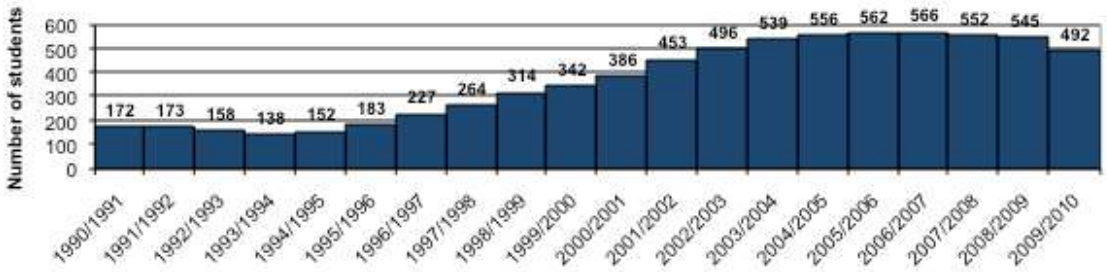
Figure 4.1. Youth population (15-24 years) projections for Latvia.



Source: Eurostat population projection statistics (EUROPOP2008)

Latvia has started to experience this decline already. In the 2009/2010 academic year for the first time Latvian HE system experienced a significant fall in number of students. The total enrolment decreased by 10%, and the number of first year bachelor students by 26% in comparison to previous year. According to statistics on the number of students per 10 thousand inhabitants – 492 in 2009/2010 (see Figure 4.2.), it is among highest in the world in line with Finland, UK and Canada. There were as many as 566 students per 10 thousand inhabitants in 2006/2007, it had been increasing since 1993 where the expansion of HE started. Some decrease was seen in 2008/2009 school year, but a significant decline in 2009/2010.

Figure 4.2. Number of students per 10 000 inhabitants in Latvia. Source: Ministry of Education and Science, Latvia.



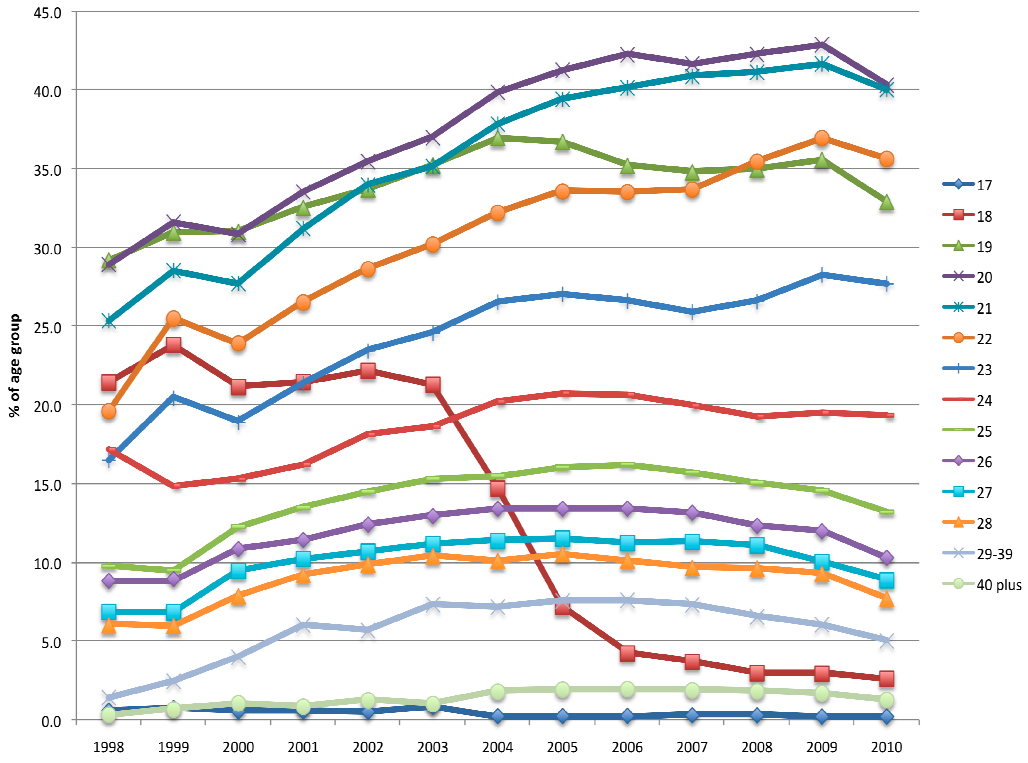
This HE expansion motivated the creation of a great number of HE institutions, both public and private. There are now 60 HE institutions in Latvia (2009), which is high with respect to the 2.2 million inhabitants (27 per 1 million inhabitants). It compares to Estonia (29) and Denmark (32) that are also small countries, but significantly exceeds US (14), UK (15), the Netherlands (10) and Germany (8) that in contrast to Latvia host many foreign students.

From the age specific enrolment ratios, i.e. the ratio of students in the respective age population in Latvia, we see that naturally the highest proportion of students is in the 19-24 age cohorts[3] (see Figure 4.3.). Starting from age 23 and older the age specific enrolment rates gradually decrease with every older cohort – for 25-28 age cohorts it is in the 8-13% area, for 29-39-year-olds the ratio is 5%, but the older age groups 40-plus – slightly above 1%. The observed expansion of HE has happened in both the younger groups, and the older groups. Especially the 29-39-age cohort that stared as low as 1% in

[3] The changes in the 18-year-old enrolment rate are connected to the structural changes in secondary education system and transition from 11 to 12 years schooling (primary + secondary) starting on 1991. As a consequence the schooling before tertiary education takes longer, and the number of 18-year-old students decreased.

1998 (there were virtually no adults above 30 in HE) has grown to 5% in 2010. Also the number of students that are above 40 has risen from 0.3% in 1998 to slightly above 1% in 2010, but there are still proportionally very few students over 40.

Figure 4.3. Age-specific student ratios in LV (1998-2010).



\

Source: Ministry of Education and Science and Eurostat, author's computations.

For the 1998-2008 period the enrolment trends have shown unambiguous stable growth both in absolute and relative terms. In the 2009/2010 academic year the situation has changed – proportionally to population in the respective age, enrolment has fallen in all age groups. Naturally, this makes to ask question of what the developments would be in the future.

5. SCENARIOS

Three development trend scenarios are developed here: stable enrolment ratio scenario (SER), global education trend scenario (GET), and the crisis scenario (CRI). The different scenarios represent the set of plausible alternative outcomes from the changing environment and circumstances.

5.1. Stable enrolment ratio (SER) scenario assumes that proportion of students in the respective overall age cohort will continue to change in the same average speed and direction as over the previous period (1998-2010). This implicitly assumes that the transition rates and dropout rates will change at an average annual rate of change experienced in the observation period. It represents the situation of the tertiary education developing smoothly into the future, but the only changes arise from the differences in cohort size. An assumption made here is that the supply of study places is unconstrained.

Mathematically, we extrapolate the trend with the mean square regression according to formula:

ln(Y/Y(t-1)) = alpha/trend

i.e., extrapolate the observed trends over the years 1998-2010, using the OLS and putting a constraint that the growth converges to zero when time converges to infinity.

According to availability of data, the trends are calculated separately for single-year age groups for groups aged 17 to 28, one group 29-39, and one group for 40-year-old students and older. The ratio age-year specific enrolment ratio is estimated as population in tertiary education percentage of the overall age cohort in the respective year. An assumption is made for the older age students that none older than 64 is studying, which allows calculating 40+ years old students as percentage of the age group 40-64[4].

The enrolment ratios estimated are plotted in Figure A1 (Annex), which also gives the base years ratios as indicators of previous trends. All of calculated trends are positive or virtually constant. According to this scenario, growth is expected in the ratio of younger students (20-23) and of non-traditional age group, i.e., 29-39. The proportions of students in 24-28 and 40-plus age groups would remain stable at 2010 level.

5.2. Global education trend scenario (GET) takes into account the schooling pattern across European countries. Given the already high enrolment rates in Latvia exceeding most of other developed countries, this scenario may develop to be either positive or negative.

The rationale behind this scenario is the European higher education area concept and assumes that via the Bologna process eventually academic degree and quality assurance standards are comparable and compatible throughout Europe. Also, it is in line with the general convergence idea of life standards and incomes in Europe. Consequently it is credible to assume that also the lifestyle and study patterns will eventually converge.

The 2011-2020 enrolment ratio structure for Latvia is therefore assumed to converge to that of EU-27 according to the function:

$$\ln\left(\frac{Y}{Y_{t-1}}\right) = \beta\left(Y_{t-1} - \bar{Y}\right)$$

i.e., we assume that the age-specific enrolment rates *Y* will converge to the EU-27 average $\bar{Y}$ (see the EU-27 averages in Annex, Table A1), the speed being dependent on the size of the difference between the rate at *t-1* and $\bar{Y}$. The obtained results are depicted in Figure A2 (Annex). The cut-off year for the projections are 2020, longer trend lines only depicted for information.

The enrolment ratios in EU-27 have been gradually raising in period 1998-2005, and stabilized since 2005. They are generally lower that Latvian 2010 rates, at certain groups as low as Latvian 1998 levels, consequently, all but 25 and 26 year-old rate trends are negative. The 18-year-old cohort rate (observed odd development in the observation period) is also assumed to converge to EU average.

5.3. Crisis scenario (CRI) is designed to capture the possible other effects, that do not follow from statistics but can be concluded from literature on historical development in other countries, author's observations of the situation, and suggested developments by experts. This scenario is the most subjective of the three and intended to sketch general developments on top of that directly following from data.

During recession some individuals invest in graduate education to position themselves for a better job when the economy revives again. Often people are changing their life plans to apply for master of PhD programme earlier than planned because of the unfavourable economic situation and as alternatives to schooling are less attractive. This behaviour can be observed from two relatively recent historical trends for recessionary periods in the global economy: 1991-1993 and 2000-2002. It is observed that enrolment grows more rapidly during and after recession, and the largest dips happen in boom years. Though, a slowdown in enrolment is observed in the very beginning of recession (Moody's International Public Finance (2009)[xii], data on Canada, France, Italy, Spain, UK, and US).

In its report Moody's outlines that universities are expected to experience some stress but be more sheltered than other sectors from the global recession. "This is due to their counter-cyclical business aspects, government support, and growing role in economic development and rebuilding." However, many face conflicting pressures of rising demand for their services while also needing to adjust to a weaker funding outlook.

[4] The number of students aged over 64, i.e., pension age, is virtually zero. Even though this may not be entirely methodologically precise, this is a credible assumtion and will let to avoid the effect of rapidly increasing older age cohorts on enrolment projections.

Hazarika (2002)[xiii] investigated regional recessions effects on enrolments in US and found that wealthier students are more likely to attend college in recession, whereas teens from less wealthy families are affected by credit constraints and less likely to attend college. The access to financing therefore plays a role in enrolment decisions. In Finland in the 1990 crisis period applications to HE grew by about 25%, and participation in entrance examinations by 42% (Kivinen and Rinne, 1996)[xiv]. The increased interest though was not supported by sufficient increasing supply of study places so the actual enrolments remained stable.

The impact in a particular country and particular institutions may vary. In the Latvian situation some additional aspects would play role:

- The total enrolment would be offset by demographic decline;
- Participation in tertiary education will be a function of people's beliefs on the speed of recovery of the economy. If people believe in fast recovery (2-3 years?), i.e., believe they will have job, they are willing to invest in education and probably even bear considerable personal cost. In the opposite situation where people believe in slow recovery or stagnation, they may leave the country for study or work. The emigration alternative is relatively easy accessible given the EU open labour market;
- Completion of some degree of tertiary education is already a minimum standard for certain types of employment (government sector, schools), and therefore the enrolment (and graduation) rates have been very high by international standards already before the recession. There is hardly more room for growth in enrolment rates due to saturated local market;
- Very common in Latvia is simultaneous work and study practice, often resulting in prolonged study time (academic breaks, longer programmes). With loss of employment or less working hours, the studying time may actually shorten, as a consequence the total enrolment will be less;
- A reason for not continuing studies are the financial problems and inability to pay study fees; the shortage of money can also prolong study time are people may be forced to take study breaks because of inability to pay tuition fees;
- Popular view in Latvia is that increase in qualification and skills level is not one of the important growth factors in the economy that suggests that under budgetary pressure people may not be willing to invest in education (DnB NORD Latvijas barometrs, March 2010).

We take into account, that individual behaviour is affected by changes in the labour market in the recession time – the higher unemployment, and people are forced to take decisions if their employment status has changed. Neutral (as much as it can be) HE policy in the country is assumed: HE still relies on local demand and active foreign student attraction does not take place; no further significant cuts in financing to HE takes place, but also no new investments. We assume people believe the economy will return to growth in three years. In this scenario wider age groups are used as assumptions are made for logical groups (see Table 5.1).

Table 5.1. Summary of assumptions and reasoning for separate age groups

Age	**Rationale**	**Assumption**
17-24	Most mobile of all groups, also the most free in terms of family commitments. Under crisis: the highest proportion leaving the country (for study and/or work) compared to other groups. Employment (traditionally popular among students in Latvia) increasingly difficult to find for younger people without experience and degree. People staying invest time in education in belief of turning of the economy, may be more selective regarding the study area and more demanding.	The two effects (emigration and difficulty to find job) offset each other, enrolment rate is at the pre-crisis level (2008) for 3 years, converges to EU-27 average after 2013.
25-28	More commitments (family, social, work), consequently emigration is more complicated. More prone to stay and use all local opportunities. In case of loss of job ready to invest in education, but selective regarding the programme. Could choose good quality business education, probably looking for shorter 2-3 years executive education. Those who dropped out could go back and finish the degree. Those who postponed decision going to second level higher education may start now.	For the following three years enrolment rate increases by 15% compared to 2008, converges to EU-27 average after 2013.
29+	This group is most settled of all. They may see little returns to investments in degree, but probably are more likely to go to some qualification courses to build up on previous education. Some proportion may want to perceive second level tertiary education but with emphasis on professional skills.	Enrolment rate remains constant (for different reasons than for 17-24 population) over following 3 years, converges to EU-27 average after 2013.

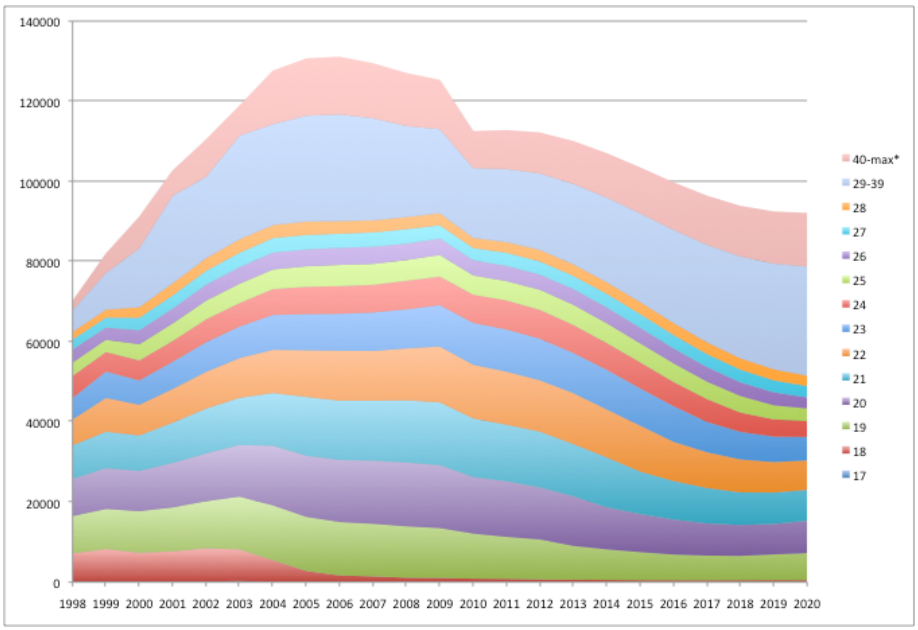
The obtained results are depicted in Figure A3 (Annex). According to this scenario, the crisis would have a short-term positive impact on enrolment rates that will slightly increase above the 2010 level and stay there between 2011 and 2013. Especially rise would be expected in the 25-28 age group. After the 2013 the enrolment rates will start to fall approaching the EU-27 level.

6. RESULTS AND DISCUSSION

This section sets out the results of application of estimated trends to the projections and describes the possible scenarios. No statistical probability is attached to the scenarios.

6.1. Stable enrolment ratio (SER) scenario. The projected number of students in higher education according to the SER scenario are depicted in Figure 6.1.

Figure 6.1. Observed (1998-2010) and projected (2011-2020) number of students in the tertiary education – stable enrolment ratio scenario

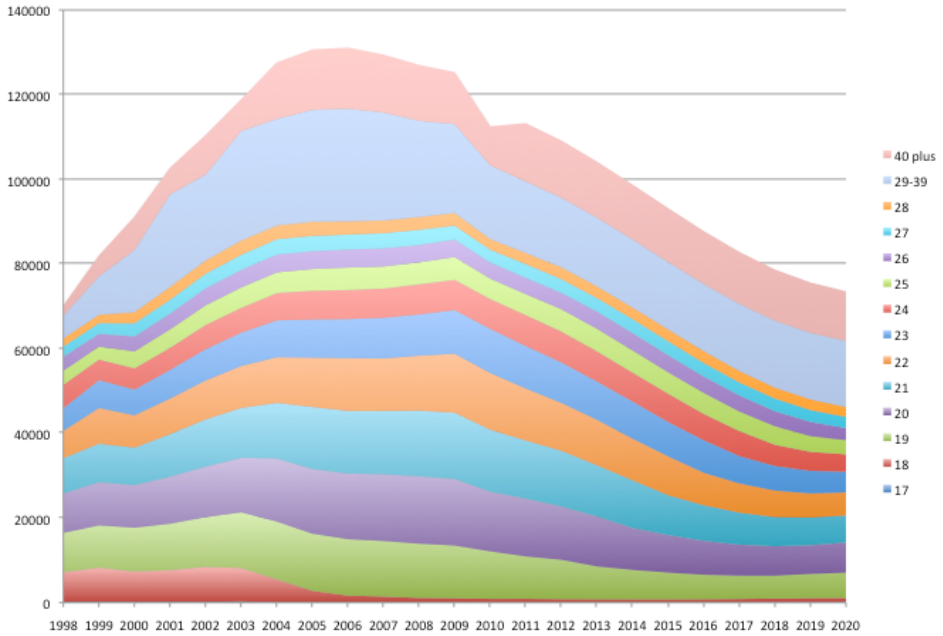


The SER scenario suggests, that the total number of students in tertiary education will decrease from 113 thousands in 2010 to 92 thousands in 2020, the enrolment in 2020 would be 80% of that of 2010. The most severe decline will be observed in the traditional age student groups (18-24) – by 44%, whereas the size of older age student groups (29-39 and 40 plus) will remain stable and would even slightly increase compared to 2010 level as effect of positive enrolment ratio trends and slightly increasing population in the respective age groups.

The projections suggest that in ten years the “traditional” age students (18-24) will be a minority in tertiary education with its proportion decreasing from 64% in 2010 to 44% in 2020, whereas the older age students (over 29) will increase proportionally from 24% to 44%.

6.2. Global education trend scenario (GET). The projected number of students in higher education according to the GET scenario are depicted in Figure 6.2.

Figure 6.2. Observed (1998-2010) and projected (2011-2020) number of students in the tertiary education – global education trend scenario

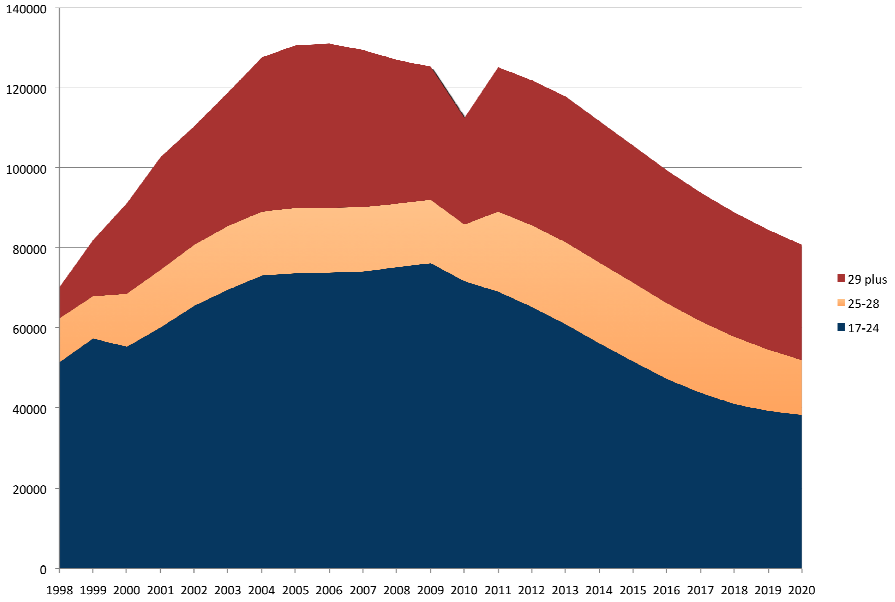


If the Latvian tertiary enrolment structure converges to EU average, we can expect a decline in higher education participation at all ages. The total enrolment in 2020 is expected to approach the level of 1998, i.e., at the level of 70 thousand students. This is a decline of 38% compared to 2010 enrolment.

The combination of two factors working in the same direction – the shrinking cohorts and the lower enrolment rates in EU for younger generation would mean a more than 50% reduction in traditional age student numbers (from 72 to 35 thousands). The older cohorts (29 plus) are not shrinking by 2020, and the fall in enrolments is only affected by lower enrolment rates in EU, which results in a 13% fall (from 17 to 15 thousands) in the older age (29 plus) students. As a result, the student population will be older and the proportion of non-traditional students (older than 25) in the total student population will increase to 50% in contrast to 36% in 2010, and even more dramatically compared to 1998 when the proportion of non-traditional students was as low as 27%.

6.3. Crisis scenario (CRI) In the case of the third scenario where economic recession effect on enrolments is taken into account in similar way to that what has been observed during two earlier recessions in the world, the total number of students in the period 2011-2013 would increase compared to 2009 and 2010 level, but it would not reach the year 2006 peak of 131 thousands students (Figure 6.3). The total number of young students would not be as high as before as neither the enrolment rates, nor the demography is positive for these cohorts. The 25-28 years student group though is expected to remain roughly the same size throughout the entire period 2000-2020. After 2013 the enrolment rates are expected to converge to those of EU average, and the demographic decline is even more to play the role. As a result, the total number of students in 2020 will fall to 81 thousands, less than half (47%) of the students being in the traditional age.

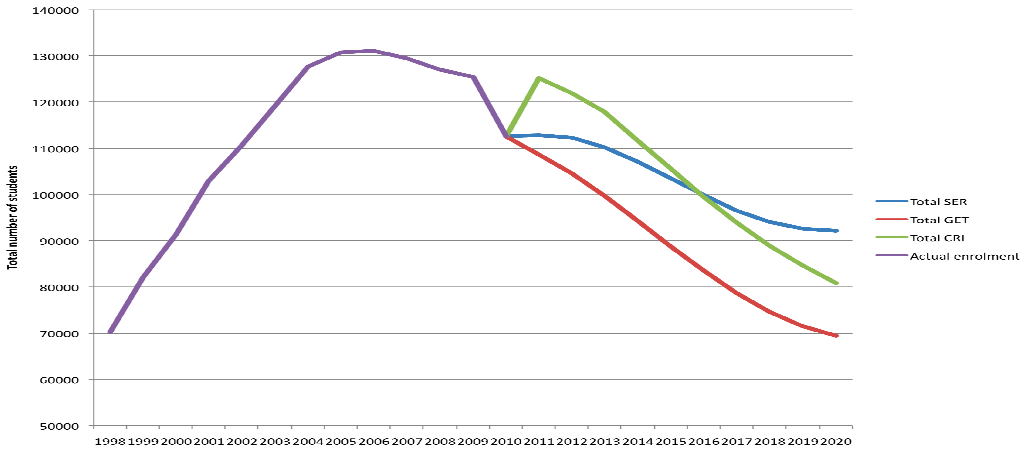
Figure 6.3. Observed (1998-2010) and projected (2011-2020) number of students in the tertiary education – crisis scenario



Summary

The three alternative scenarios rely on different assumptions about the enrolment rate future development, though the results indicate very similar future enrolment situation. Under none of the estimated scenarios sustained enrolment increase in Latvia can be expected. Quite the opposite, all variants suggest fall in total enrolment – by 18% in SER, by 38% in GET, and by 28% in case of CRI scenario compared to 2010 (Figure 6.4).

Figure 6.4. The comparison of estimated trends – total number of students in tertiary education according to three alternative scenarios



The crisis scenario is the only case where enrolment is expected to increase in short term, and it may turn out to be the 'best' case for the higher education system in the following few years.

The other common characteristic is the changes in student age structure (Table 6.1). Mainly reason being the shrinking of the younger cohorts, the number of traditional age students will decrease proportionally to somewhere between 44% and 50%. Consequently the traditional age students would remain minority in the student population. As a contrast, the proportion of adult students will raise from 24% in 2010 to somewhere between 33% and 44% in 2020 (by a factor of three of four compared to 11% in 1998).

Table 6.1. Comparison of scenarios: total number of students and proportions of wider age groups.

	1998	**2010**	**2020**		
	Actual enrolment		**SER**	**GET**	**CRI**
Total	70233	112555	92152	69434	80841
Proportions of age groups in total number of students					
17-24	73%	64%	44%	50%	47%
25-28	16%	13%	12%	16%	17%
29 plus	11%	24%	44%	33%	36%

7. CONCLUSIONS

Higher education in Latvia is in facing of big changes. All facts and analysis suggest that under any development scenario the total enrolment is very likely to fall. The enrolment would never in the future be as high as before. By 2020 the number of students in higher education would decrease by 18-38 percent, depending on assumptions believed. Under current developments the big number of higher education institutions cannot be sustained. Most likely the tertiary education would have to rely on the local demand for education. Even if the export of higher education was stimulated via accessible programmes (esp. the language of instruction), legislation changes and marketing, the present enrolment levels are not likely to be possible. To compensate for the shrinking local demand (for example, compared to SER scenario), by 2020 Latvia would have to import some 20 thousand foreign students. This means that the number of foreigners in universities would have to rise by a factor of 12 (in 2009/2010 there are 1715 foreign students in Latvia[5]).

Nearly all developed countries are experiencing ageing of population and shrinking youth cohorts (at a less dramatic level than in Latvia); therefore the competition for the students internationally is becoming more severe. The real issue therefore is not about competition between universities in Latvia, but about Latvian HE against other countries, that are already working to attract foreign students and successfully drain away them from Latvia.

Informed policy decisions will be required.

[5] There are 1715 foreign students registered in Latvia in 2009/2010 academic year. Some proportion of those in fact are Latvian inhabitants holding foreign passports (ex. Russian, Ukrainian etc.) who have lived all their lifes in Latvia and acquired secondary education in Latvia. The real ‘de facto’ foreign student number is less than statistically appears.

ANNEX

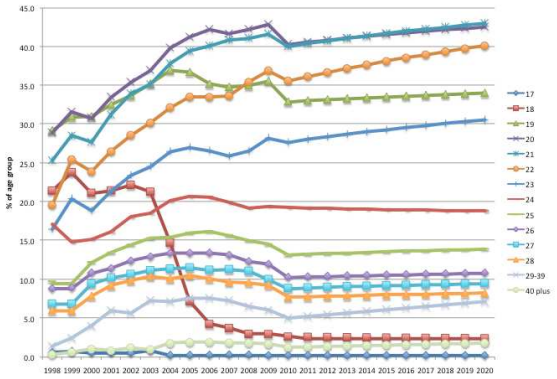


Figure A1. Observed (1998-2010) and projected (2011-2020) age-year specific enrolment ratios in Latvia – SER scenario

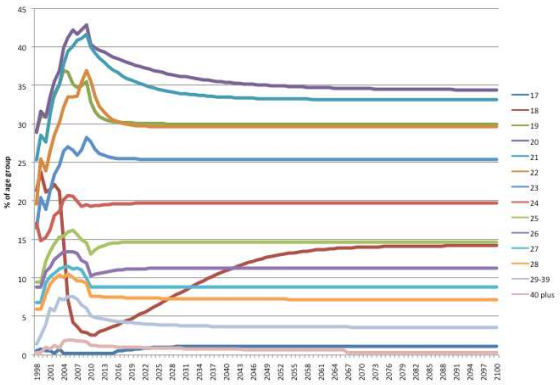


Figure A2. Observed (1998-2010) and projected (2011-2100) age-year specific enrolment ratios in Latvia – GET scenario

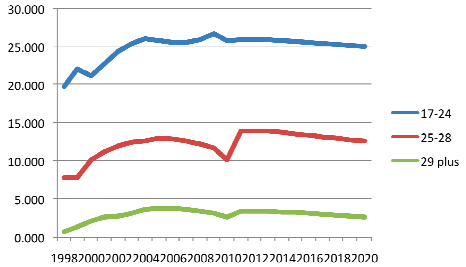


Figure A3. Observed (1998-2010) and projected (2011-2020) age-year specific enrolment ratios in Latvia – CRI scenario

Table A1. Students by ISCED level 5-6, by age, Latvia and EU-27, selected years

	Latvia		**EU-27**
Age	**1998**	**2010**	**2007**
17	0.576	0.206	1.129
18	21.411	2.588	14.191
19	29.196	32.894	29.978
20	28.919	40.318	34.380
21	25.349	40.033	33.181
22	19.608	35.629	29.671
23	16.494	27.685	25.438
24	17.119	19.322	19.749
25	9.728	13.157	14.708
26	8.821	10.294	11.304
27	6.849	8.857	8.855
28	6.004	7.681	7.259
29-39	1.410	5.010	3.554
40 plus	0.323	1.256	0.515

REFERENCES

[i] Higher Education to 2030, Volume 1, Demography, Centre for Educational Research and Innovation, OECD, 2008

[ii] Chawia, M. Et al (2007). *From Red to Grey*. Washington, DC: The World Bank, pp 217-261.

[iii] Mizikaci, F. (2007). Demography: Risks and Opportunities for European Higher Education. *From Here to There: Mileposts of European Higher Education*, Baumbgartl, B.Mizikaci, F., Owen D. (eds.). Navreme publications, Vol7a, March 2007, pp 71-85 (available at www.navreme.net).

[iv] Baumgartl, B.(2007) Relevant Terms of Discussion in Eastern Europe. *From Here to There: Mileposts of European Higher Education*, Baumgartl, B.Mizikaci, F., Owen D. (eds.). Navreme publications, Vol7b, March 2007, pp 20-21 (available at www.navreme.net).

[v] Ahuja V., Filmer D. (1995). Education Attainment in Developing Countries. New Estimates and Projections Disaggregated by Gender, World Bank Policy research working paper No.1489 (WPS-1489), The Worls Bank.

[vi] Lutz W, Goujon A, KC Samir, Sanderson W (2007). Reconstruction of populations by age, sex and level of educational attainment for 120 countries for 1970–2000. In: Vienna Yearbook of Population Research 2007, pp. 193–235. Verlag der Österreichischen Akademie der Wissenschaften, Vienna, Austria. Available at www.oeaw.ac.at/vid/publications/VYPR2007/Yearbook2007_Lutz-at-al- Education_pp193-235.pdf

[vii] KC Samir, Barakat B, Goujon A, Skirbekk V, Lutz W (2008). Projection of Populations by Level of Educational Attainment, Age and Sex for 120 Countries for 2005–2050. IIASA Interim Report IR-08-038. Available at www.iiasa.ac.at/Admin/ PUB/Documents/IR-08-038.pdf

[viii] Guo S (2002). Three enrollment forecasting models: issues in enrollment projection for community colleges, Conference paper at Asilomar conference Grounds, California, May 2002

[ix] Siegel J.S., Swanson D.A (eds) "The methods and materials of demography", Elsevier Academic Press, 2004, pp 523-537

[x] Jacoby E.G., Methods of school enrolment projection, Educational studies and documents No.32, UNESCO 1959

[xi] Eurostat, methodological note on EUROPOP2008 convergence scenario, http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/proj_08c_esms.htm (accessed 26/10/2009)

[xii] Moody's International Public Finance (2009). *Global Recession and Universities: Funding Strains to Keep Up with Rising Demand*, Special Comment on Higher Education, June 2009. Available at http://www.universityworldnews.com/filemgmt/visit.php?lid=45.

[xiii] Hazarika G. (2002). *The Role of Credit Constraints in the Cyclicality of College Enrolments*, Education Economics; Aug2002, Vol. 10 Issue 2, p133-143, 11p

[xiv] Kivinen O., Rinne R. (1996). *Higher Education, Mobility and Inequality: The Finnish Case*, European Journal of Education, Vol. 31, No. 3, Access to Higher Education 1985-95: An Extraordinary Decade (Sep., 1996), pp. 289-310 (22 pages)