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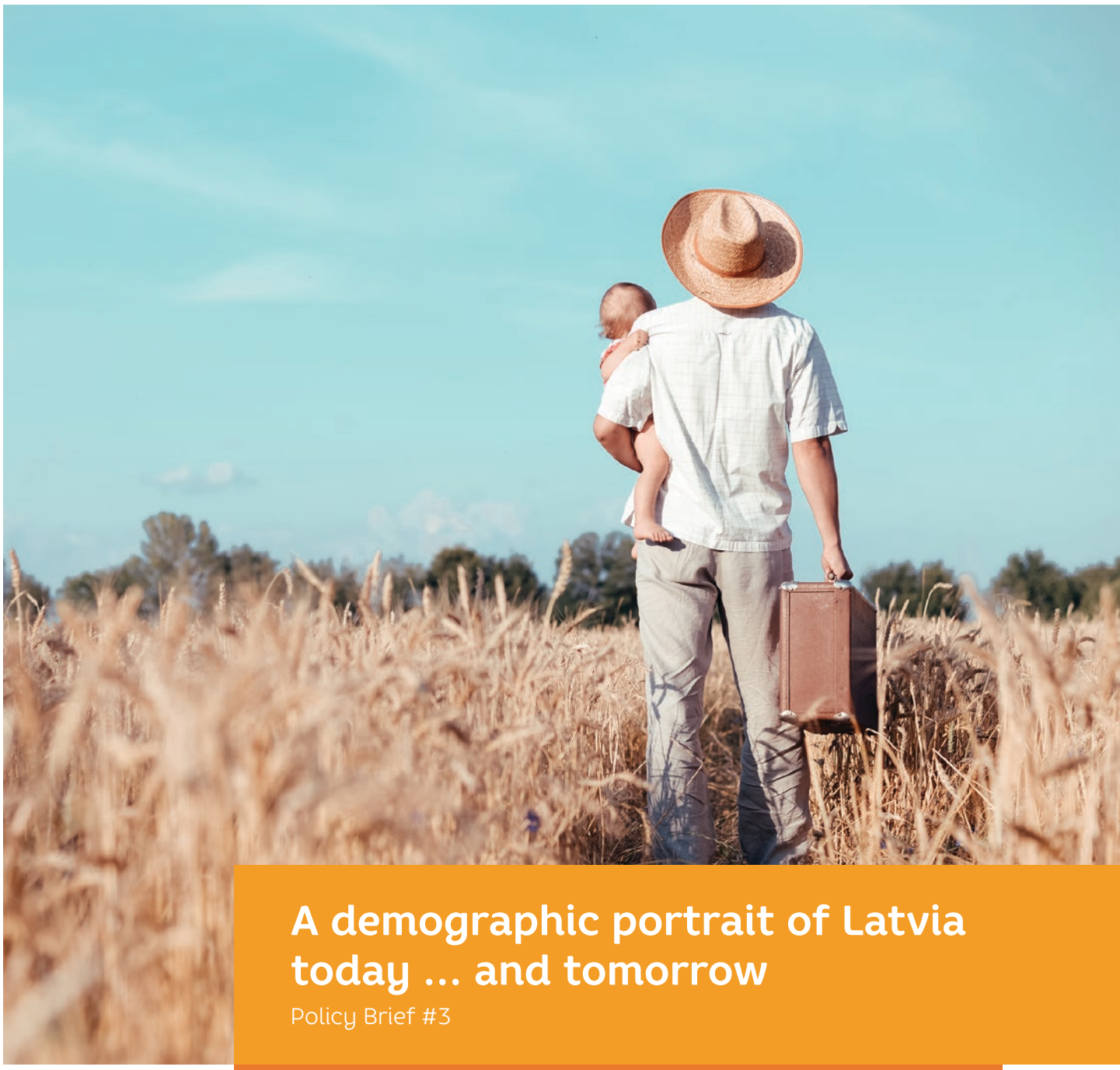

A demographic portrait of Latvia today ... and tomorrow

Policy Brief #3

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Riga, June 2017

EXECUTIVE SUMMARY

- The population of Latvia was 1.97 million in 2016, a decrease of 700,000 people (or a decline of 26%) from the 2.67 million people in Latvia recorded in the 1990 census. This is an average decline of 74 people every day.

- In contrast, the global population continues to grow by 76 million people every year and average life expectancy in developed countries grows by two years every decade – or five hours a day.

- Previous demographic projections for Latvia have assumed that the population will continue to contract sharply with the United Nations (UN), for example, projecting a decrease to 1.8 million by 2030 and 1.6 million by 2050.

- In contrast, Certus' projection of Latvia's demographic future models the gradual convergence of Latvian incomes with the wealthier economies of the European Union and projects that the steep fall in population will tail-off in the 2020s and the population will gradually level out at just under 1.9 million people.

- This stabilisation in the size of the population will be driven by rising salaries and a commensurate fall in the number of Latvians migrating abroad in search of better-paid employment. The number of in-coming migrants will remain as before. In other words, the number of immigrants will exceed the number of exiting migrants.

- Deaths will continue to exceed births as life expectancy continues to increase and fertility rates remain low.

- Latvia's population will be ever greyer. By 2030 1 in 4 people will be over 65.

- Rather than migrating abroad, working age Latvians will continue to migrate from rural regions to cities, particularly Riga and the Riga region, where they can expect higher salaries and greater professional opportunities. However, a higher rate of GDP growth – around 5% - is projected to slow the rate of internal migration in Latvia.

- As a result, the high-school age population in Riga and the Riga Region will grow by 62% and 34% respectively. However, there will be a marked decline of the high-school age population elsewhere, particularly in Vidzeme (-18%) and Latgale (-23%). Small, rural regions will be the hardest hit.

- Rural municipalities will face the double challenge of a long-term declining tax base alongside steadily rising expenses relating to health and carer services to pensioners. Both national and local government must start planning for the demographic shifts that Latvia faces over the next decade.

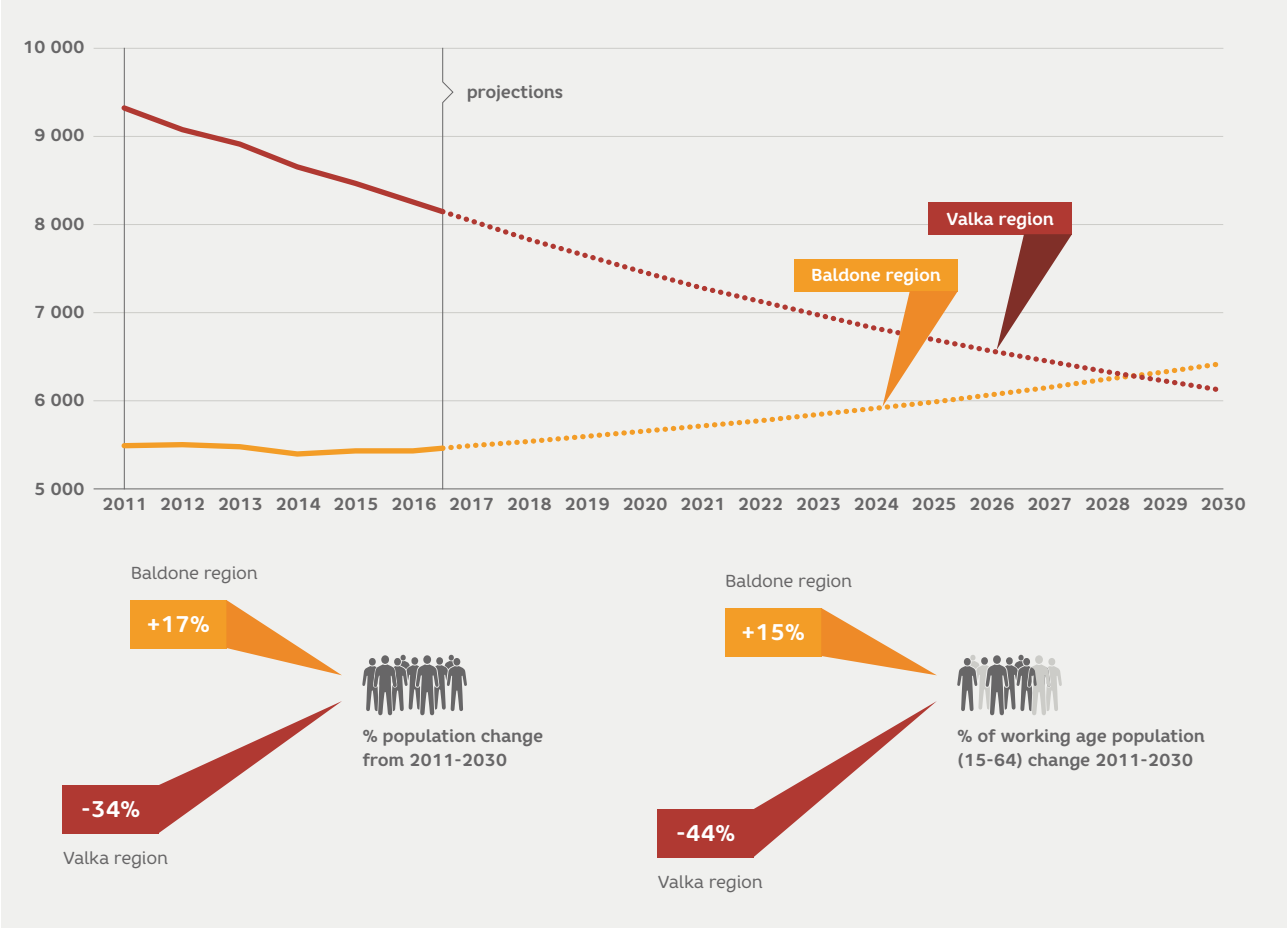
INTRODUCTION

Long-term demographic trends are dividing Latvia into two contrasting halves. One, shrinking, half of the population lives in small towns and rural regions far from Riga, experiences higher unemployment, lower salaries and a rapidly ageing demographic. The other is younger, wealthier, urbanised and benefits from the greater professional and personal opportunities offered by living in and around the growing communities clustered by the capital city of Riga.

The 700 year old town of Valka is situated on the Latvian-Estonian border some 160 kilometres from Riga and another 90 from Tartu. Valka was a major railway junction town for much of the twentieth century and the Latvian Provisional National Council proclaimed Latvia's autonomy from the Russian Empire there in 1917. However, Valka's long and distinguished history is no guarantee of future prosperity. In 2030 the Valka region will have the smallest share of working age population (55%) of any Latvian region and more than one-quarter (27%) of the population will be pensioners over the age of 65. Valka faces a rapidingly shrinking tax base at the same time as expenses related to old age rise.

A tale of two regions. Population projections for Valka and Baldone regions up to 2030[1]

Figure 1



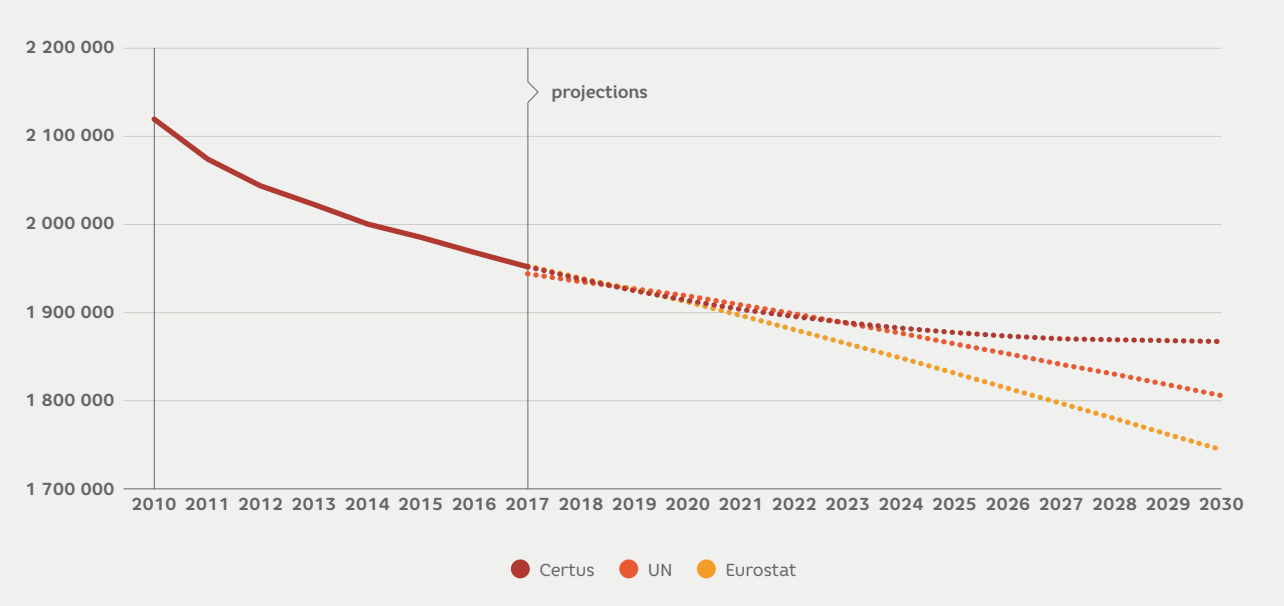
[1] Latvia's Central Statistical Bureau 2017. Certus Demographic Projection 2017.

In contrast Baldone, a historic spa town, is just over 30 kilometres from Riga and has a fast growing population. In the early 1990s the Baldone region had a population of just 4,900 (while Valka had more than 13,000 inhabitants). Over the next decade Baldone is projected to outgrow Valka (see figure 1). Moreover, in 2030 two-thirds (65%) of Baldone's population will be working age and the number of young people 15 and under (17%) will be almost the same as those aged over 65 (18%). Baldone's municipal authorities can plan for the future with confidence.

As these two cases show, the familiar doom and gloom narrative of Latvia's post-1991 demographic change is far too simplified. It is certainly true that Latvia has experienced a sharp demographic decline with the total population decreasing from 2.67 million in 1990 to less than 2 million (1.97 million) in 2016. Indeed, most demographic projections assume that Latvia's population will continue to contract, with the United Nations (UN), for example, estimating a fall to 1.59 million by 2050 and then just 1.28 million by 2100.[2]

Eurostat, United Nations and Certus demographic projections for Latvia[3]

Figure 2



However, Certus' demographic projection presents a more nuanced portrait of Latvia's demographic future. In contrast to projections made by Eurostat and the UN, Certus models the declining economic disparity between Latvia and the rest of the European Union (specifically Germany, the European Union's economic powerhouse) and its effect on emigration. It specifically models the change in net wages in Latvia and the EU (using the average German wage as a proxy) when estimating external migration flows, largely because the main driver for emigration has been the disparity between Latvian and European Union average net wages. Thus, the model (1) projects the net wage increase for Latvia, (2) estimates the relationship between emigration (share of emigrants) and the net wage differential with Germany for Latvia, Lithuania and Estonia, and (3) applies this relationship between future wages to potential emigration levels.[4]

[2] United Nations, Department of Economic and Social Affairs, Population Division. 2015. World Population Prospects: The 2015 Revision, Key Findings and Advance Tables. Working Paper No. ESA/P/WP.241.
[3] CSB data for 2010-2016. Eurostat 2017. United Nations, Department of Economic and Social Affairs, Population Division. 2015. World Population Prospects: The 2015 Revision, Key Findings and Advance Tables. Working Paper No. ESA/P/WP.241. Certus Demographic Projection 2017.
[4] The methodology is explained in more detail in the methodological note at the end of this policy brief.

Similarly to Estonia's experience in 2015 and 2016, Certus' projection sees migration from Latvia slowing and then levelling out, halting Latvia's steep demographic decline and seeing a reasonably stable population size throughout the 2020s (see figure 2).[5] Indeed, the UK's Brexit from the European Union is likely to both encourage some return migration to Latvia as the largest country of migration for Latvians over the last decade and a half shuts the door on the free movement of labour from the EU.[6]

Even as the population stabilises, Latvia in the 2020s will be an older, greyer and more urbanized country with far flung effects on the budget in terms of infrastructure, pension, health and long-term care expenditures. The median average age of the population will rise by one year from 42 to 43 by 2030. While gains in life expectancy are to be celebrated, ageing creates new challenges for policy-makers, particularly because it will have a pronounced regional affect, as much of the elderly will be concentrated in rural regions experiencing demographic decline while the ambitious, young, working age population relocates to urban areas, particularly in and around the capital city Riga, in search of greater education, professional and social opportunities.

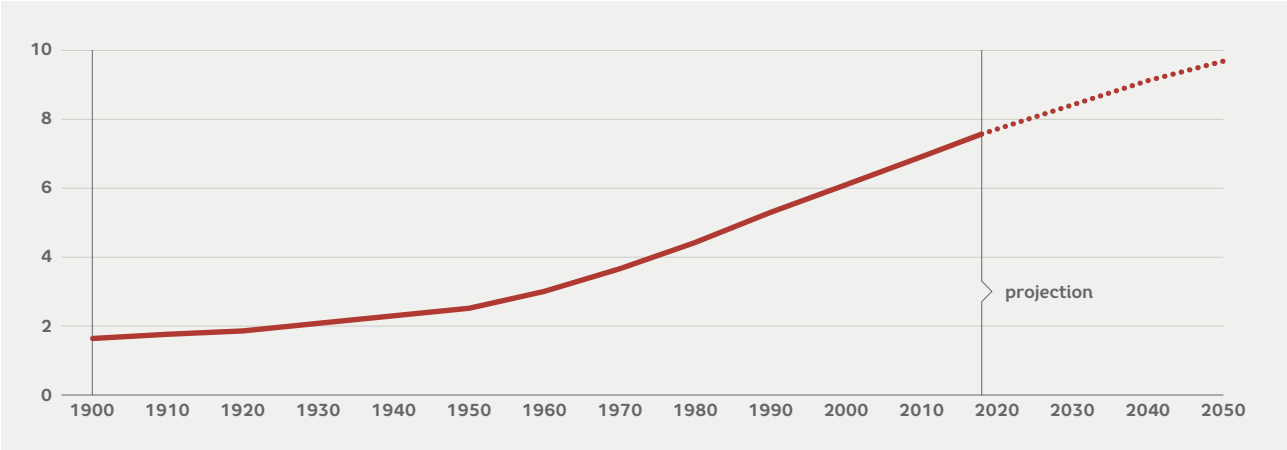
This policy brief gives an overview of global and domestic demographic trends. It sketches in Latvia's long-term demographic decline and ageing as well as the growing disparity between Riga and the region around the capital city and the rest of Latvia. However, it also sounds an optimistic note, projecting that as incomes gradually merge with the European Union average migration away from Latvia will slow down and eventually be reversed.

1. INTERNATIONAL DEMOGRAPHIC TRENDS

The post Second World War era saw rapid growth of the global population after many centuries of demographic stability. Developments in the quality of health-care saw big falls in infant and child mortality rates. At the other end of the age spectrum, average life expectancy in developed countries grew by two years every decade – or five hours a day.[7]

Global population growth, 1900-2050 (billions)[8]

Figure 3



[5] Similarly, the population of Estonia grew by 1,850 people in 2016 and more than 2,000 in 2015, the first positive increase in Estonia in the twenty-first century. Statistics Estonia. 2017. 'The population of Estonia increased last year'. http://www.stat.ee/news-release-2017-008. Indeed, an SKDS survey at the end of 2016 found that a record low percentage of Latvia's inhabitants (13%) was considering emigration. LETA. 7 May 2017. "Tuvāko gadu laikā strādāt uz 'laimes zemi' varētu doties mazāk ļaužu."

[6] However, the impact of Brexit has not been modelled in the Certus projection.

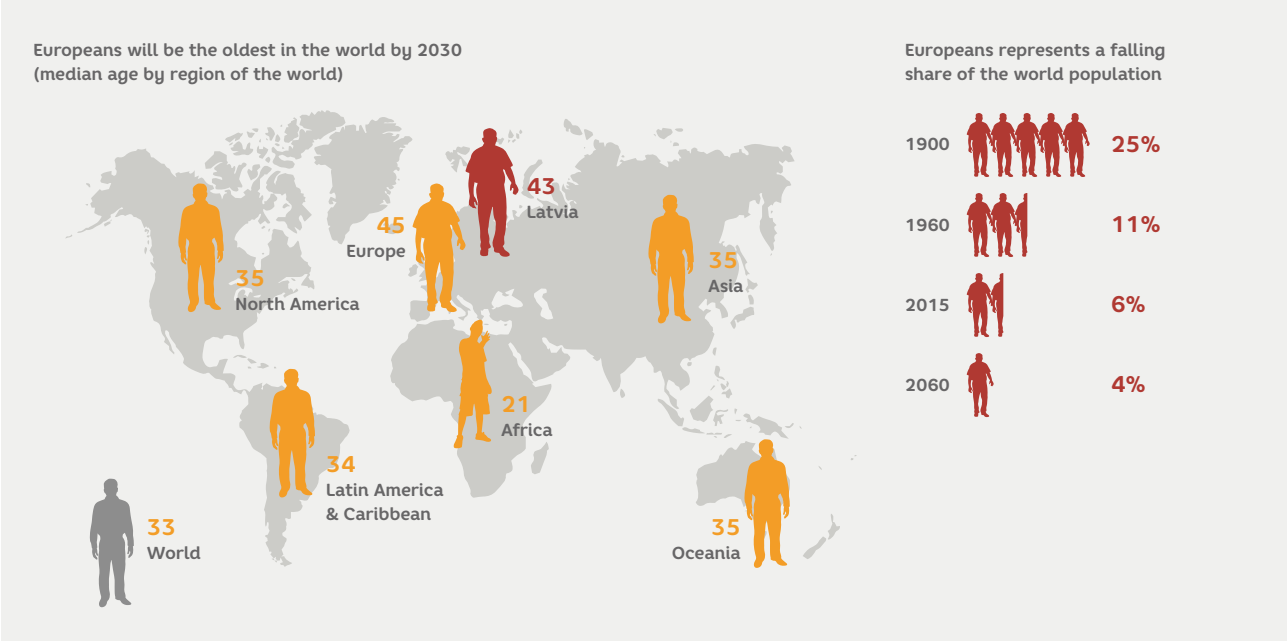
[7] Kirkwood, T. 2006. Ageing: Too fast by mistake. Nature. 444. pp. 1015-1017.

[8] 1900-1940 from http://www.un.org/esa/population/publications/sixbillion/sixbilpart1.pdf. 1950-2050 from United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition. https://esa.un.org/unpd/wpp/Download/Standard/Population/

The global population in 2016 was an estimated 7.4 billion, a growth of more than one billion people over the previous dozen years. It is projected to be almost 10 billion by 2050, growth of some 76 million people a year. To put this into context, every year the global population will increase by more than double the total number of people living in the eight Nordic and Baltic states today.

Europe in decline[9]

Figure 4



95% of global growth will be seen in developing countries, particularly those on the African continent. In contrast, Europe is both ageing and contracting. The European Union's current 6% share of the world's 7.4 billion population (about half the population of India or China) is projected to shrink further to just 4% by 2060.[10] Moreover, Europe will also be much older than other parts of the world - the median age of the EU's population grew by six years (from 36.2 to 42.2) in just two decades between 1994 and 2014 and will reach 45 by 2030 – more than double the average age in Africa (see Figure 4).[11]

Trends differ between European states. While the overall population of Europe has continued to modestly expand (although a contraction is projected from the mid-2040s), eleven of the EUs 28 member states, including Latvia, have experienced population decline in the twenty-first century. The seventeen other member states saw an increase – indeed, the population of the United Kingdom grew by 4.5 million inhabitants in this period.[12] Nevertheless the long-term trend for Europe and Latvia is for the population to both age and contract.

[9,10] European Commission. 2017. White paper on the future of Europe: Reflections and scenarios for the EU27 by 2025.
[11] Eurostat. 2015. 'People in the EU – statistics on demographic changes'. http://ec.europa.eu/eurostat/statistics-explained/index.php/People_in_the_EU_%E2%80%93_statistics_on_demographic_changes
[12] Between 2004 and 2013 Germany saw a fall in population of 1.8 million while Romania's population fell by 1.6 million. At the same time the population of the UK grew by 4.5 million, Spain by 4 million and France by 3.5 million. See Eurostat. 2015. 'People in the EU – statistics on demographic changes'. http://ec.europa.eu/eurostat/statistics-explained/index.php/People_in_the_EU_%E2%80%93_statistics_on_demographic_changes

2. DEMOGRAPHIC TRENDS IN LATVIA

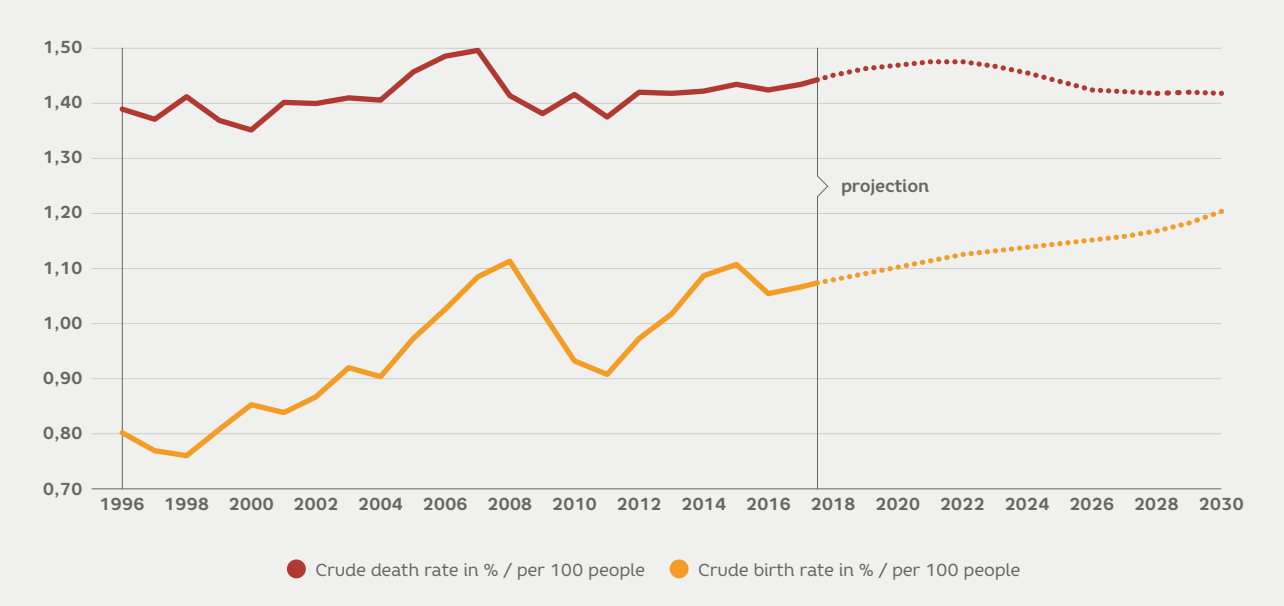
Latvia has seen extreme swings in population size over the past 100 years. The dislocations of the two world wars, Soviet era in-migration and more recent European Union era out-migration has seen the population repeatedly rise and fall. In the late 1980s the Latvian SSR's population stood at almost 2.7 million people. By 2016 this had fallen to 1.97 milllion.[13]

Two factors cause population change. First, the **natural change** in population caused by the differences between the number of births and the number of deaths. Second, **net migration** – the difference between the number of people entering and leaving the country.

First, deaths have continued to exceed births in Latvia since the 1990s (although figure 5 shows that the number of births has steadily edged up).[14]

Crude birth and death rates in Latvia per 100 people, 1996-2030[15]

Figure 5

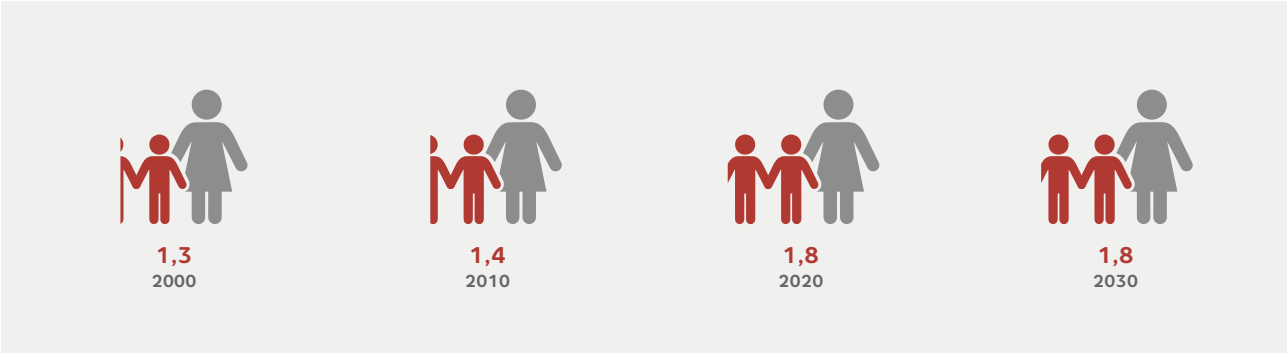


Second, although Latvia has caught up with, and is even projected to exceed the EU average fertility rate (the average number of children born per female), the Latvian rate remains well below the 2.1 births per female needed to keep the population at a constant size (see figure 6).[16] Nevertheless, Latvia has had one of the fastest growing fertility rate in the EU since 2014. This is largely explained by an improvement in the post-crisis economic environment as well as a simultaneous increase in government support – primarily cash benefits as well as tax breaks and subsidised services – for families with children.

[13] This has also resulted in one of the lowest population densities in the European Union at 30 persons per square km in 2016. CSB. 2016. Demogrāfija.
[14] The number of births in Latvia gradually crept up in the early years of the twenty-first century, from 20,302 in 2000 to a high of 24,397 in 2008 (children conceived before Latvia's deep economic recession) before falling back to 1990s birth rates.
[15] Crude birth and death rates refer to the number of births and deaths per 1000 people. CSB. 2017. Certus Demographic Projection for Latvia. 2017.
[16] Eurostat. 2017. Fertility statistics. http://ec.europa.eu/eurostat/statistics-explained/index.php/Fertility_statistics

Fertility rate in Latvia, 2000-2030[17]

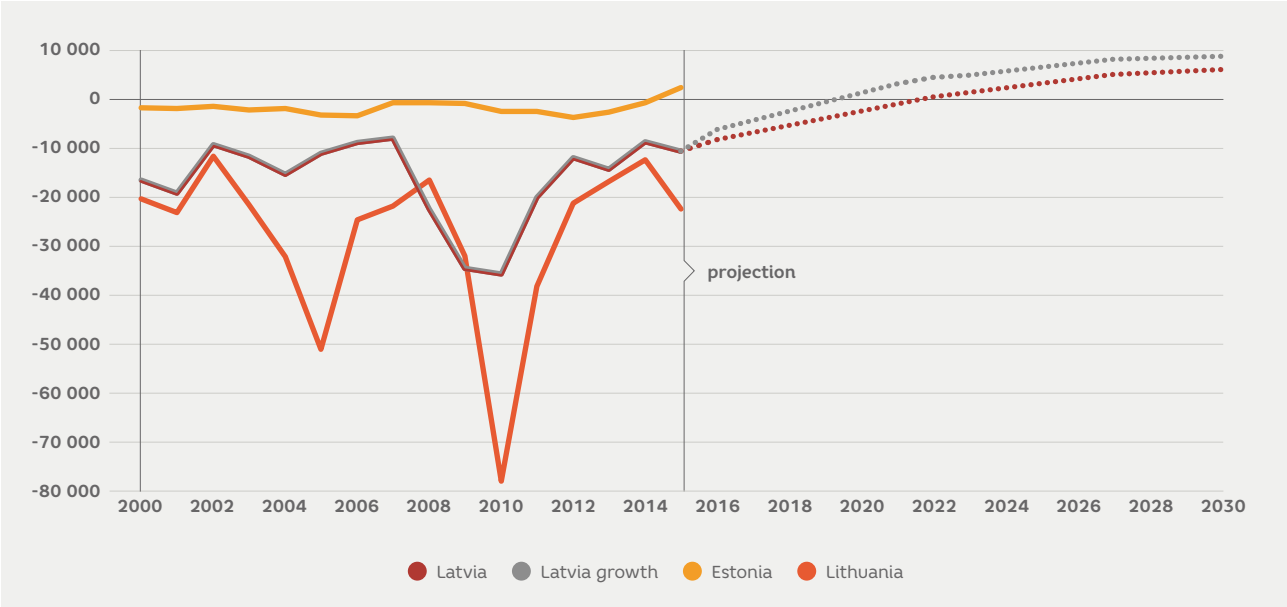
Figure 6



The other driver of demographic change has been net migration from Latvia to wealthier states in the EU. Figure 7 compares net migration in the three Baltic states. Estonia has experienced lower rates of migration because of the presence of Finland, one of the wealthier states in the EU as well as one with deep linguistic and cultural ties to Estonia, on its border. In 2016 there were over 50,000 Estonians living in Finland (more than one in five of all migrants) and a similar number of Estonians working there but maintaining their residency in Estonia.[18] In 2014 the migration trend was reversed and the Estonian population began to grow.

Net migration in Latvia, Lithuania, and Estonia 2000-2015. Projections for Latvia, 2016-2030

Figure 7



[17] Data retrieved from Eurostat database. Total EU28 fertility rate starting 2016 calculated as a simple average from the member states' fertility rates
[18] Statistics Finland. 2017. Foreign citizens.
http://www.stat.fi/tup/maahanmuutto/immigrants/immigrants-in-the-population/foreign-citizens/index_en.html

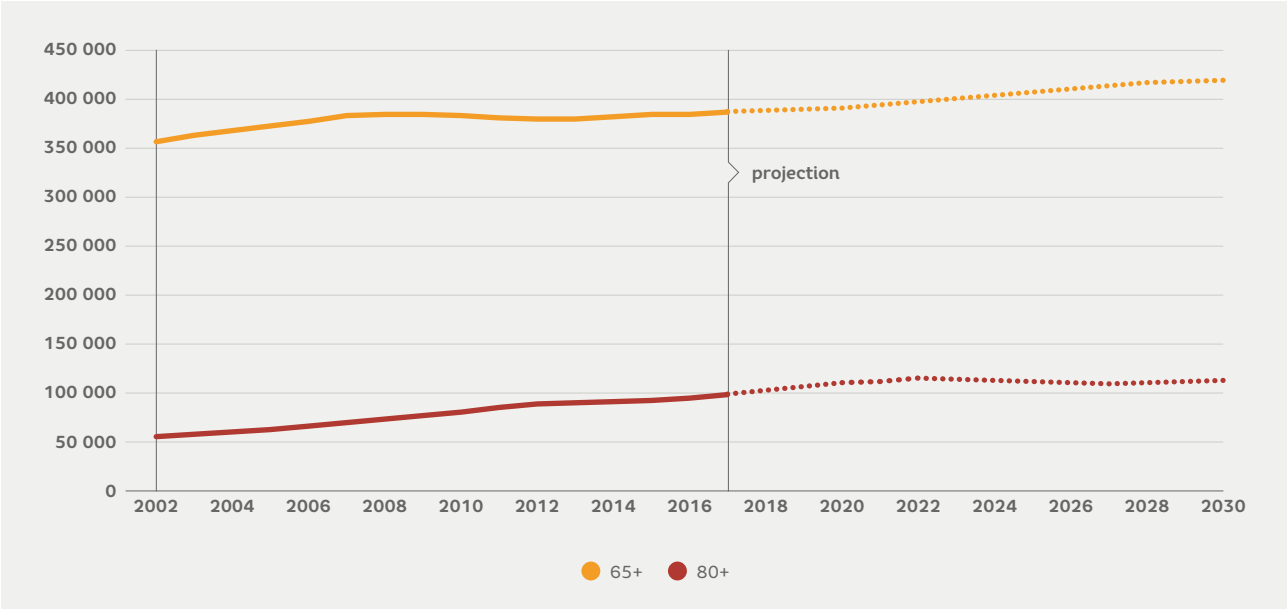
In contrast, Latvia and Lithuania have experienced much higher rates of migration, particularly to the UK and Ireland, although increasingly also to Germany and the Nordic states. However, it should be noted that the rate of migration from Latvia has significantly slowed in recent years as the labour market has tightened and wages have started rising. The modest, blue, projection of migration is based on the Latvian Ministry of Finance's projection of an annual rate of 3% GDP growth. The optimistic, yellow, scenario is modelled on a higher (5%) annual rate of GDP growth and would see Latvia more quickly return to a positive migration flow. In both cases, as prosperity continues to rise the Certus projection sees international migration slow and eventually reverse. Nevertheless, the low domestic birth rate as well as relatively low rates of in-migration mean that the population will remain stable rather than experience growth.

Life expectancy and the average age will continue to steadily increase. Indeed, Latvia is a fast-ageing country. In 2002 the average life expectancy for a Latvian male was 64 and for a female 76. However, in 2016 this had grown to 69 and 79 respectively and will reach 73 and 82 by 2030.[19]

Increases in life expectancy have seen a sharp increase in the number of pensioners and particularly those aged 80+ (figure 8). While people in their sixties and even seventies may well stay economically active in order to supplement their pensions or simply in order to continue working, those aged 80+ lean more heavily on the state for pension income, as well as health and caring facilities. By the early 2020s Latvia will have twice as many people aged 80+ compared to 2002 – critically, however, Latvia's overall working age population will be much smaller.

Number of people in Latvia aged 65+ and 80+[20]

Figure 8

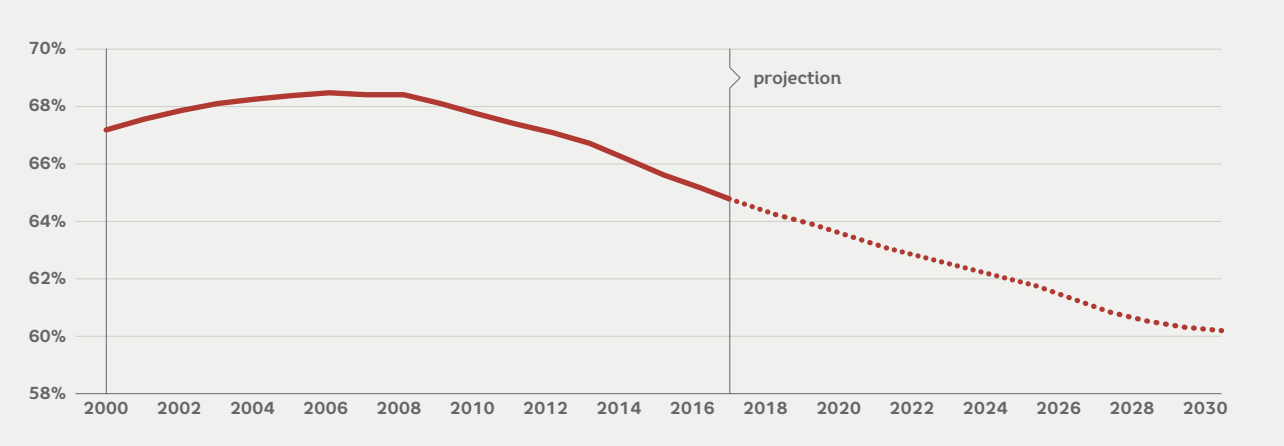


[19] Data retrieved from Eurostat database (indicators Life expectancy by age and sex [demo_mlexpec] and Life expectancy by age and sex [proj_15nalexp]); total EU28 life expectancy starting 2016 calculated as a simple average from the member states' life expectancy numbers

[20] Data retrieved from Eurostat database (indicators Population on 1 January by age and sex [demo_pjan] and Population on 1st January by age and sex [proj_15npms]) and Sergejs Gubins' projections for Latvia

Low fertility and rising longevity has had an inevitable impact on the relative size of Latvia's working age population. On the eve of the economic crisis of 2008-2010, 68% of the Latvian population was working age. By 2017 this had fallen to 65% and by 2030 it will be just 60% (figure 9).

Working age population as % of total population in Latvia from 2000 to 2030 Figure 9



The fall in the proportion of working age people has meant a rising old age dependency ratio. In 1990 there were 18 persons aged 65+ for 100 working age people (aged 15-64). In other words, there were 5,5 working age people for every pensioner. However, by 2030 this will have risen to 43 pensioners for 100 working age people, meaning just 2,3 working age people for every pensioner.

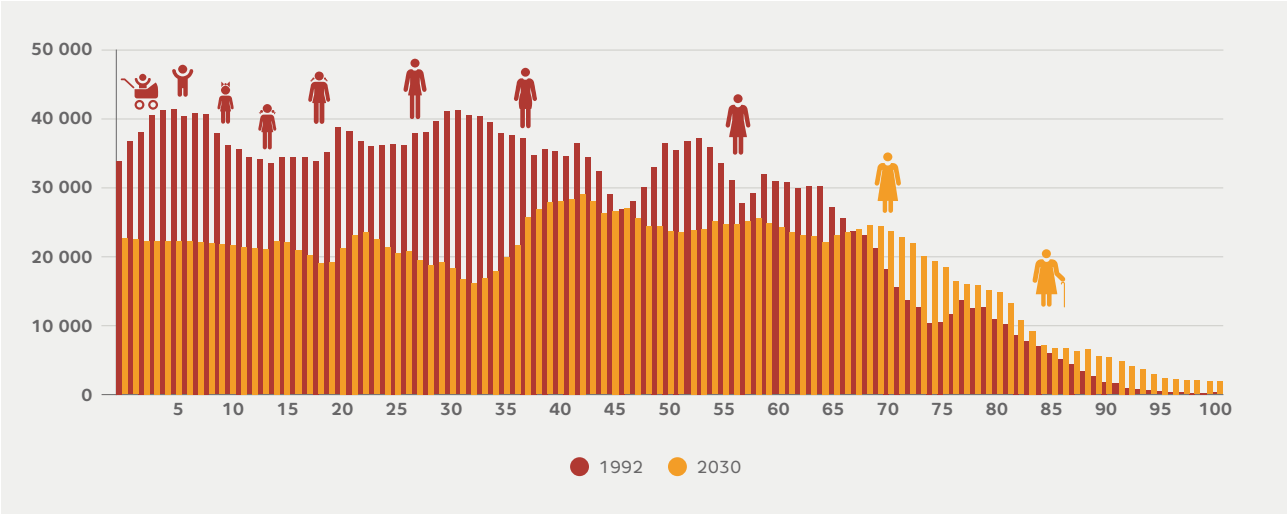
Old age dependency ratio in Latvia 1990-2030[21] Figure 10

To sum up, as the histogram in Figure 11 shows, Latvia's population in 2030 will be significantly smaller and older than half a century earlier. This will inevitably create further budgetary pressures on healthcare and pensions spending as well as redistribution of resources from Riga and the Riga region towards more distant, older and sparsely populated municipalities.

[21] This is the ratio between the number of persons aged 65 and over and the number of persons aged between 15 and 64. Eurostat. 2017. Population: Structure indicators and Projected demographic balances and indicators.

Latvia's population by age distribution in 1992 and 2030

Figure 11



However, the Certus demographic projection offers some hope. If Latvian incomes converge with the wealthier European Union economies, then migration will slow. Research on Latvia's recent diaspora has shown that the main reason for leaving Latvia was the quest for a larger income. A recent survey of Latvia's diaspora found that "employment opportunities with a suitable salary" would encourage two-thirds (64%) of the diaspora to return to Latvia.[22] Nevertheless, most of those returning to Latvia are likely to settle in Riga and the Riga region with its larger salaries and greater professional opportunities.

3. REGIONAL TRENDS IN LATVIA

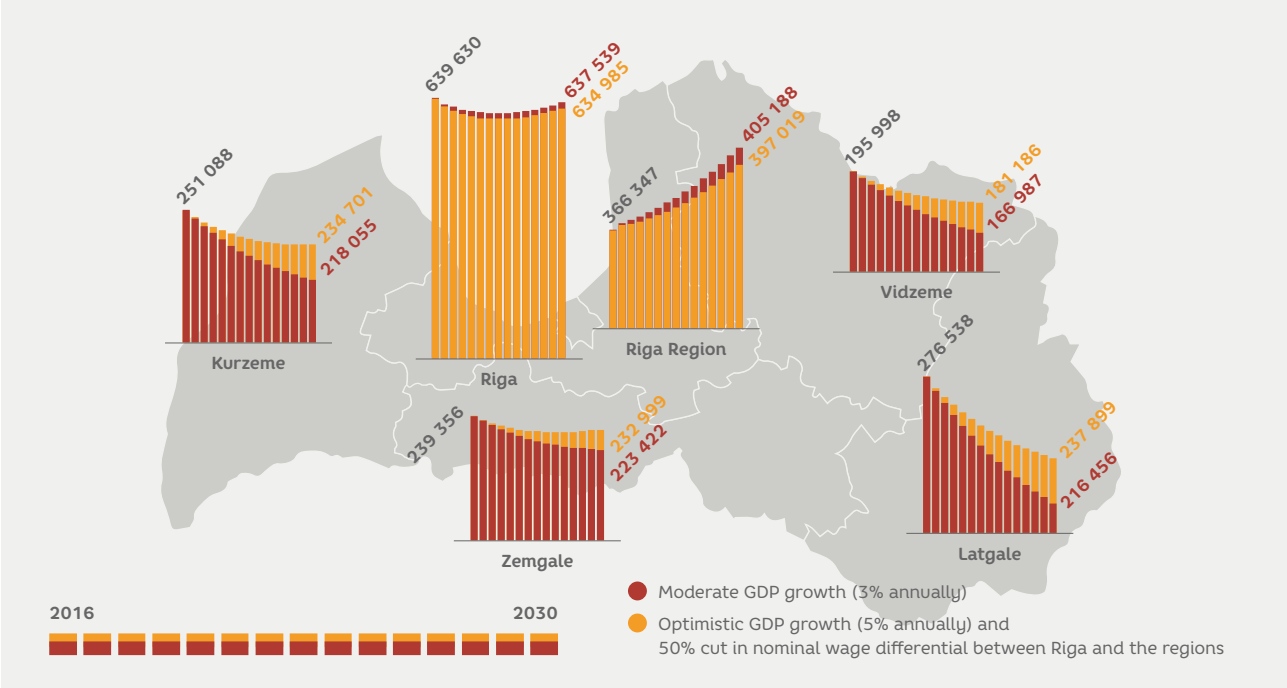
There is a clear relationship between wage differentials and net migration trends between Riga and Latvia's regions. The larger the wage differential, the more people leave the low-salary region. The closer a region is to Riga, the higher the average net wage. The Certus demographic model projected wages in each region and calculated the expected net migration. To ensure that the overall sum of net migration between regions was zero, migration flows were redistributed proportionally across the municipalities that experienced positive average net migration between 2011-2015.

As figures 12, 13 and 14 show, the result is booming cities and continuing rural depopulation. Figures 12 and 14 indicate that urban regions suck ever greater numbers of ambitious young people from rural regions and small towns because they offer a greater choice of educational and professional opportunities, higher salaries and a greater choice of social, cultural and entertainment activities. This leaves rural regions simultaneously shrinking and ageing. Riga and the Riga region now accounts for half the population of Latvia and this share of the population will grow over the coming years under the 3% growth scenario. However, Figure 13 projects internal migration under a 5% GDP growth rate – in this case, the flows of internal migration are far slower and faster rising wages in Latvia's regions means that a larger part of the population 'sticks' to the regions.

[22] Hazans, M. 2016. Atgriešanās Latvijā: remigrantu aptaujas rezultāti. Rīga: LU Diasporas un migrācijas pētījumu centrs. http://www.diaspora.lu.lv/fileadmin/user_upload/lu_portal/projekti/diaspora/petijumi/Atgriesanas_Latvija_-_petijuma_zinojums.pdf

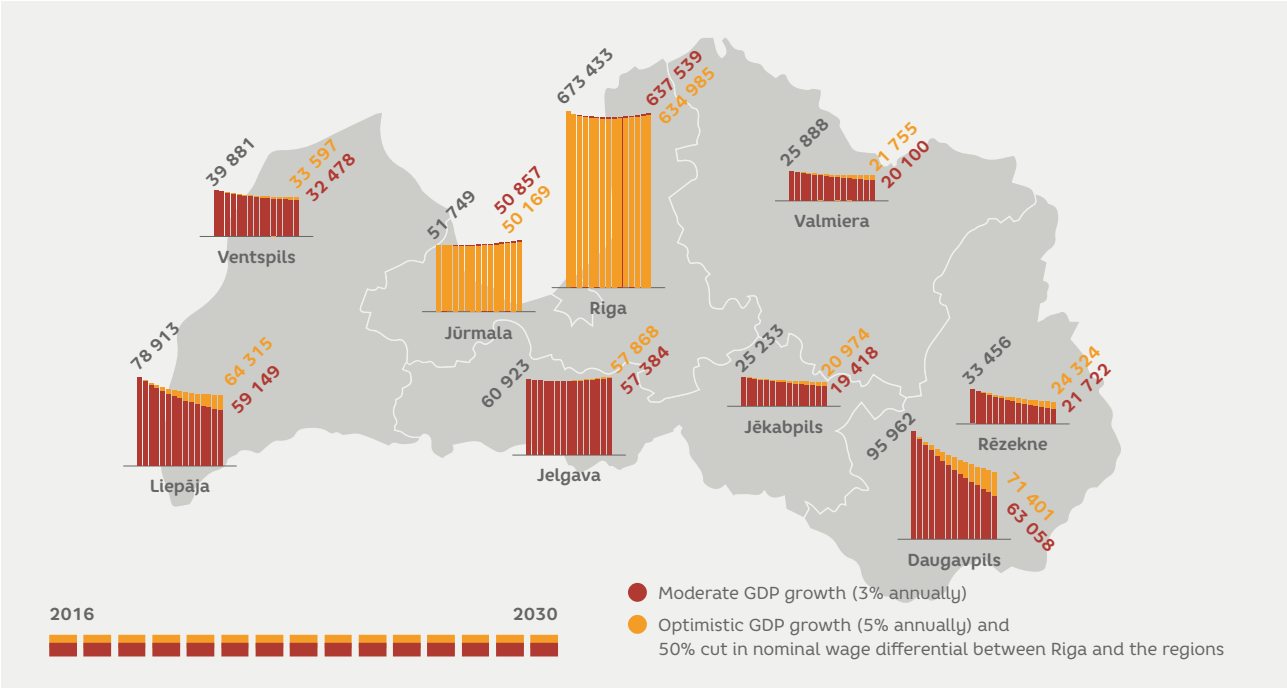
Map of Latvia, by region, projected % change in population between 2016 and 2030 based on moderate GDP growth

Figure 12



Map of Latvia, by region, projected % change in population between 2016 and 2030 based on optimistic GDP growth

Figure 13

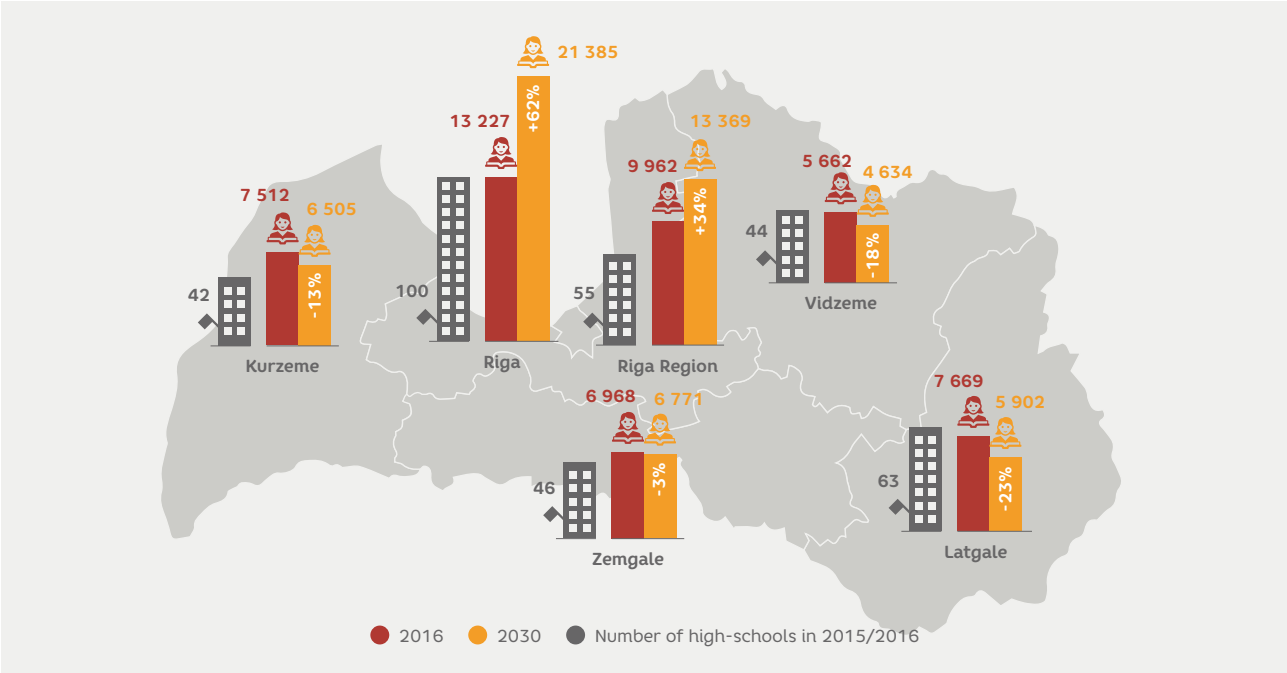


Latvia's rural regions, towns and cities distant from Riga need to prepare for smaller and older populations and resulting falls in budget income just at the same time as expenses related to a growing old age population increase. Many regions will also have significantly smaller school age populations. For example, if we return to the example cited in the introduction, in 2016 Valka region had a high school (ages 16-18) population of 220 and Baldone region 176. However, by 2030 Valka's high school demographic will have declined by 15% to 186 while Baldone's will have grown by 5% to 184. Elsewhere, the change in the high school cohort will be far more dramatic. Latgale will experience a particularly large fall in student number, particularly in rural regions. Four regions that currently have their own high schools will see a major fall in student numbers:

- Vilanu region will see its high-school age population decline by 47% between 2016 and 2030 (182 to 96);
- Varaklanu region will its high-school age population decline by 40% between 2016 and 2030 (100 to 59);
- Dagda region will see its high-school age population decline by 37% (211 to 132);
- Zilupe region its high-school age population decline by 30% (100 to 70).

At the same time, student numbers in and around Riga will rise sharply. Marupe will see an increase in 16-18 year olds of over 150% from 530 to 1,366 and Adazi an increase of 74% (from 294 to 512). These democratic shifts will call for politically difficult, but economically crucial, shifts in spending on education, particularly a consolidation and reallocation of high schools across the state.

Map of Latvia showing changing high school age populations in Latvia's regions Figure 14



The growing concentration of the population in and around Riga will also inevitably impact infrastructure spending. Valka, for example, is currently served by one A road and three P (regional) roads while Baldone, which is projected to be larger population than Valka in a decade's time, is served by just one P road. Tough decisions on road construction and maintenance, as well as other infrastructure investments, are inevitable.

CONCLUSIONS

Latvia has experienced severe demographic decline over the last quarter century as a result of low birth rates and out-migration. Rural regions have been particularly hard hit as those young people that stayed in Latvia increasingly relocated to Riga and the Riga region in search of economic opportunities. The result is an overall ageing of the population, particularly in the rural regions most distant from Riga as well as a fall in the number of working-age people who will be burdened with funding the pensions (as well as health-care and caring) of Latvia's growing elderly population.

Certus' projections suggest that Latvia's gradual economic convergence with the wealthier states in the European Union will return Latvia to demographic stability in the medium-run. Nevertheless, national and local governments, policy-makers and society will still have to deal with the fall-out from a smaller, urbanized and older population. Most rural municipalities will have to plan for shrinking rather than growing populations. This entails dealing with an oversupply of housing and office space as well developing strategies to consolidate core infrastructure such as schools, roads, electricity and telecommunications networks. The national government will have to take these trends into account when deciding on the spending and allocation of EU funds as well as when reallocating resources between local municipalities.

Latvia's immediate demographic future looks more promising than the recent past – but both society and policy-makers need to accept the future reality of a smaller, more urban and older population and act accordingly.

NOTE ON METHODOLOGY

This demographic study decomposes population change in each Latvian municipality (*novads*) into four key elements:

1) **Mortality:** Deaths of inhabitants who live in a municipality,
2) **Fertility:** Live births of children to mothers who live in a municipality,
3) **External migration:** Migration to or from foreign countries from a municipality,
4) **Internal migration:** Migration to or from other municipality within the country.

Projections were then made on the magnitude of each of the four factors separately for every 119 municipalities till 2030.

The key source of data was the 2011 Latvian census, which shows the distribution of the population by age in each municipality in 2011. These distributions were used to make demographic projections for all ages from 0 to 100, applying past trends of death rates, birth rates, external migration and internal migration. The projections were calculated in the following way.

Mortality. Historic age-specific death rates (the number of deaths per 1000 people of a certain age) are available for 6 statistical regions (Riga, Riga Region, Kurzeme, Zemgale, Vidzeme and Latgale) for the age groups 0-9, 10-19, 20-29, etc. from 2005 till 2015. We apply these rates for the municipalities and age groups located in the respective regions. Knowing death rates across ages and municipalities, the number of deaths from 2011-2030 are calculated by extrapolation using a logarithmic trend (the results are robust to the changes in extrapolation methods). Since the total numbers of deaths between 2011-2015 are known, these numbers are compared with the ones implied by the projection for this period. Some municipalities consistently «outperform» or «lag behind» in the number of deaths between 2011-2015 (mainly due to the mismatch of the region-municipality data) A small correction term (the average ratio of actual deaths to the implied number of deaths across 2011-2015) is added to the projections for each municipality to account for this.

Fertility. Historic age-specific fertility rates (the number of births per 1000 females) are available from 1992-2015 for all ages only at the national level. These rates were used to calculate the number of newborns for females from 2011 till 2030 by extrapolation. The current trend shows that the number of births for women under the age of 27 decreases over time, while that number increases for women over 28. Logarithmic and exponential trends were used for the first (27 and younger) and second (28 and older) age categories. The results are robust to the changes in extrapolation methods. A small municipality-specific correction term (an average ratio of the actual number of births to the implied number of births across 2011-2015) was applied.

External migration. Many surveys and studies consistently show that emigrants from Latvia seek to improve their economic wellbeing.[23] While there might be various ways to measure the quality of life (GDP per capita or life expectancy, for example), the most direct measure is the net wage. The model assumes that the net wage differential between Latvia and Western European countries (we use the German average net wage as a proxy) also represents the main motivation to emigrate. The relationship between the net wage differential and emigration intensity was estimated by regressing the average share of emigrants according to average net wage differentials with Germany for Latvia, Lithuania and Estonia for the past 10 years. The Baltic states face similar economic conditions and data from these countries enriches the analysis. The result predictably shows a positive relationship between the two variables, implying that a higher net wage differential is associated with a higher the level of emigration.

Future net wages were projected in order to estimate the projected level of emigration from Latvia. The ratio of GDP growth to net wage growth for each year between 2007 and 2016 was estimated, resulting in an average 1.43. This coefficient was applied to projected GDP growth in Latvia (we use the Latvian Ministry of Finance forecast) to calculate net wage growth.

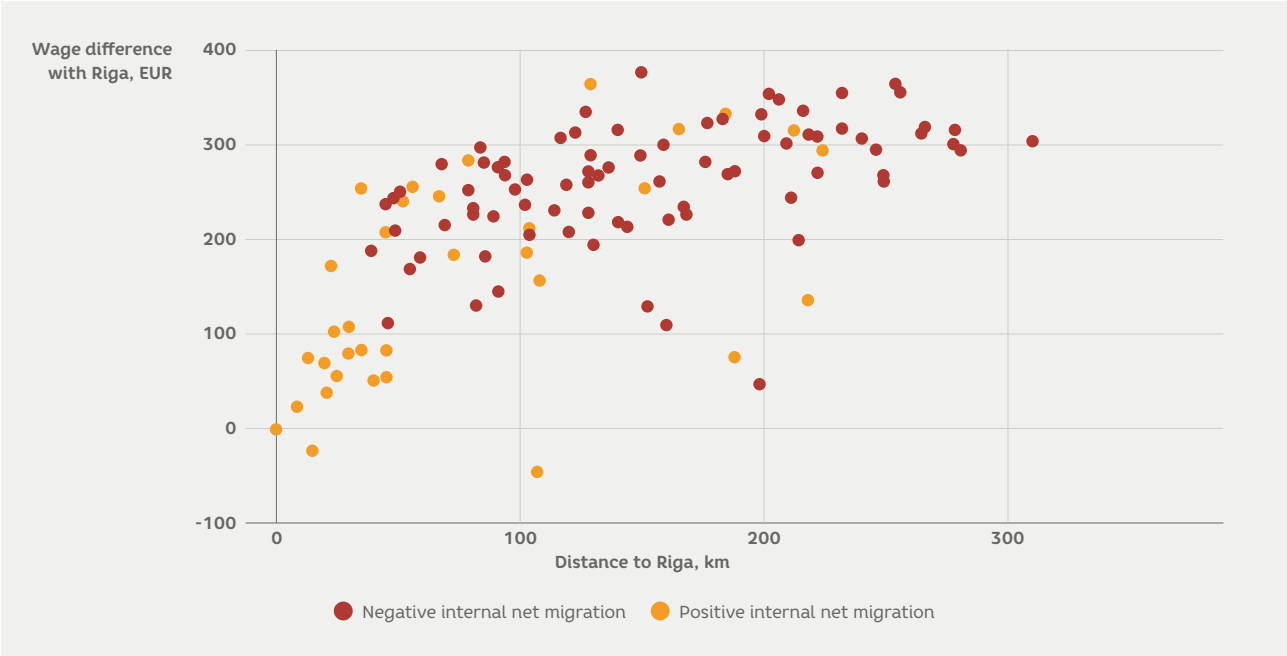
[23] A recent comprehensive study on emigration is Hazans, M. 2015. Emigrācija no Latvijas 21. gadsimtā reģionu, pilsētu un novadu griezumā. In Latvijas emigrant kopienas: Cerību diaspora.

Immigration was not explicitly modelled under the assumption that the current average levels of inward migration (largely caused by personal/education reasons) will remain stable over the next years. This is a conservative estimate, as there may, for example, be significantly more international students as well as return migrants to Latvia.

Internal emigration. Internal migration is assumed to be largely driven by the net wage differential between Riga and the regions. The Latvian statistical agency provides data on net migration (the number of immigrants minus the number of emigrants) for municipalities from 2011-2015. Figure A shows descriptive statistics for 2015 where the x-axis is the distance to Riga from a municipality and the y-axis is the net wage difference between the respective municipality and Riga. Municipalities with positive net migration (more people arriving than leaving) are marked blue, and the negative is red. The closer a municipality is to Riga, the lower the wage difference with Riga, and the more likely it is to be a net positive migration municipality. Figure A shows the current urbanization tendency.

The relationship between wage difference and internal migration is estimated by regressing one on the other. Not surprisingly, the larger the difference in net wages, the stronger is the tendency to emigrate. The resulting coefficient is used to calculate projected emigration from municipalities based on projected wage growth. A logarithmic projection for wages in municipalities based on data from 2009 – 2016 was used. To satisfy the condition that overall internal migration is zero (that the sum of all people leaving some municipalities should be equal to all people settling in other municipalities), municipalities with positive average ratios of migration over the past 7 years were selected and the total number of emigrants from all other municipalities were redistributed across the selected municipalities in proportion to their population size.

Migration across municipalities in Latvia in 2015. Figure A



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