

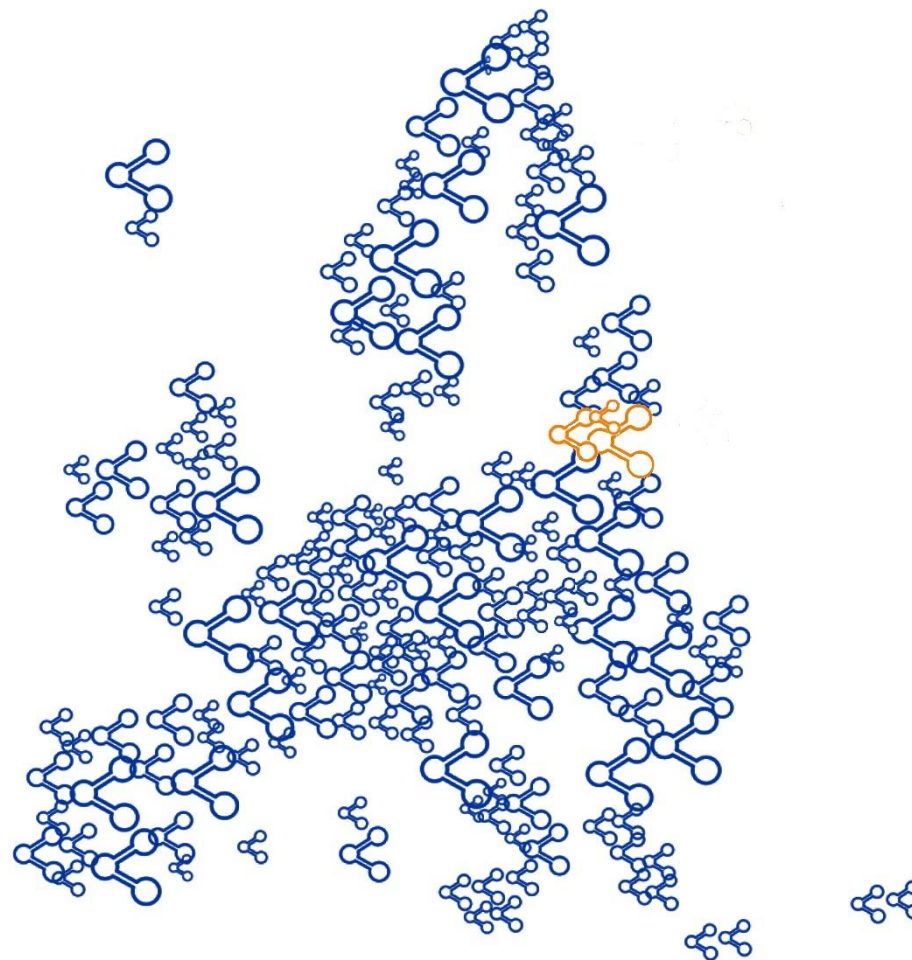
Inspire Policy Making with Territorial Evidence

Territorial fiche

Territorial patterns and relations in Lithuania

- Demography
- Climate change
- Accessibility
- Economy and innovations
- Public Services
- Urbanisation

Interactive version: www.espon.eu/lithuania



Introductory remarks

The content of the following overview is a summary of research results from different thematic applied research projects under the ESPON 2020 programme. As a consequence, most indicators and analyses are not based on most recent data but represent the data availability at the time when the research was undertaken. Only in a few cases, for some rather basic indicators that could easily be reproduced, more up-to-date information was used.

It is therefore important to note that this overview is mainly a collection of available findings with different time stamps and not an up-to-date, comprehensive analysis. Its main goal is to showcase the wide range of ESPON research and, by zooming-in on a specific country, to raise interest for the scientific results at a more national and even regional scale.



Demography

Population change

Attractiveness for migration

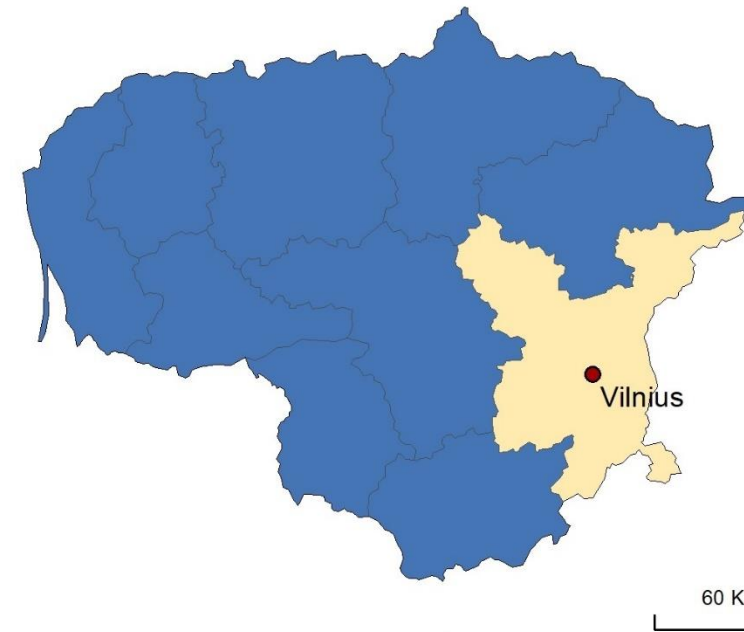
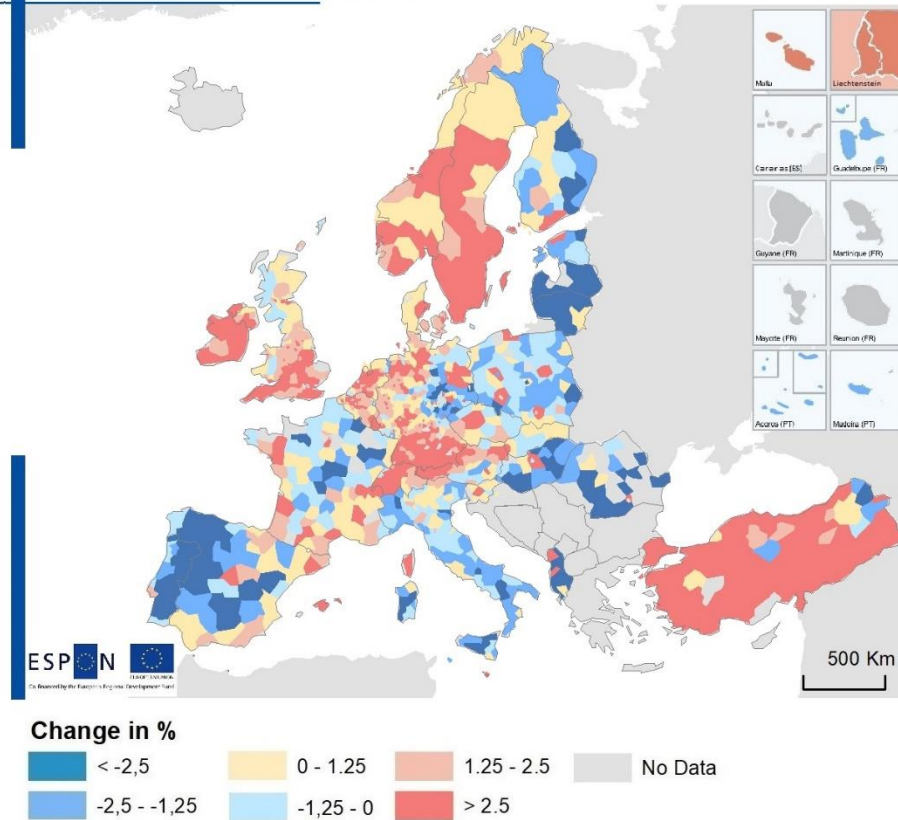
People at risk of poverty and social exclusion

Lithuania has around 2.7 million inhabitants. The largest concentration of people is found in and around the capital city of Vilnius (ca. 588,000 inhabitants).

The current population growth rate is -1.1 %; the net migration rate is at -5.9 migrants per 1,000 inhabitants and the immigration rate in Lithuania is low.

A fairly significant proportion of the population is at risk of poverty or social exclusion, especially outside the Vilnius region.

Population change from 2015 to 2019

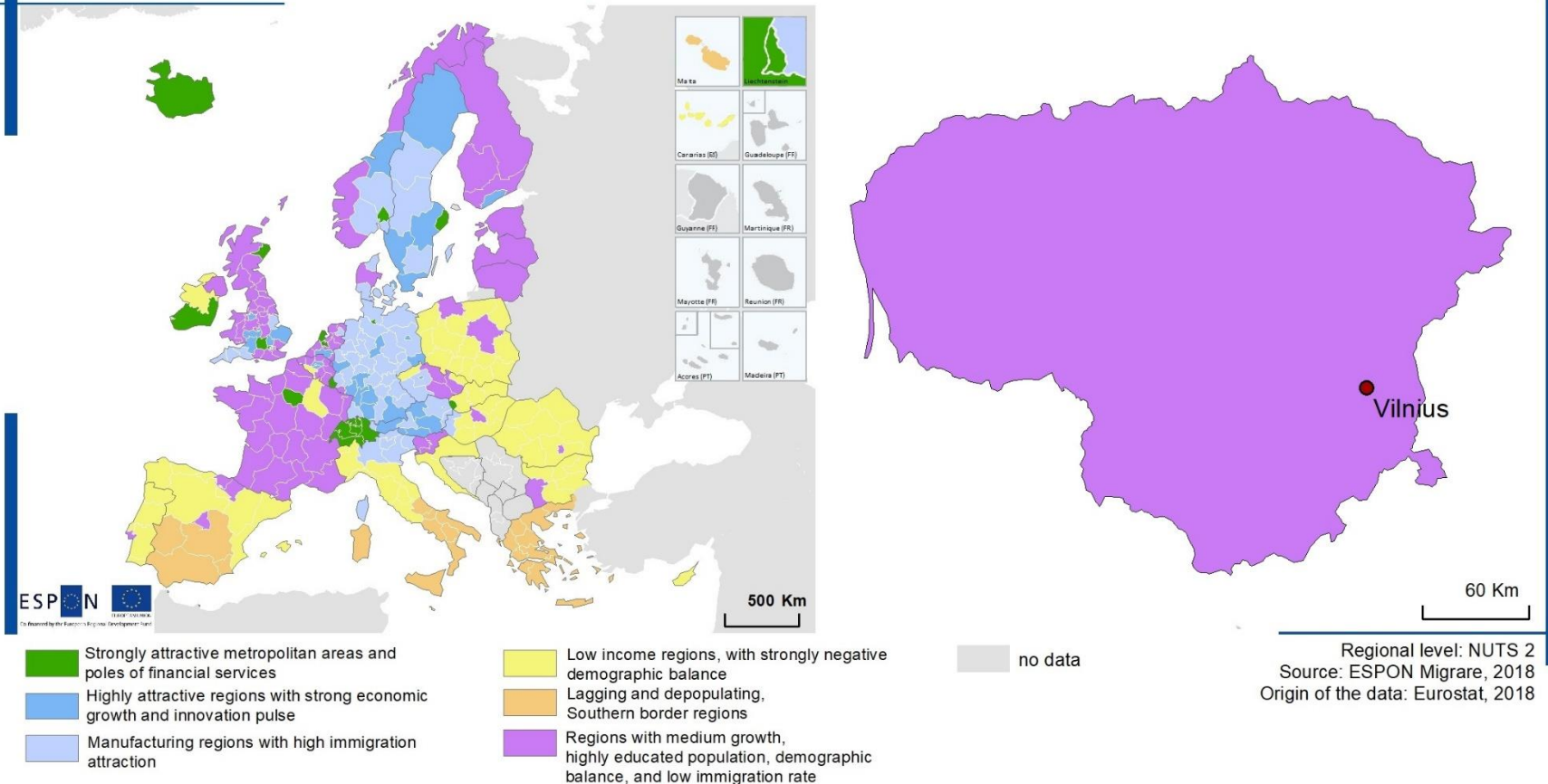


Source: Eurostat, 2020 Regional (NUTS 3) development of population between 2015 to 2019. The change is calculated as the population difference between 2019 and 2015 divided by the population of 2015

Despite an important portion of the NUTS regions lacking data, noticeable trends can be observed. Overall, large portions of Eastern Europe, Italy, Spain, and France have a decreasing population. For the latter two, however, an increasing population can be observed in urban areas such as Madrid, Barcelona, Bordeaux, Nantes, or Paris. Other regions such as the Lowlands, Western-Germany, the UK, Ireland, and Scandinavia are characterised by an increasing population. These population trends are significantly influenced by job opportunities and the economic situation of the regions, as well as immigration patterns.

Between 2015 and 2019 most regions in Lithuania showed substantial rates of population decrease of more than 2.5%. The only exception being the region around the capital Vilnius. Here a slight increase in population of 0-1.25% was observed. The current (2020 est.) yearly decrease is by -1.13%. The future population development in Lithuania as a whole is roughly expected to continue to decrease over the next decade. This is, however, a more positive development than in the beginning of the millennium. Thus, the decline in population growth seems to have slowed down.

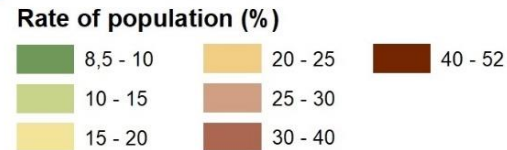
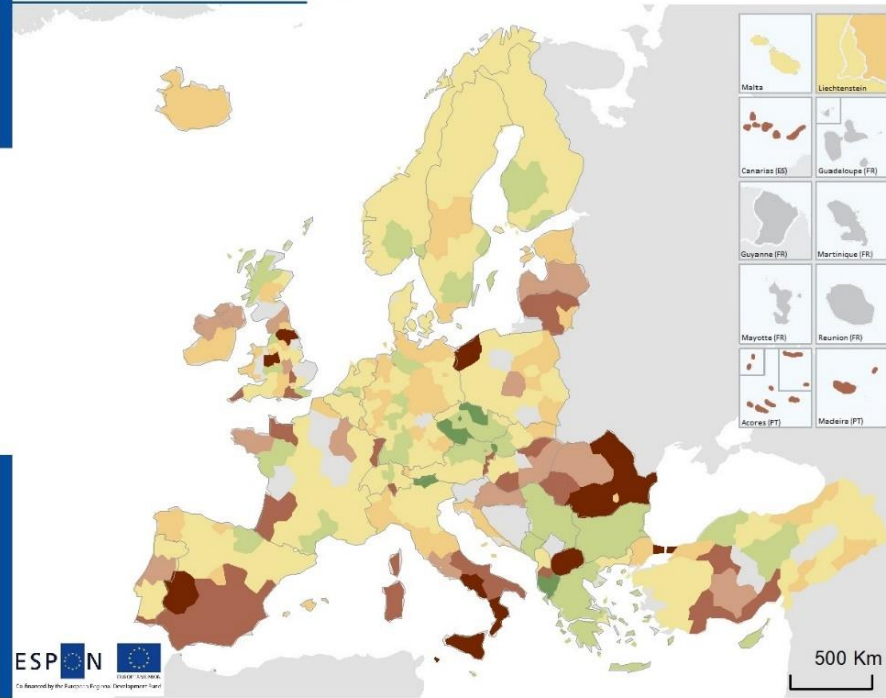
Attractiveness of regions in the context of migration



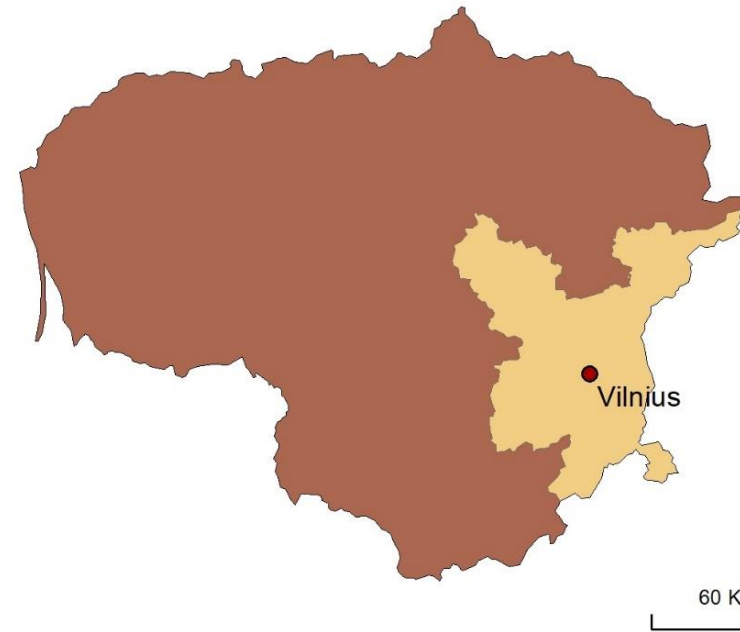
The Green Cluster, representing metropolitan areas and financial poles with strong economic performances, has the strongest pull factor. Many EU capital cities are in this category alongside Luxembourg and Switzerland. Following these are the two Blue Clusters representing highly innovative and growing regions, usually next to attractive manufacturing regions: some Scandinavian areas, Germany, Austria, and northern Italy. In the middle is the Purple Cluster consisting of average-growing, demographically balanced regions. The Yellow and Orange Clusters are made up of EU average-growing or relatively lower-performing and depopulating regions along the eastern and southern borders of Europe (with a few exceptions in the form of capital cities and large manufacturing poles).

Lithuania belongs in the middle as the country can be characterised as a region with medium growth, a highly educated population, low immigration rate and steady demographic balance. Foreigners made up a little more than 2% of the total population (2018) of which constitutes 49,332 third-country nationals (excluding stateless people); 33,181 had temporary residence permits and 15,143 were permanent residents. Most third-country nationals were from neighbouring and ex-USSR countries such as Ukraine (16,927), Belarus (12,204) and Russia (12,592).

People at risk of poverty and social exclusion in 2017



Regional level: NUTS 2
Origin of the data: Eurostat, 2020



Regional (NUTS level 2) percentage of the population who:
1. Is at risk of poverty (<60% of national median equivalised income) or
2. Is severely materially deprived (4 out of 9 items) or
3. Is living in households with very low work intensity (where the adults work less than 20% of their total work potential).



In 2017, there were 112.8 million people in the EU-28 who lived in households at risk of poverty or social exclusion (according to the AROPE rate^[1]), equivalent to 22.4% of the entire population. In some countries and regions of southern and eastern Europe, the population is more at risk of income poverty, are severely materially deprived, or living in households with very low work intensity compared to other parts of Europe. The risk affects some groups in the population – such as children and the elderly - more in some countries than others.



In Lithuania, a fairly significant proportion of the population is at risk of poverty or social exclusion (2017). This is especially true for households outside the Vilnius region, where the level of risk is at 30-40%, while in the Vilnius region it is lower at 20-25% of households. The population groups at particular risk are people who fall into one or more of the following categories: the unemployed, pensioners, the disabled, large families with three or more children, single parents and single people.



Climate change and sustainable use of resources

Potential impact of Climate Change on the economy

Potential impact of Climate Change on tourism

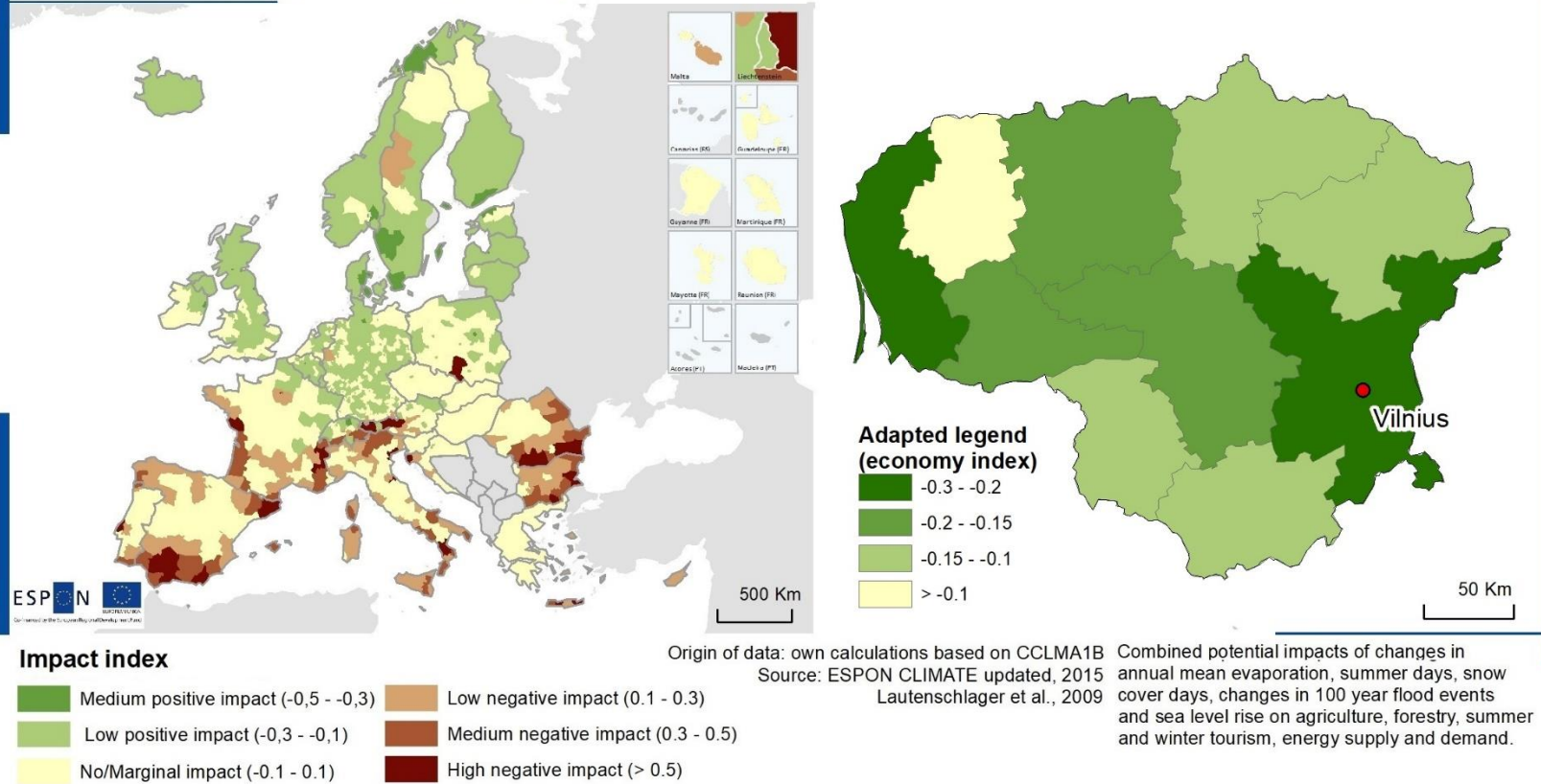
Overall adaptive capacity to Climate Change

As for the projected impacts of climate change in Lithuania, the maps below show that climate change is generally expected to have a low – but slightly positive – economic impact.

The impact of climate change on tourism in the country as a whole is currently expected to be marginal or non-existent.

In terms of adaptive capacity to climate change, Lithuania is at the lowest end in the context of northern Europe.

Potential economic impact of climate change from 2071 to 2100

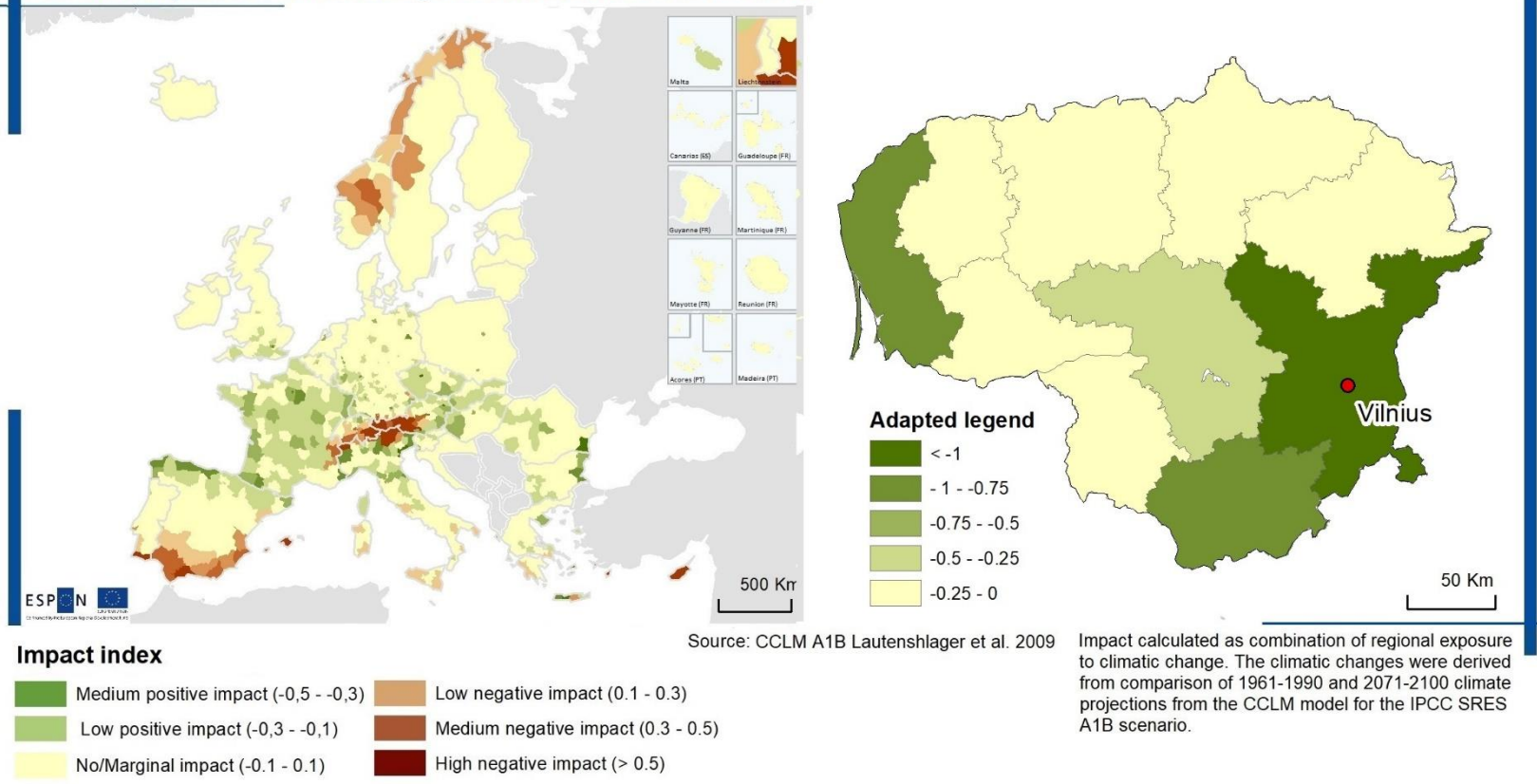


Climate change will have significant economic impacts in Europe during the 21st century. Some sectors are more sensitive to climate change than others, such as agriculture, forestry, tourism (both summer and winter), and the energy sector. When considering the potential economic impact, there is a clear north-south difference in Europe. To the north, projections are primarily a low decrease in economic impact due to improved environmental conditions for agriculture and lowered demands for heating. To the south, the economic impact is expected to increase due to worsened conditions for agriculture and tourism and increased demand for cooling.



In Lithuania, climate change is generally expected to have a low positive economic impact, with the exception of Telšiai county where no or only a marginal impact is forecasted. A medium-positive economic impact - to varying degrees - can be expected in the rest of the country. The most positive impact appears in the counties of Vilnius and Klaipėda in the western part of the country. This could be due to improved environmental conditions for agriculture and lower need for heating in urban areas. It is important to view this as an aggregated impact, resulting from a wide range of factors that varies locally. Hence, the map indicates an overall delicate balance that needs further investigation, and more data, into specific place-based sensitivities as well as sectors, e.g. concerning sea level rise.

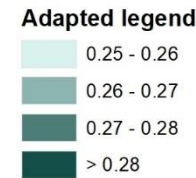
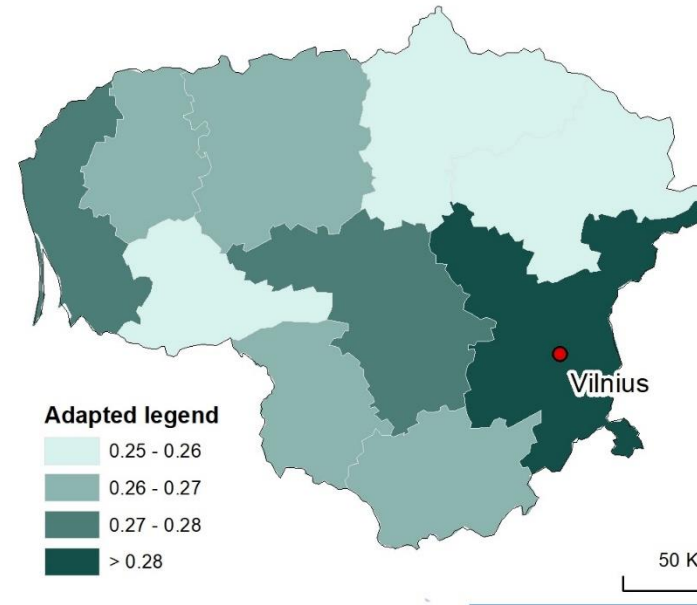
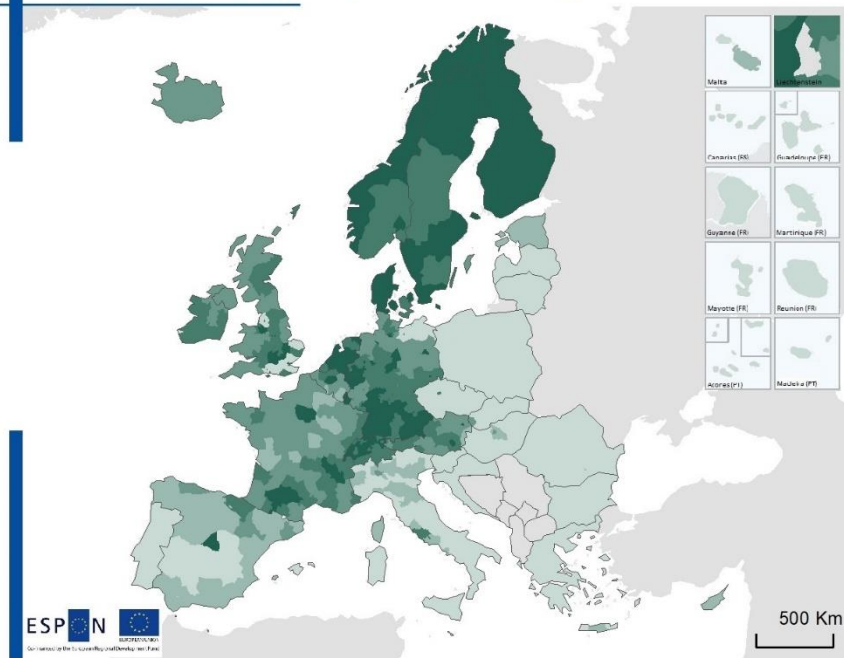
Potential impact of climate change on tourism from 2071 to 2100



Research shows that climate change might lead to a gradual shift of summer tourist destinations further north and higher up the mountains, affecting the current preferences of sun and beach lovers from western and northern Europe. Mountainous parts of France, Italy, and Spain could become more popular because of their relative coolness. However, summer and winter seasons combined, Norway, the Mediterranean region, and the Alps will experience the most negative impact. For Norway, this is mainly due to heavy rainfall and flooding. The Mediterranean will face excessive temperatures in the summer. The Alps currently are the second most favoured holiday destination in Europe, both in terms of summer and winter tourism.

The increase in both mean temperature and the number of summer days is expected to have several positive effects in northern Europe in the next 50-80 years. This includes increased crop variety and yields, enhanced forest growth, higher potential for electricity from hydropower, lower energy consumption from heating and – possibly – more summer tourism. However, the overall impact of climate change on tourism in Lithuania is, so far, expected to be marginal or non-existent. However, there are still some variations from county to county. The greatest increase (albeit still limited) in tourism is expected in Vilnius county, followed by counties of Alytus and Klaipėda in the southernmost and westernmost parts of Lithuania, respectively.

Overall adaptive capacity to climate change



Regional level: NUTS 3
 Origin of data: EEA, 2012, 2013, 2014; E-PTR 2012; OSM2014; GISCO 2006; Eurostat 2011, 2013, 2014; JRC 2006, 2012, 2013, 2014; USGS 2011, DIVA 2004, ATSR2014; Statistics Iceland 2011; Bundesamt für Statistik 2011, 2014; Amt für Statistik Liechtenstein 2014; HESTA 2014.
 Source: ESPON CLIMATE updated, 2017



Adaptive capacity is defined as the ability or potential of a system to respond successfully to climate variability and change. It includes adjustments in both behaviour and in resources and technologies. A system's adaptive capacity is mostly determined by a local set of resources and conditions that facilitate the ability of the system to successfully adapt to changes in climate. Although it is acknowledged that adaptive capacity is a dynamic concept, it is possible to identify a set of dimensions that affect a region's ability to adapt. In general terms, the Nordic countries have higher capacity than most of the southern European countries. Also, in comparison, eastern European countries, on the whole, have lower capacity than western or northern European countries. Overall, the countries around the Mediterranean appear to have lower capacity than the countries around the Baltic Sea region.



Although the countries around the Baltic Sea region generally appear to have a higher adaptive capacity to climate change than the countries around the Mediterranean, Lithuania is one of the exceptions to this general trend. However, it must be assumed that the above map is a snapshot of 2017, and that the capacity may have improved since then. In 2017, in conjunction with a review of Lithuania's climate adaptation readiness, the EC's Directorate-General, Climate Action, pointed out that the country remained "in progress" at some points, while at some other points it was unclear how far the country had come. For example, it was not clear if knowledge gaps had been identified, prioritised and addressed through the National Strategy for Climate Change Management Policy.



Accessibility

Global accessibility

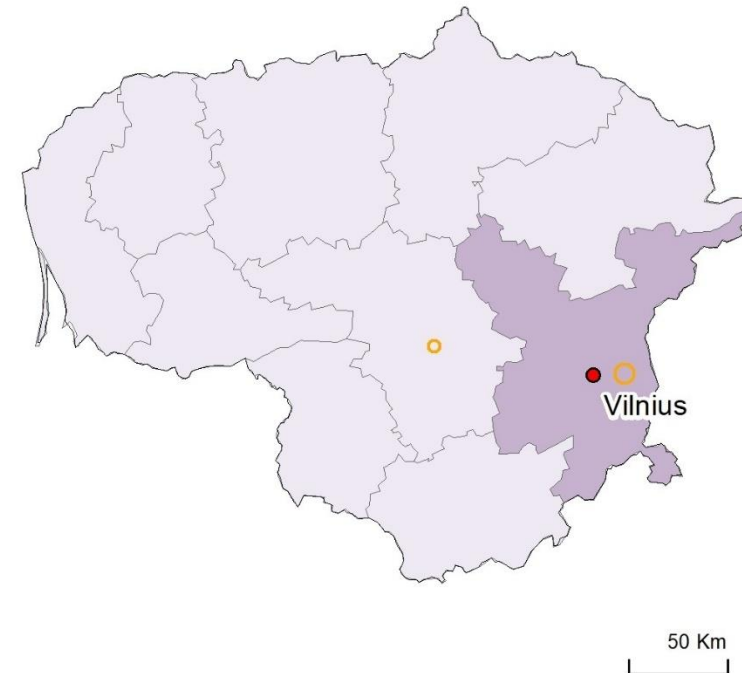
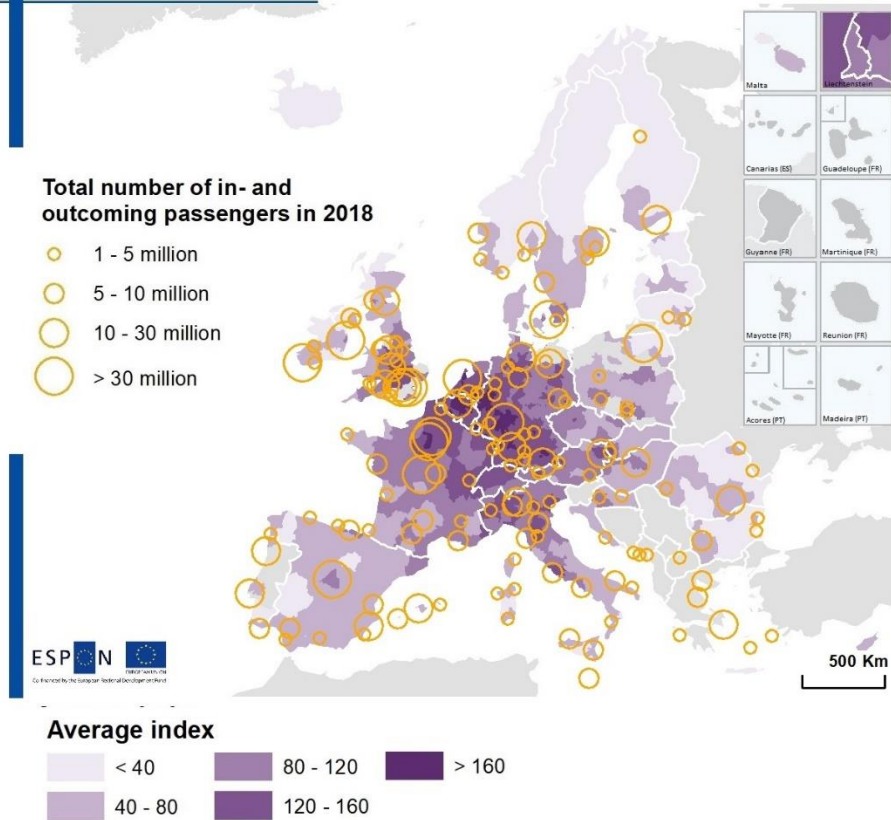
Accessibility by road

Accessibility by rail

Lithuania's geographical position is slightly peripheral in the EU, and the country's position on the global accessibility index is therefore, not surprisingly, at the low end. However, the accessibility index for the Vilnius region which hosts Lithuania's most important international airport (in terms of number of destinations and airlines) shows a slightly better position than the rest of the country.


Most Lithuanian regions have amongst the lowest accessibility potential by road which is expected to continue in 2030. In addition, Lithuania's accessibility by rail is well below the European average and the same low level of availability is expected in 2030.


Global accessibility and main airports



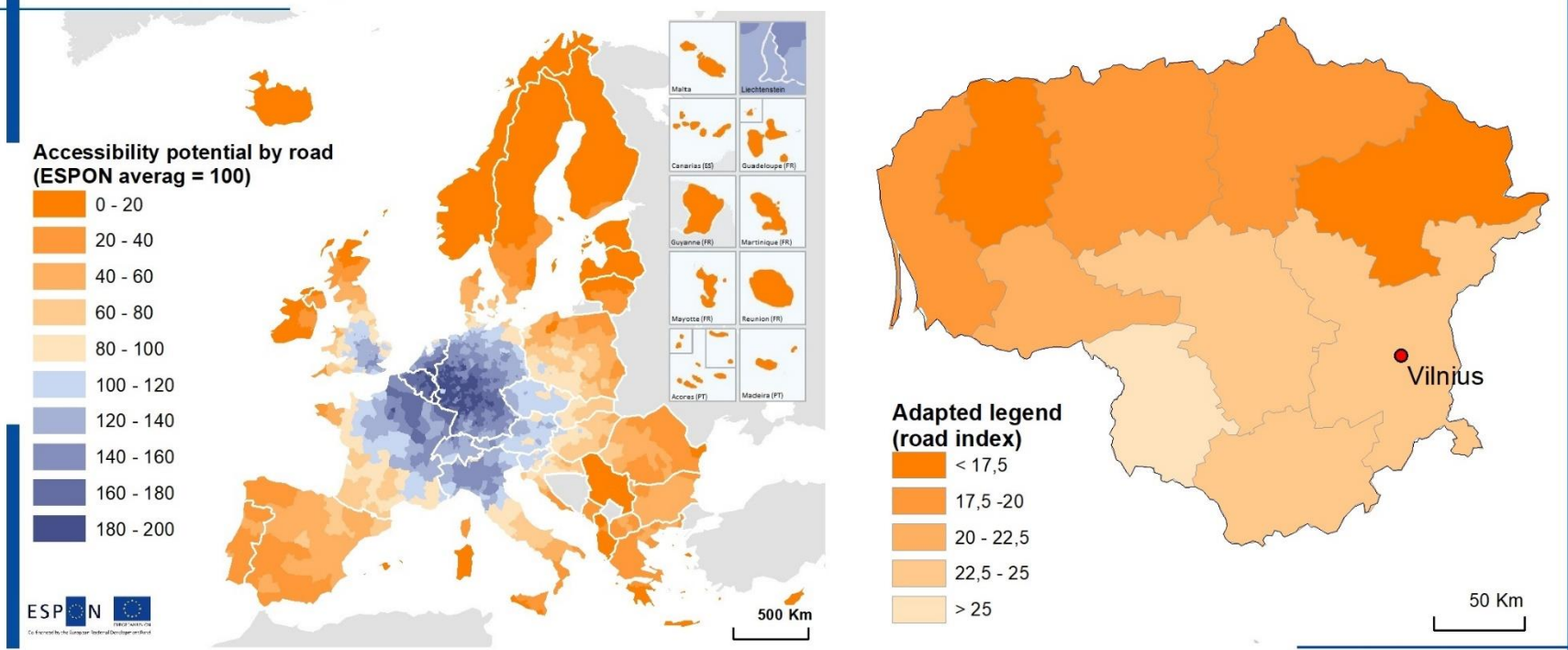
Number of passengers: Level: Airports
Source: Eurostat, 2020

Accessibility index: The index is calculated as the average index from the Spiekermann & Wegener study (2014) combining the accessibility by road, rail and air.
Source: ESPON S1W, 2014 | Level: NUTS 3

 Air transport is important to global connectivity, both in continental Europe and in intercontinental travel. There has been a significant growth in air transport in the EU in the last few years (disregarding the situation caused by COVID-19). In 2018, intra-EU air transport had a share of 46% of the total air transport in the EU, extra-EU air transport was 37%, while the national share was 16%. London, Paris, Amsterdam, Frankfurt, and Madrid are the major global hubs in Europe. Lately, the largest increases in air travel have been in Lithuania, Latvia, Poland, and Slovakia. The best global accessibility is found in central-western Europe.

 Vilnius Airport is the country's largest with 5 million passengers (2019) and with a passenger increase of 1.7% from 2018 to 2019. The Baltics' largest airport is Riga Airport (in Latvia) with 7.8 million passengers (2019) and with a passenger increase of approximately 10.6% from 2018 to 2019. As far as we can see, Riga Airport's stronger position is due to the fact that the airport acts as a hub between north-western Europe and Russia and other eastern countries. Air Baltic, the national airline, also has many connections in and out of Riga, including to the east. As Vilnius and its airport have a slightly peripheral position in the south-eastern corner of the country, this means that all other counties (except Vilnius county) are among the EU regions with the least accessibility.

Accessibility potential by road in 2030



Regional level: NUTS 3 * For each NUTS-3 region the population in all destination regions is weighted by the travel time to go there. The weighted population is summed up to the indicator value for the accessibility potential of the origin region. All indicator values are expressed as index, i.e. related to the ESPON average. Calculations for the accessibility potential rely on an expected and realistic timetable for the development of the TEN-T.

Source: ESPON ACC SCEN, 2017
 Origin of the data: S&W Accessibility Model 2016; RRG GIS Database, 2014.

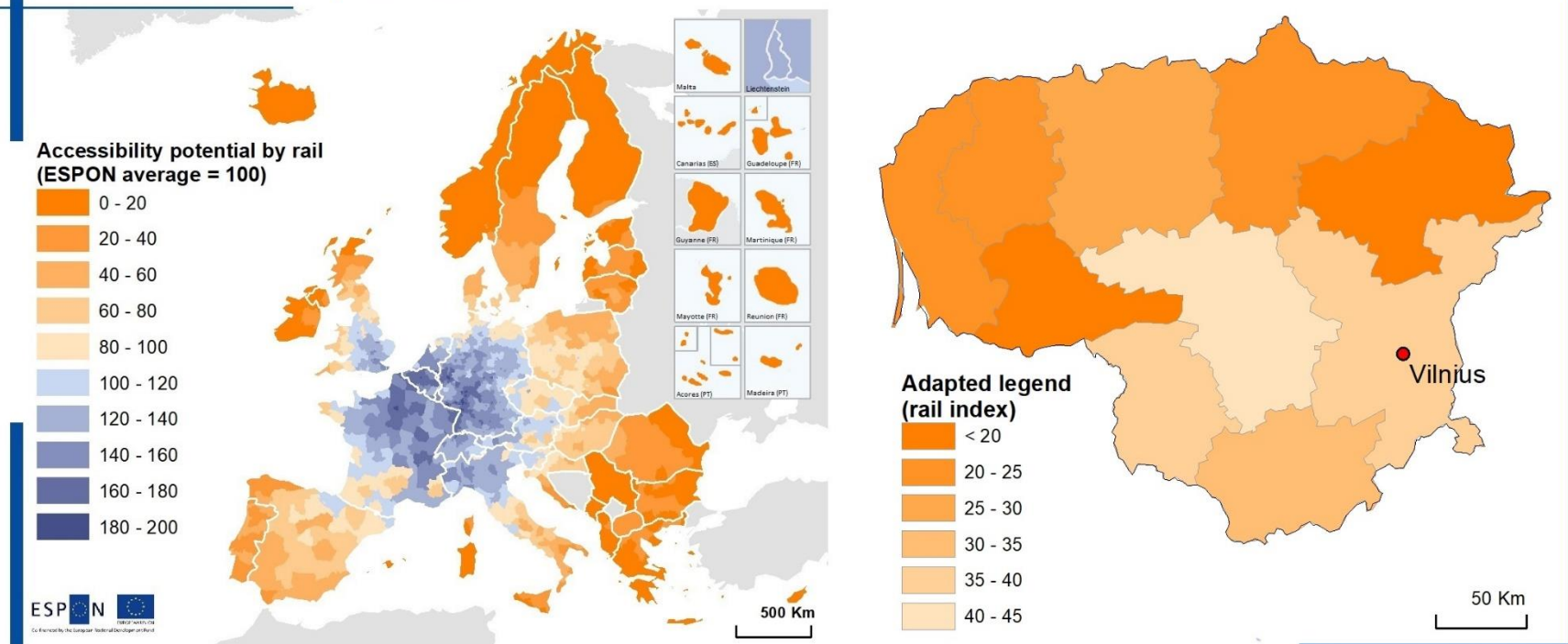


Potential accessibility is measured by calculating how quickly people in one region can reach other people, services, and markets. Potential accessibility tends to be stronger in the European core and gradually declines in the peripheral areas. The current differences between the European core and peripheral areas are projected to remain by 2030. Accessibility by road decrease in regions towards Europe’s outer core, while southern Europe will have potential road accessibility of less than a fifth of the European average. Rural southwestern Europe will reach only 60% of the EU average and northern Europe will continue to lack connectivity under the assumption that sparse populations and geographical specificities deter innovative solutions.



As Lithuania has a slightly peripheral position in the EU, most regions in Lithuania are expected to have amongst the lowest accessibility potential by road in 2030 – ranging from just under 17.5% and up to a little more than 25% of the European average. This level is broadly similar to the other regions in the Baltics and the Nordic countries. Although a high-quality road infrastructure is planned, many regions in the Baltic States will not increase accessibility at the European scale. The modest growth or even decline in accessibility by road is due to the underlying population projection expecting strong population losses in that area. Compared to the ESPON average, rural regions will benefit the most from the new infrastructure. Intermediate regions will also benefit but to a lower extent.

Accessibility potential by rail in 2030



High-speed rail will bring very high accessibility to certain regions. Notable examples include the high-speed rail corridors in France towards the Atlantic and via Lyon to the Mediterranean regions or in Germany towards Hannover and Berlin. All regions in the Benelux countries, Switzerland, regions in England, France, Germany, and northern Italy have an above-average accessibility potential by rail. The high-speed rail network investments will also increase the accessibility by rail to the areas of Bilbao and Barcelona in Spain and Rome in Italy. Lower-average accessibility by rail will also be found in the Nordic countries, Ireland, Scotland, the Baltic States, south-eastern and southern Europe. Lowest accessibility by rail will remain in the far north regions, eastern regions in Bulgaria and Romania, in many regions of the western Balkans and in Greece and Turkey.



With its slightly peripheral position and its only about 1,800 km of railway tracks, Lithuania shows accessibility by rail well below the European average. A relatively low level of availability is also expected towards 2030 in spite of Rail Baltica, which integrates the Baltic States into the European rail network, otherwise counteracting the negative effect of population decline in several Baltic state regions. Low accessibility by rail in 2030 is especially prevalent in the north of Lithuania, while it is slightly better in central Lithuania and in the south. The latter areas have the Vilnius–Kaunas Railway which is one of the main local railways in Lithuania. This railway connects the capital Vilnius with the second largest city Kaunas. In addition, Lithuania has rail links with neighbouring countries: Belarus, Kaliningrad (Russia), Latvia, and Poland.



Economy and innovation

Potential GDP per capita 2030

Unemployment

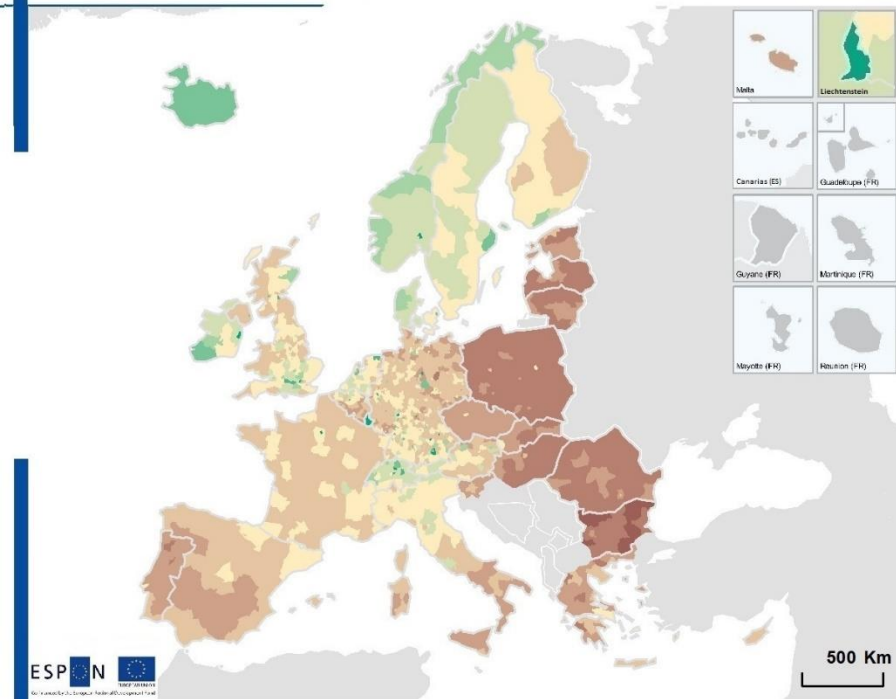
Regional innovation scoreboard

Lithuania is a small, open economy. In 2017 the country's GDP and exports were the highest among the Baltic countries. However, the maps below do not show a very positive forecast for Lithuania's GDP development around 2030 when compared to the EU average.

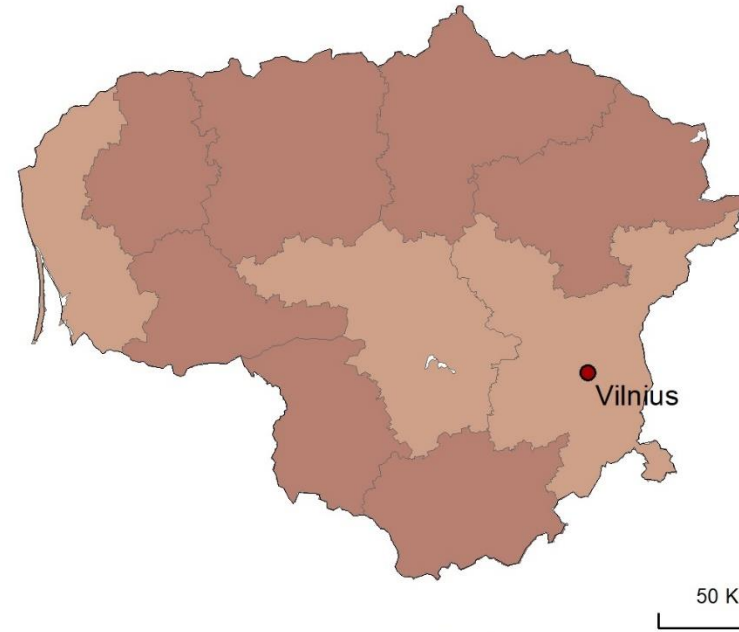
Lithuania has an unemployment rate between 5 and 10%, which is clearly better than in southern Europe, but slightly behind the rest of northern Europe.

Lithuania belongs to the category of countries classified as "moderate" on the regional innovation scoreboard (RIS) in 2019, Lithuania is thus (along with Latvia) lower than the rest of the northern EU.

Regional GDP change compared to EU average (baseline 2030)



Change in GDP per capita in 2030 (%)



Regional level: NUTS 3
Source: ESPON ET2050 (2015)

The potential GDP per capita in 2030 is calculated in % compared to the EU forecasted average (= 100) according to the baseline scenario. This scenario assumes that current trends and policies will remain in the future.

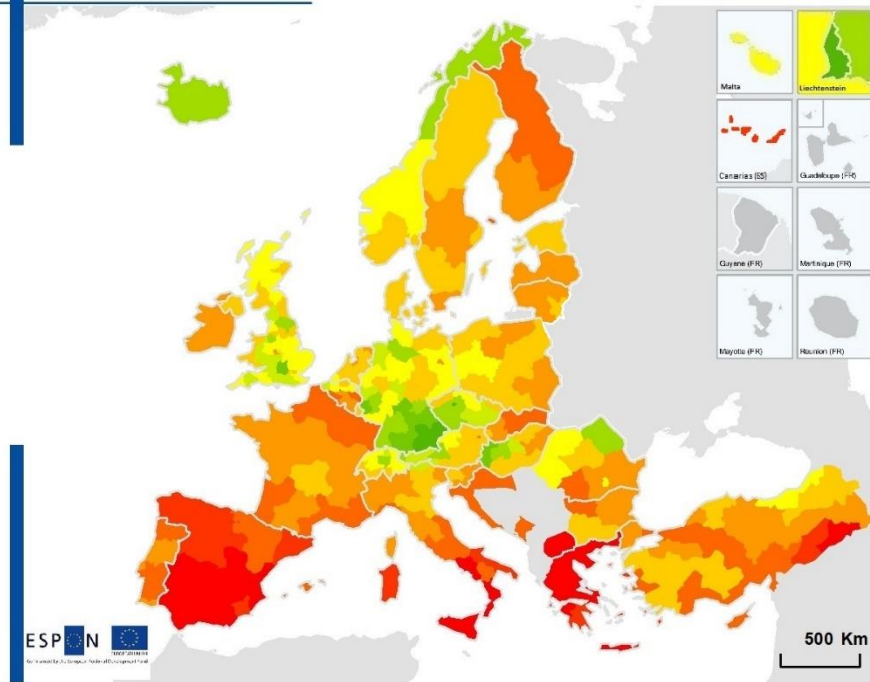


Based on contemporary observations, Europe's forecast for socio-economic development will retain a certain asymmetry. The existing imbalances are expected to be enhanced by jobless economic growth, which is partly linked to the role of the financial industry in generating economic growth, and partly to technological progress changing labour market needs. This is also reflected in the disparities of available household incomes. In Europe, the gaps between north and south, east and west, and also between regions within countries are widening. These discrepancies are expected to persist in the coming decennium. However, high relative levels translate slowly into the high absolute numbers needed for convergence (that GDP per capita grows at faster rates than in richer economies).

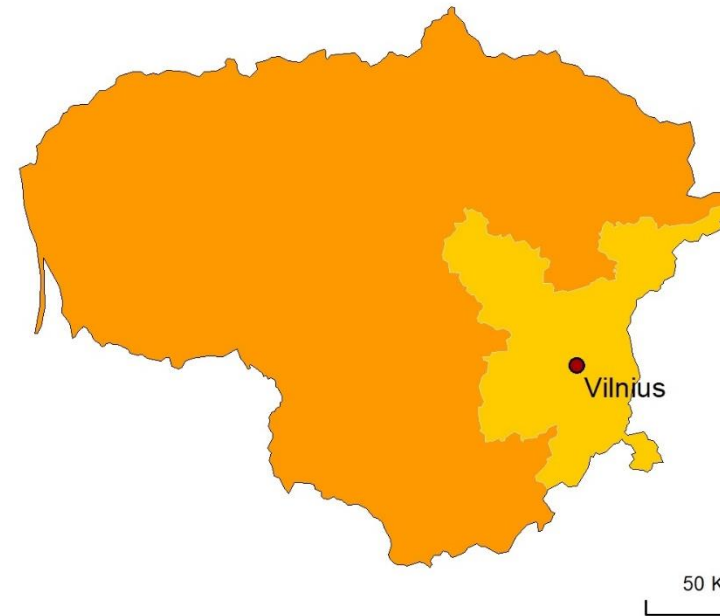


The Lithuanian economy was severely hit by the global financial crisis in 2008-2009, but it has rebounded and became one of the fastest growing in the EU. Increases in exports, investment, and wage growth that supported consumption helped the economy grow by 3.6% in 2017. However, the map shows that GDP of the eastern part of the EU will still be lagging behind by 2030, compared to the EU average. For Lithuania, it appears to be in the range of 0 to -50% compared to the EU average. It looks best in and around the capital Vilnius and the second largest city Kaunas as well as the port city Klaipėda on the Baltic Sea coast. The economic catching-up of Lithuania (and the other eastern countries) takes the form of a sustained labour productivity growth rate. The handicap of these countries is, however, a declining labour force due to an ageing population.


Unemployment in 2016




Unemployment rate (%)

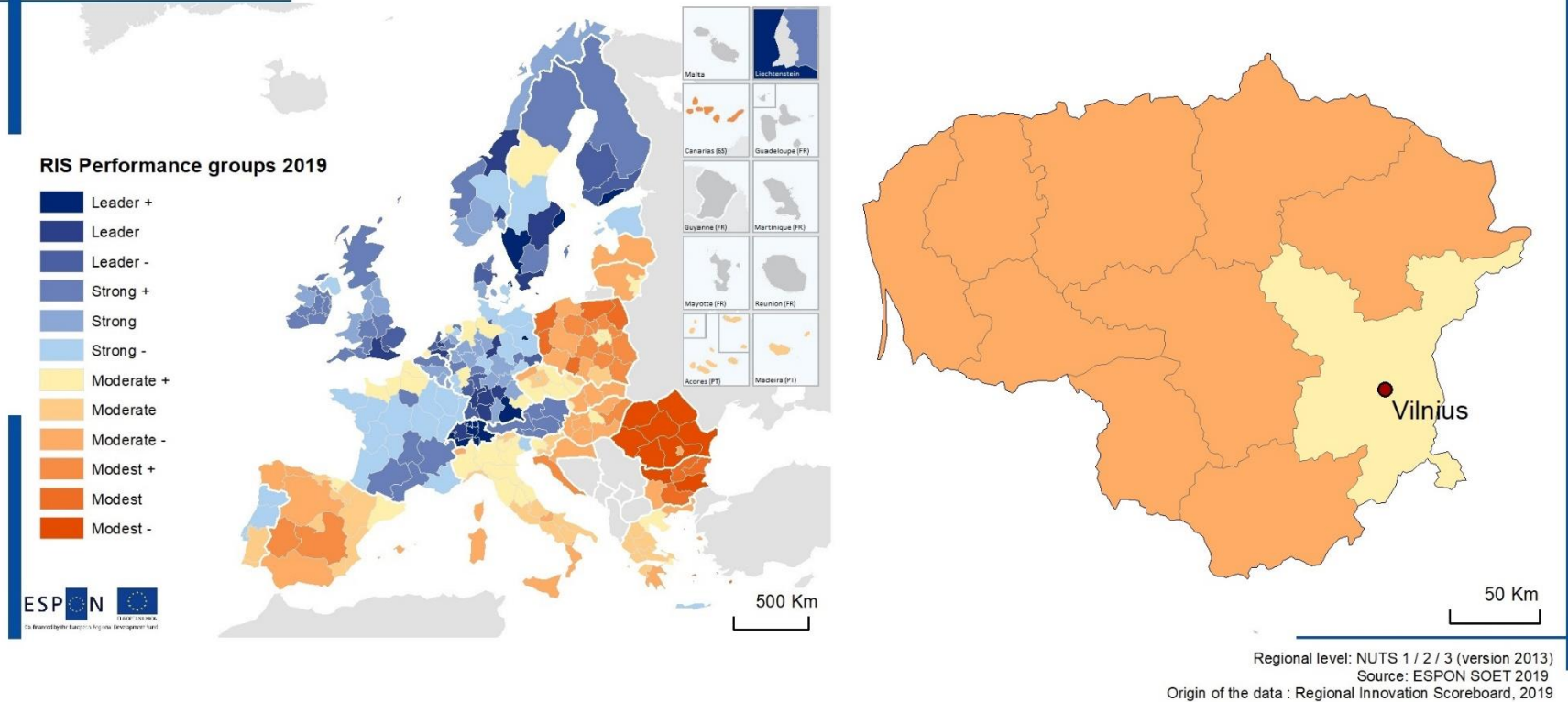


Source: ESPON Data&Maps project (2017) Regional (NUTS level 2) total unemployment rate represents unemployed persons as a percentage of the economically active population (i.e. labour force or sum of employed and unemployed).

 Southern Europe suffers from higher rates of unemployment than the central and northern areas. Spain, southern Italy, Greece, and Croatia have some of the highest unemployment rates at 20-32%. Regions in Germany, Luxembourg, the Czech Republic, Austria, Norway, north-east Romania, and the UK have the lowest unemployment rates.

 Lithuania has a rate of unemployment between 5 and 10%, which is lowest in and around the capital Vilnius. In addition to widespread unemployment, a steady outflow of young and highly educated people is causing a shortage of skilled labour. This, combined with an aging population, could potentially limit long-term growth and new job creation. Lithuania fits into the pattern of the countries of the eastern EU, all of which (with the exception of north-east Romania) have relatively high unemployment rates, although they are still not on the same level as the unemployment rates of southern Europe.

Regional Innovation Scoreboard 2019



Striving towards technological change and staying ahead in the field of innovation, research and development are important. These factors differ widely across Europe, as does the use of results from research and innovation. While some regions host major centres for research and innovation, others are home to well-connected entrepreneurs, tuned in to translating innovations into new or improved goods and services. Regional innovation results have increased over time and almost all regions in the northern and western parts of the EU are categorised as leaders or as strongly positioned on the Regional Innovation Scoreboard (RIS) in 2019. On the other hand - categorised with a moderate or modest position - are most regions of the eastern and southern EU.



Overall, Lithuania belongs to the category of countries classified as "moderate" on the regional innovation scoreboard (RIS) in 2019. However, the Vilnius region is classified slightly better in the "moderate +" category. Nevertheless, Lithuania is thus (along with Latvia) at a lower level than the rest of the northern EU. Lithuania's innovation profile can best be described as a "creative area of imitation". The relatively high level of education in Lithuania suggests that the country's innovation profile can be raised, while emigration – with associated brain drain – probably contributes to weakening innovation in the country.

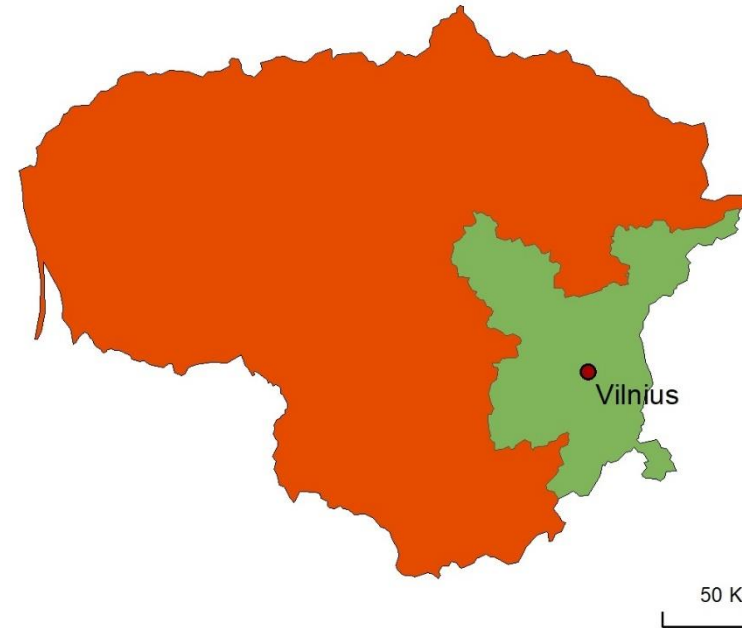
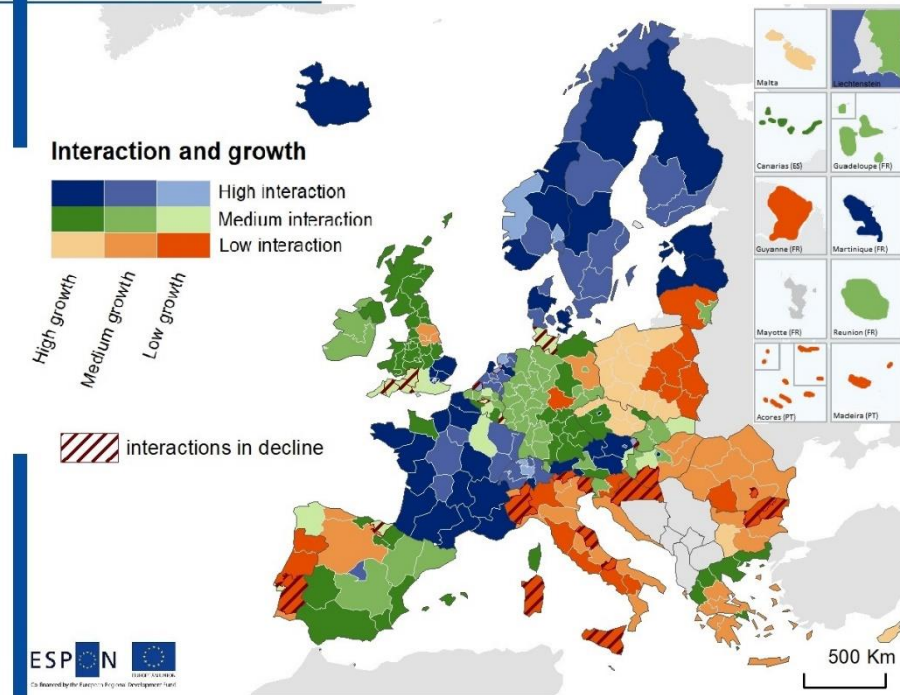


Public services

eGovernment interactions

Lithuania has the lowest position in northern Europe when it comes to e-government interactions.

Regional typology of eGovernment interactions



The map depicts the share of people who have interacted with public authorities online in 2019 and the annual change, 2014 - 2019. Regional level: NUTS 1 / 2 Source: ESPON EGTC, 2019 Origin of the data : Eurostat, 2020



Digital transformation is fundamental for the future of socio-economic growth in Europe. In the EU's eGovernment Action Plan, the aim is to have open and efficient governments, interoperable digital public services for all citizens and businesses, and a base of infrastructure to support digital connectivity. Nordic cities generally have high e-government interactions, with e-government products being developed at a higher pace. Southern and eastern European cities have low activity in terms of both producing and using digital public services. Moreover, cities with over 500,000 inhabitants take more responsibility for providing digital services, showing more diversity in their services, while cities with under 250,000 inhabitants provide fewer e-government services.



In contrast to the Nordic countries and other Baltic countries Lithuania's position is weak when it comes to e-government interactions. The Vilnius area is, however, on a slightly better level with medium interaction and medium growth. The rest of the country is characterised by low interaction and low growth. The weak position in the country as a whole is also underlined by the fact that only 75% of households in Lithuania had access to the Internet in 2017 compared to more than 85% of households in the EU28 countries at the time. While access to internet is continuously growing in recent years, the level of interactions with public services by internet does not seem to emulate this trend.



Urbanisation

Urbanisation rate

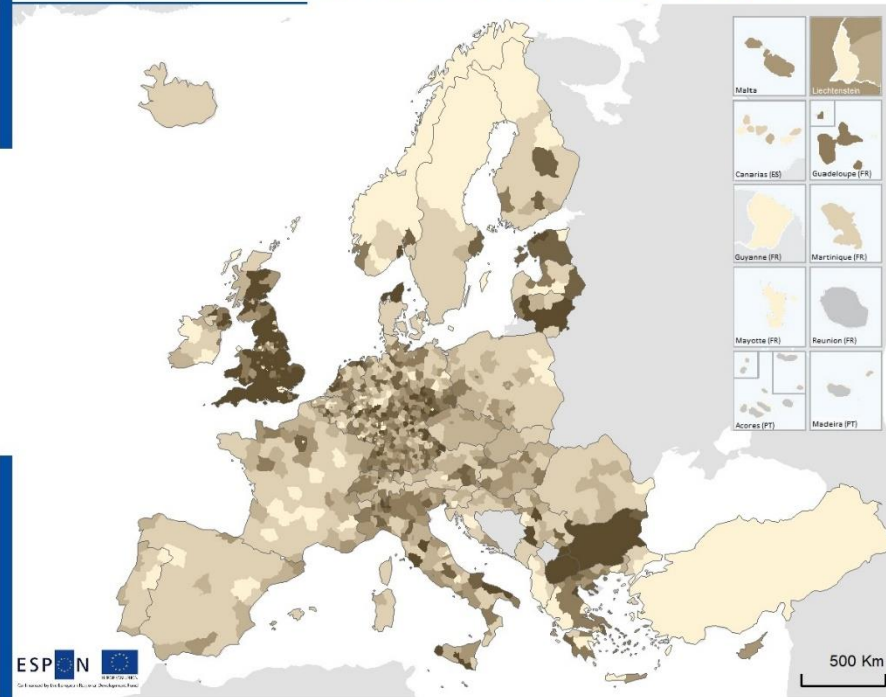
Urban shrinking rate

Based on changes in population density, different urbanisation trends in Europe can be observed.

One notable trend in some parts of Europe, including Lithuania, is population migration from country to city, or more precisely, change from rural area to town/suburb/city and from town/suburb to city.

At the same time, another parallel trend can be observed: urban shrinkage understood as the change in population density expressed through town/suburb/city transition to rural areas and transition from city to suburban/town areas – driven by decline in the number of births; external migrations etc...

Urbanisation between 2014 and 2018 per NUTS 3 region



Urbanisation ratio (per mille)



Local level: NUTS 3
 Origin of data: Eurostat, 2018
 Calculations and processing
 by AMRP, UGhent

The data used to process this map is based on a population density map with raster cells of 1 sqkm size that classifies local administrative units into three categories: rural areas (<300 inh./km²), towns and suburbs (300 - 1,500 inh./km²) and cities (1,500 inh./km²). This map features for each NUTS 3 region the sum of changed area from rural to town/suburb, from rural to city and from town/suburb to city, divided by total area of the region.

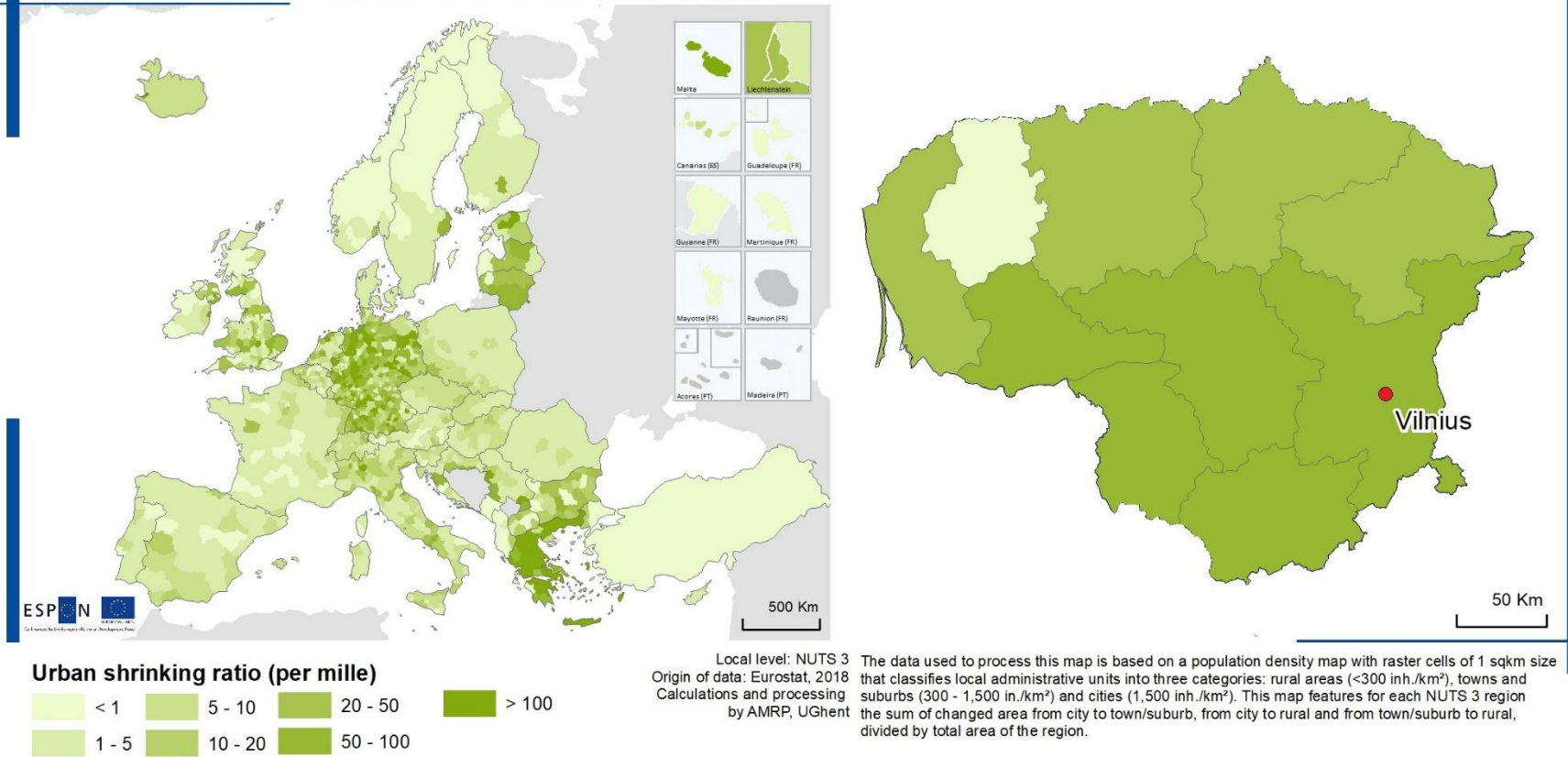


The data used for these maps come from the Geographic Information System of the Commission (GISCO). The classification is based on population density rather than building density. The map shows the change in population density, with the darkest coloured regions expressing the biggest change from rural area to town/suburb/city and from town/suburb to city. The difference between 2014 and 2018 can thus give indications of the changes in population flows. For instance, a large portion of rural areas in Europe has shifted towards towns from 2014 to 2018 due to densification. In the Lowlands, Norway, Sweden, Finland, Italy, and Hungary, for example, a higher densification process can be observed with large areas shifting towards cities.



A densification process can also be observed in Lithuania with large areas shifting towards cities. However, Lithuania still has (in 2020) a relatively even population distribution across the country with somewhat greater concentrations in the southern cities of Vilnius and Kaunas and the western port city of Klaipėda. However, a clear trend towards further urbanisation can be observed especially in and around the first two cities. There are also indications of changes in population flows in several other regions. This generally occurs in a belt stretching from west to east in the central part of the country, where the degree of urbanisation (per mile) is over 100.

Urban shrinking between 2014 and 2018 per NUTS 3 region



The data used for these maps (also) come from the Geographic Information System of the Commission (GISCO). The classification is based on population density rather than building density. The difference between 2014 and 2018 can thus give indications of the changes in population flows. While a large portion of the rural population in Europe has shifted towards cities from 2014 to 2018, there was, at the same time, a trend towards urban shrinkage. Urban shrinkage is to be understood as the change in population density expressed through town/suburb/city transition to rural areas and transition from city to suburban/town areas. As can be seen on the map, this is a trend that is affecting the whole of Europe to varying degrees but especially prevalent in Central Europe, the Baltics and Greece.



Urban shrinkage is a relatively large challenge in Lithuania (perhaps with the exception of Telšiai county) produced by a combination of factors of demographic, economic and institutional natures. Characteristic of Lithuania, as for other post-communist countries, the following typical factors apply: decline in the number of births; external migrations that intensified especially after accession to the European Union; urban-to-rural migrations (mostly in suburban areas); and transformation of the economy (de-industrialisation, the financial crisis in 2008-09).

ESPON EGTC

4 rue Erasme, L-1468 Luxembourg
Phone: +352 20 600 280
Email: info@espon.eu
www.espon.eu

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.

Authors: Michael Tophøj Sørensen, Carsten Jahn Hansen and Tom Goosse

With contributions from:
Karolis Kinčius

ISBN number: 978-2-919795-55-0

Disclaimer:
The content of this publication does not necessarily reflect the opinion of the ESPON 2020 Monitoring Committee.

January 2021