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Territorial patterns and relations in Sweden

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Publication date:
2020

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Hansen, C. J., Sørensen, M. T., & Goosse, T. (2020). *Territorial patterns and relations in Sweden*. ESPON. <https://www.espon.eu/sweden>

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Territorial fiche

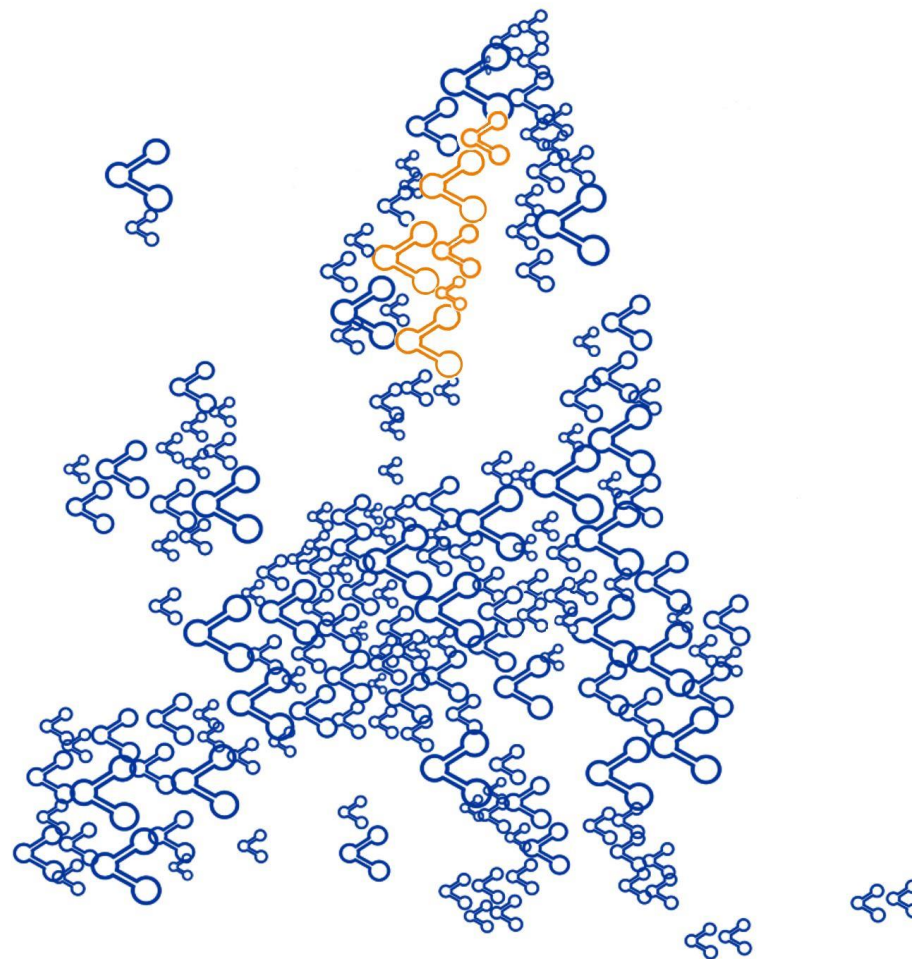
Territorial patterns and relations in Sweden

Current and future Challenges for regions and places

Enhanced sustainability through better physical planning and governance

By using regional assets

Interactive version: www.espon.eu/sweden



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.



Current and future Challenges for regions and places

Demographic changes

Urbanisation

Climate Change environmental impact

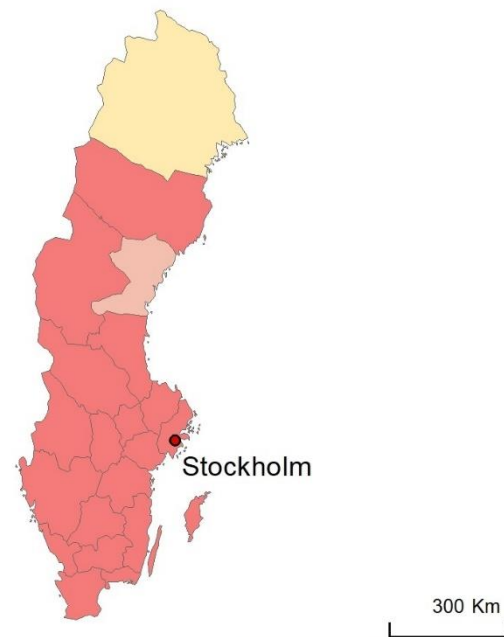
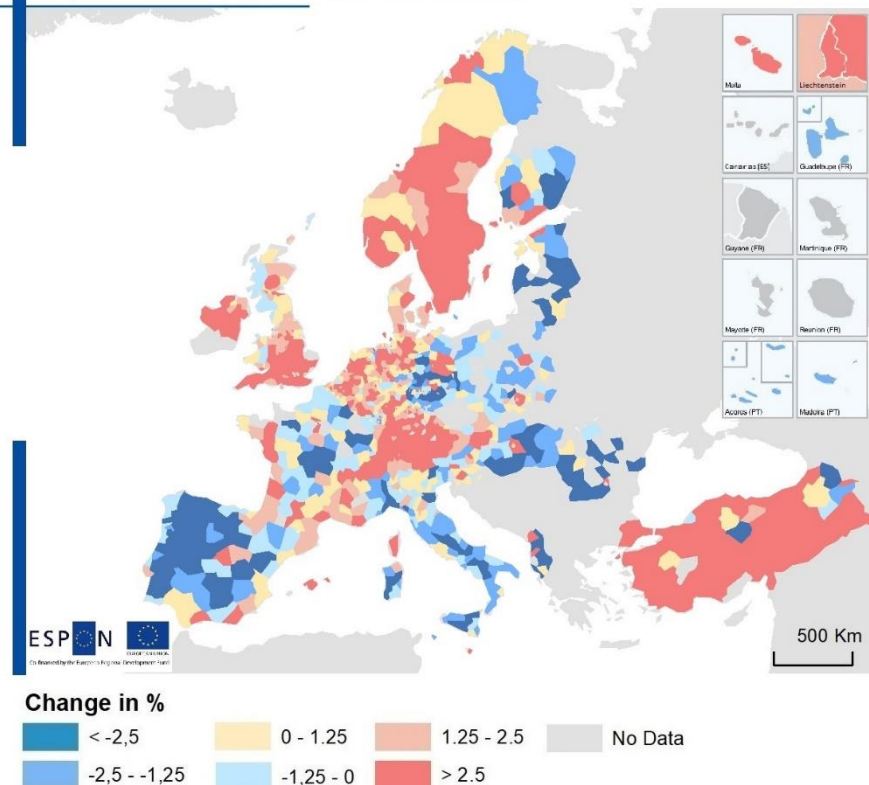
Climate Change social impact

Climate Change economic impact

The average population density of Sweden is rather low in a European context, with 25.4 inhabitants per km² (2019). However, the population is mostly concentrated in southern Sweden and the Stockholm region, with a steady increase in population in already densely populated areas. In terms of urbanisation, Sweden experiences both densification processes in some areas, and shrinkage processes in other, often more remote, areas.

As for the projected impacts of climate change in Sweden, the maps below show that the potential environmental impact is estimated to vary from marginal in the very south, to a high increase in negative effects on the current ecosystem in the northern regions. The potential social impact of climate change is projected to be rather limited, although there will still be a low increase in negative effects in urbanised areas. Finally, climate change is generally expected to have a positive economic impact in Sweden due to, for instance, improved environmental conditions for agriculture and less need for heating in urban areas. However, such conclusions are based on availability of data, and may, for instance, not include all aspects related to the projected rise in sea-levels.

Population change from 2014 to 2019

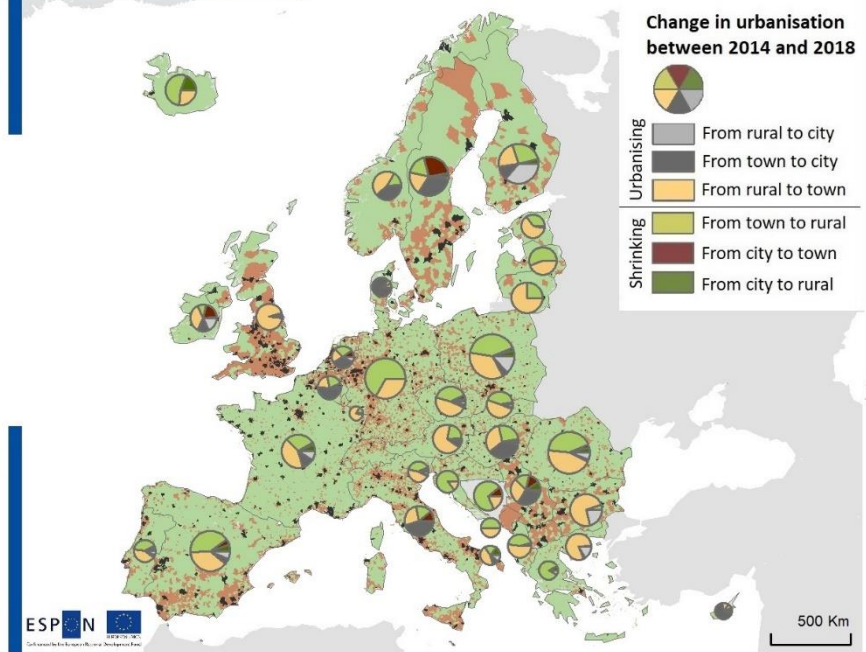


Source: Eurostat, 2020 Regional (NUTS 3) development of population between 2014 to 2019. The change is calculated as the population difference between 2019 and 2014 divided by the population of 2014

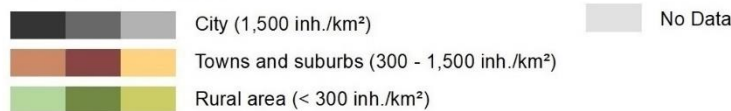
Despite an important portion of the NUTS regions lacking data, noticeable trends can be observed. Overall, large portions of Eastern Europe, Italy, Spain, and France have decreasing populations. For the latter two countries, however, increasing population can be observed in urban areas such as Madrid, Barcelona, Bordeaux, Nantes, and 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.

Most regions in Sweden showed substantial population growth rates of more than 2.5 % during the last few years. Only Norrbotten and Västernorrland had lower rates of growth. One of the main reasons for this significant growth is a high influx of immigrants in 2015. However, the immigration/emigration balance shows an immigration surplus in all the years in that period. The fertility rate in Sweden has been below 2 during that period. The population is mostly concentrated in southern Sweden and the Stockholm region, with a steady increase in population in already densely populated areas.

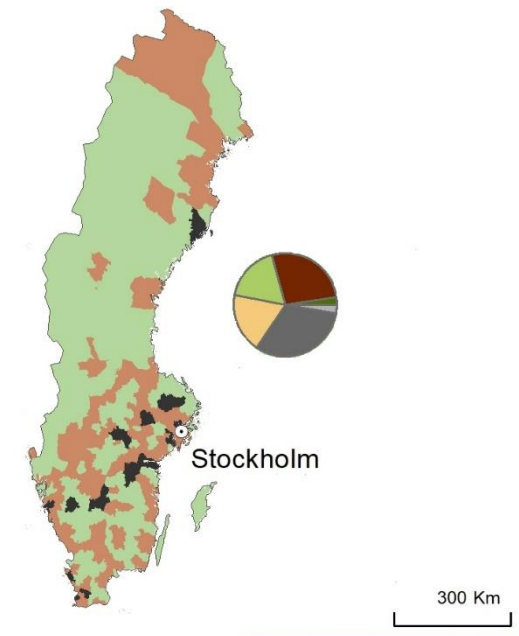
Change in urbanisation between 2014 and 2018



Urban areas 2018



Local level: LAU2 boundaries
Source: Eurostat, 2018



This dataset contains the difference in degree of urbanisation between 2014 and 2018. The classification is based on a population distribution grid with raster cells of 1 km² that classifies local administrative units into three categories: rural areas (< 300 inh./km²), town and suburbs (300 - 1,500 inh./km²) and cities (1,500 inh./km²).

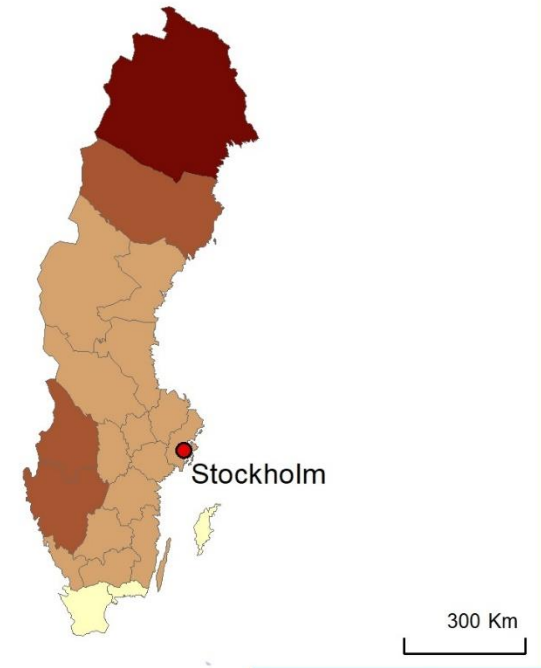
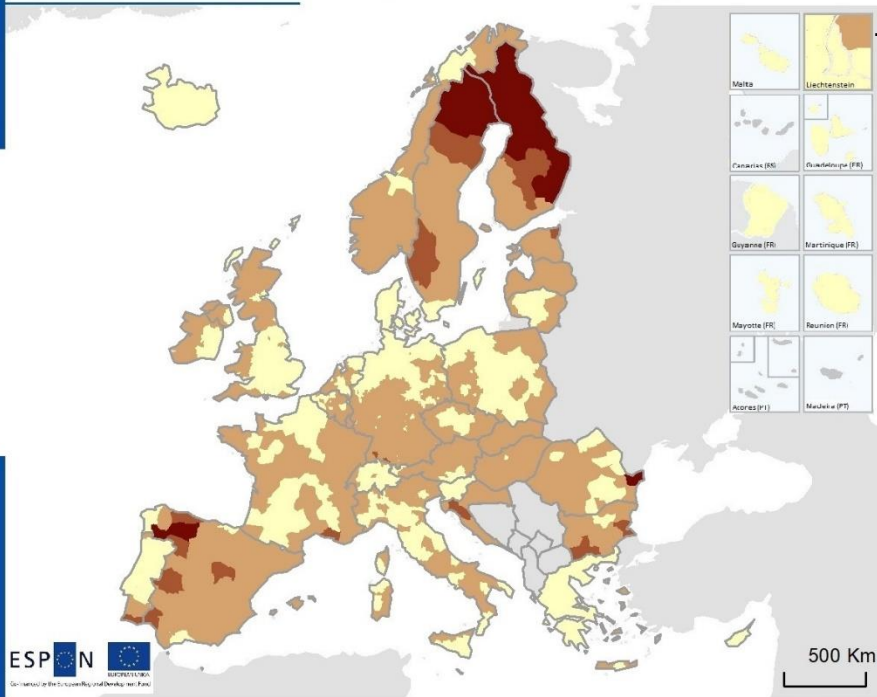


The data used for these maps come from the Geographic Information System of the Commission (GISCO). The classification is based on population density rather than building density. The difference between 2014 and 2018 can thus give indications of the changes in population flows. For instance, a large portion of rural areas in Europe have shifted towards towns from 2014 to 2018 due to densification. This means there is a tendency for the population to spread over large surfaces. In the Lowlands, Denmark, Norway, Sweden, Finland, Italy, and Hungary however, a higher densification process can be observed with large areas shifting towards cities.



This map was processed based on changes in population densities. The most interesting feature is the circular diagram, which shows a somewhat diverse change pattern concerning the difference in degree of urbanisation from 2014 to 2018. The most dominant tendency shows a shift in category out of town areas and into cities. There is also a significant shift from rural to town. Together they demonstrate urbanisation and a population densification process. There is also a large shrinking tendency of some areas shifting from the city to the town category, which is unique in a European context, as well as from the town to rural category.

Potential environmental impact of climate change from 2071 to 2100



Impact index

-0,5 : High decrease	-0,1 - 0,1 : No/Marginal impact
-0,5 - -0,3 : Medium decrease	0,1 - 0,3 : Low increase
-0,3 - -0,1 : Low decrease	0,3 - 0,5 : Medium increase
	0,5 - 1 : High increase

Combined potential impacts of changes in summer and winter precipitation, heavy rainfall days, annual mean temperature, summer days, frost days, snow cover days and annual mean evaporation on soil erosion, soil organic carbon content, protected natural areas and forest fire sensitivity.

Origin of data: own calculations based on CCLMA1B Lautenschlager et al., 2009
Source: ESPON CLIMATE updated, 2015

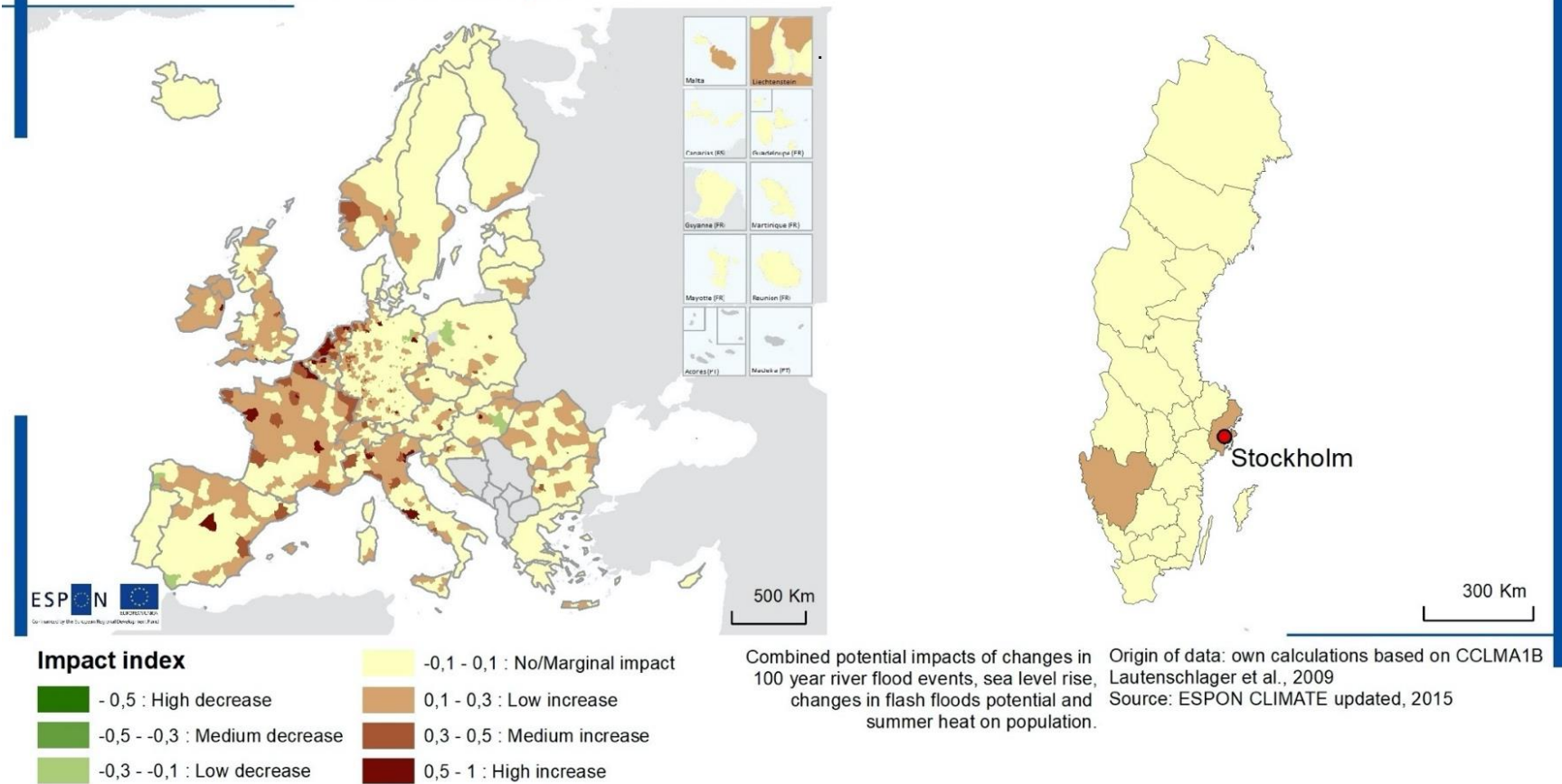



Climate change will affect all parts of nature. Many plants and animals will adapt, while in some cases protected natural areas, soils or forests may be more sensitive to the changes. The potential environmental impact of climate change is expected to increase mostly in Finland, Sweden, Spain, Croatia, Bulgaria, and Romania. Large parts of the rest of Europe will experience either a low increase or no/marginal impact. Important factors are steep mountain slopes and associated soil erosion, risk of forest fires, soil in rivers deltas, and sensitive northern ecosystems.




In Sweden, the combined potential environmental impact of climate change is estimated to vary from marginal in the very south, to a high increase in the northern regions. Västra Götaland and Värmland are expected to experience a medium increase. Some of the increased negative impacts are related to mountain slopes and associated soil erosion, risk of forest fires, and soil in river deltas. The severe impacts in northern Sweden are, in part, also due to their very large protected areas where any climatic change (in this case warmer and wetter climate) is considered as negatively affecting the specific ecosystems under protection.

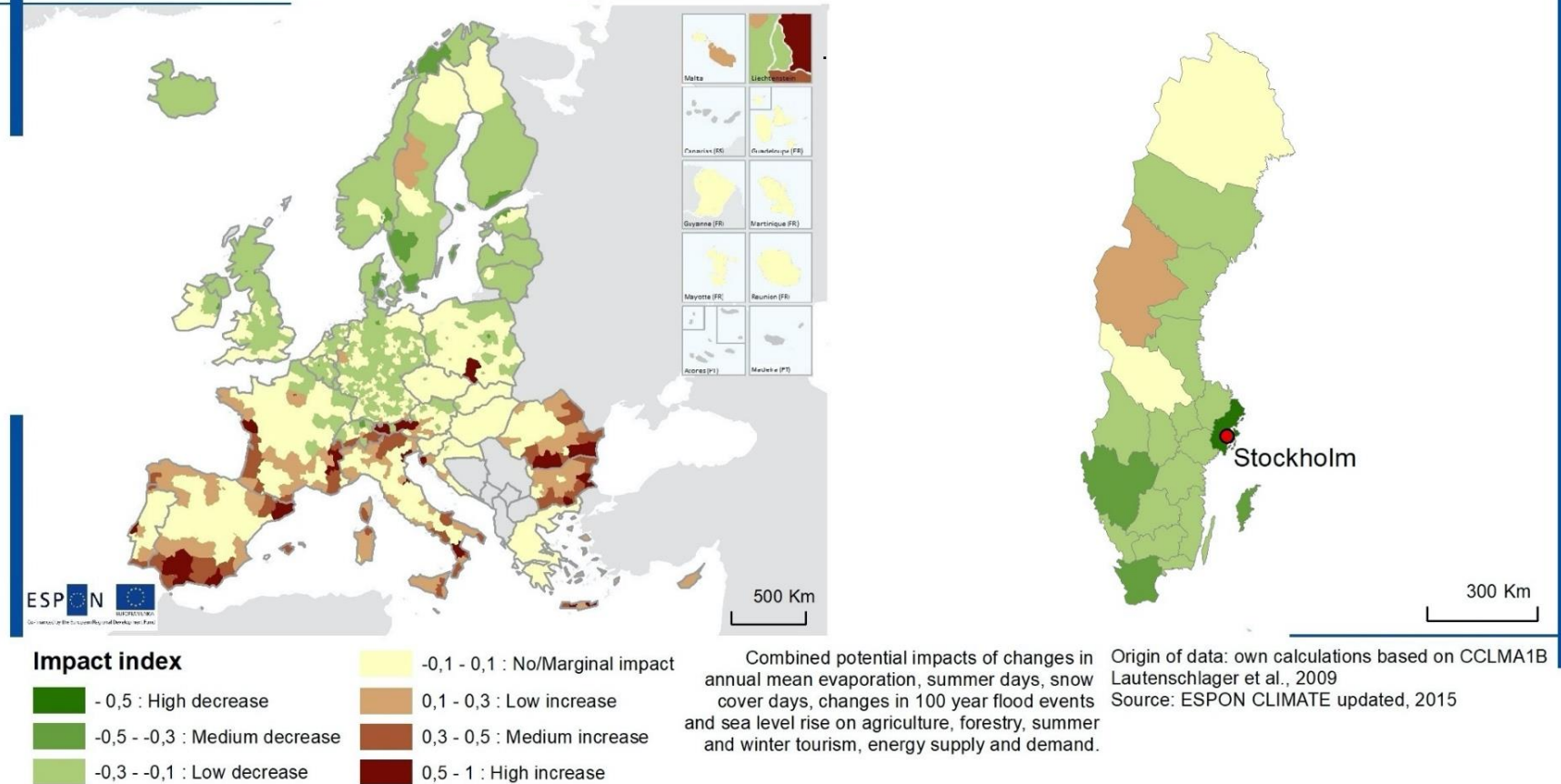
Potential social impact of climate change from 2071 to 2100



 Human populations may themselves be affected by climate change, for instance concerning public health and personal mobility. This implies attention to river and coastal flooding, flash floods and heat islands in urban areas threatening senior citizens. The potential social impact of climate change is projected to increase in many areas all over Europe, although somewhat more in western regions, coastal areas and river basins. However, large parts will also experience no, or only marginal, effects.

 In Sweden, the potential social impact of climate change is projected to be rather limited, with marginal effects in most of the country. The exceptions are Stockholm and Västra Götaland where a slight more negative impact is expected. The density of Stockholm and Göteborg, combined with flooding risk from extreme rainwater events, sea level rise and 'heat island' effects are likely causes for this. However, impacts can be very local, which indicates a need for a more place-tailored approach to estimate effects across the country.

Potential economic impact of climate change from 2071 to 2100



Climate change will have a significant economic impact in Europe. 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 Sweden, climate change is expected to have a generally positive impact, especially in the south. This is, for instance, due to improved environmental conditions for agriculture and less need for heating in urban areas. Only Jämtland is expected to experience minor negative consequences. This is, however, 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.



Enhanced sustainability through better physical planning and governance

Spatial Distribution of Green Infrastructure

Broadband access

Global potential accessibility

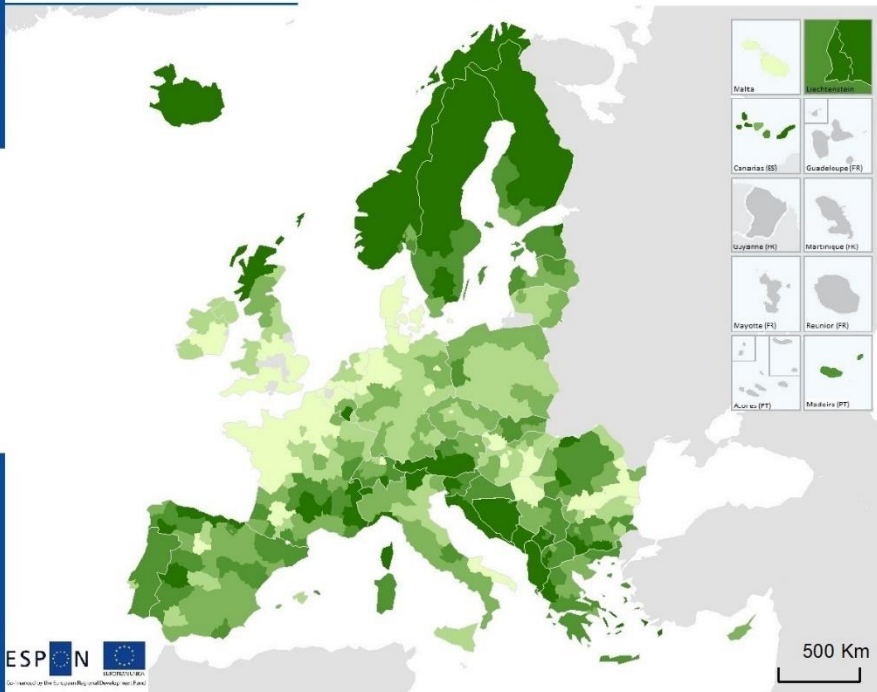
Housing cost burden

eGovernment

Sweden is among the highest-ranking countries in Europe concerning the coverage of green infrastructure, particularly in central and northern regions. In terms of broadband access, Sweden is among the best in a European context. Here, remote regions are key performers – good digital connectivity and access to a large variety of digital services reduce the need for physical infrastructure and help these territories combat remoteness.

The global accessibility index for Sweden shows the highest values in the southern part due to easy access to Copenhagen Airport. As for the percentage of population with housing cost overburden, this is mid-level in a European context. However, the housing cost burden of the population in percentage of the disposable household income is better than in many central and eastern European countries. Finally, Sweden is a frontrunner nation in eGovernment interactions and services. The creation of a successful digital multilevel governance system is well underway.

Spatial distribution of green infrastructure in 2012.





Green Infrastructure coverage (%)
 < 20 20 - 40 40 - 60 60 - 80 > 80

Regional level: NUTS 2 and 3
 Source: ESPON GRETA, 2019

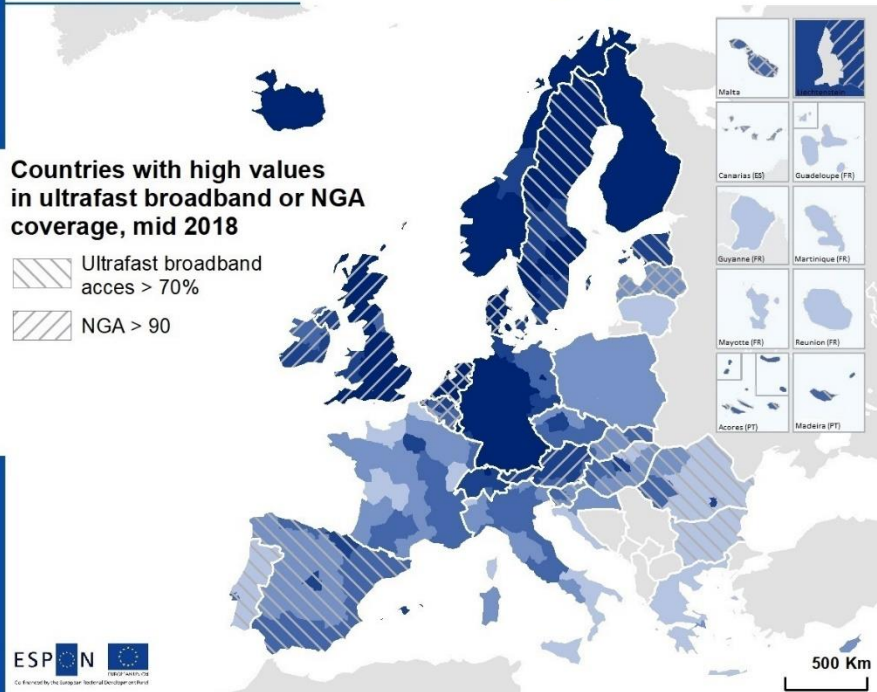


The indicator shows the coverage percentage of Green Infrastructure (GI) within each region at the NUTS 2 or 3 level in Europe. The Corine Land Cover maps with a resolution of 1 ha (100m x 100m) were used to identify GI.

 Green infrastructure (GI) is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces and other physical features in terrestrial (including coastal) and marine areas. The spatial distribution of GI clearly reflects population density, infrastructure development, climatic and topographic conditions, as well as the distribution of agricultural areas in the EU territory. The coverage of green infrastructure is lowest for regions in north-western France and Germany, south-eastern UK, Ireland, and Denmark. It is relatively high for the rest of the Nordic countries, the Balkan countries along the Adriatic Sea, and the eastern Alpine region.

 Sweden is among the highest-ranking countries in Europe concerning the coverage of green infrastructure, which is clearly seen in the Sweden map, particularly in central and northern regions. Sweden is, in general, a sparsely populated country where most of the land use is dominated by forests (around 69% in total) and mountain areas. In the southern coastal regions, the share of agriculture is higher due to more suitable environmental conditions. Attention to ecosystem services has increased in Sweden during the last year and efforts have been made by the government to show the value of ecosystem services and biodiversity.

Broadband access in households and high speed internet coverage



Countries with high values in ultrafast broadband or NGA coverage, mid 2018

- Ultrafast broadband acces > 70%
- NGA > 90



Proportion of households with broadband access, 2017 (% share of all private households)*

- < 75
- 75 - 80
- 80 - 85
- 85 - 90
- > 90



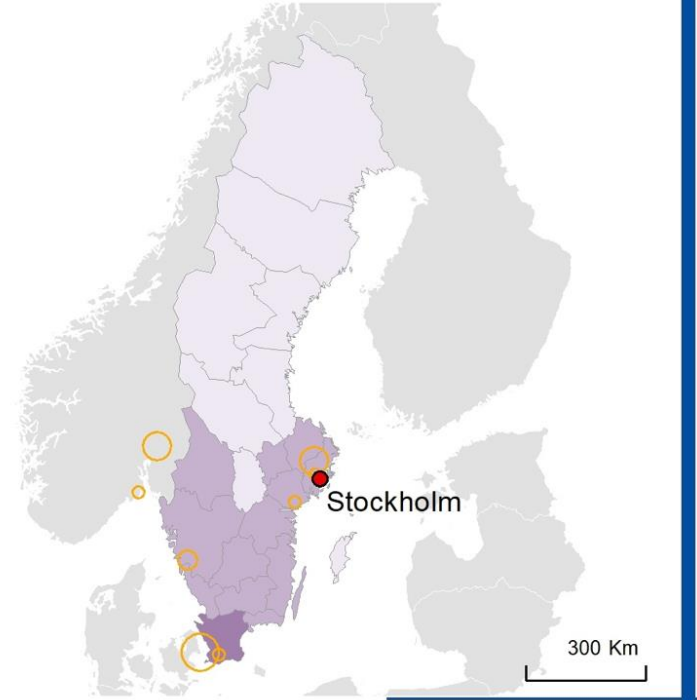
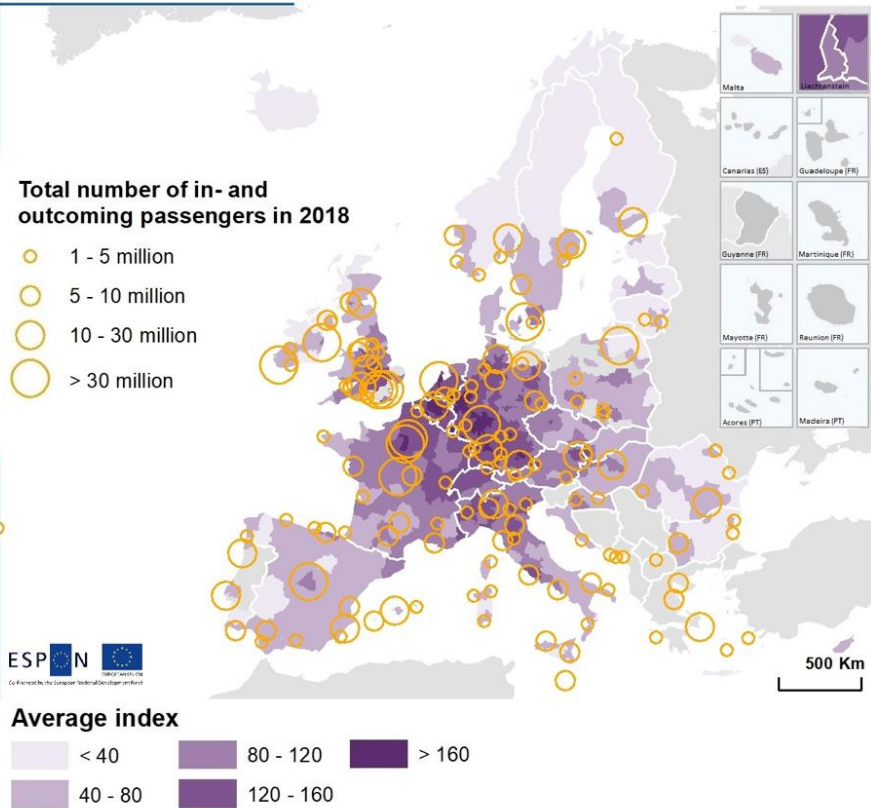
Regional level: NUTS 2 / 1 / 0
Source: ESPON SOET (2019)
Origin of the data: Eurostat, DESI index, 2019

* The availability of broadband is measured by the percentage of households that are connectable and thus refers to coverage.

Broadband access and high-speed internet is considered essential to future competitiveness, connectivity and inclusiveness. EU 2025 targets aim to ensure fast connections for schools, main public services, public transport hubs and digital-intensive enterprises, and a minimum of 100 Mbps for all European households. In 2017 ultrafast broadband access was above 70% in Sweden, Denmark, Estonia, Latvia, the Lowlands, Spain, Portugal, Slovenia, Slovakia, Hungary, Romania, and Bulgaria. NGA broadband was above 90 in the UK, Denmark, the Lowlands, Latvia, and Austria. The share of households with broadband access was highest in central and northern Europe.

In 2017, Sweden had at least 85% of households with broadband access throughout the country, with more than 90% in the northern and central regions. Also, 70% of Swedish households had access to ultrafast broadband. However, within regions the level of access may vary significantly. It is remarkable given the size of the territory of Sweden, having large areas with sparse population. Such areas are key performers in terms of access to broadband or online purchasing of goods and services. Good digital connectivity with access to a large variety of digital services reduces the need for physical infrastructure and help these territories combat remoteness.

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

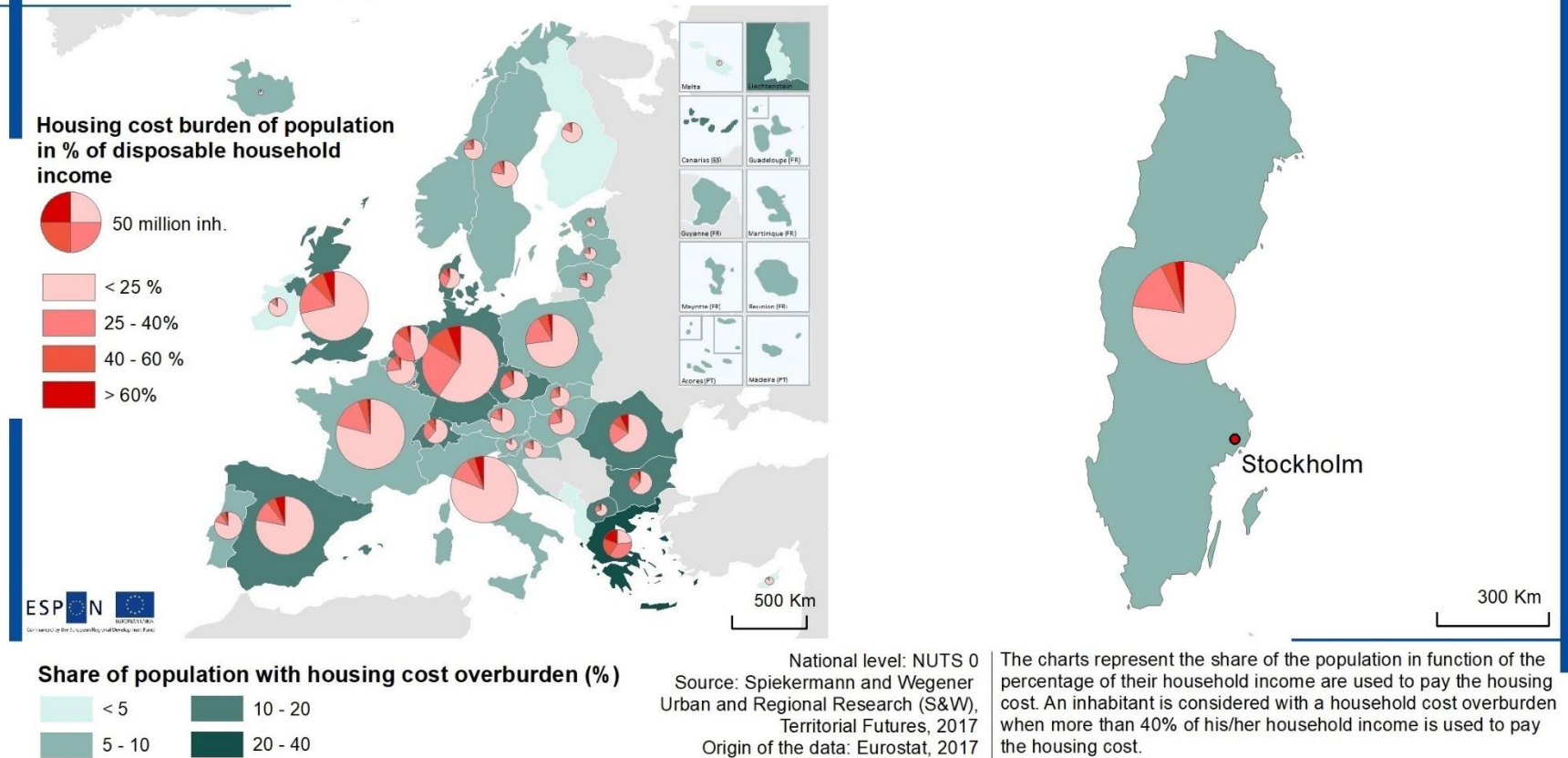


Air transport is important to global connectivity, both in continental Europe and in intercontinental travel. There has been a significant growth in air transport in the EU in the last few years. In 2018, intra-EU air transport had a share of 46% of the total air transport in the EU, extra-EU air transport 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 has been in Lithuania, Latvia, Poland and Slovakia. The best global accessibility is found in central-western Europe.



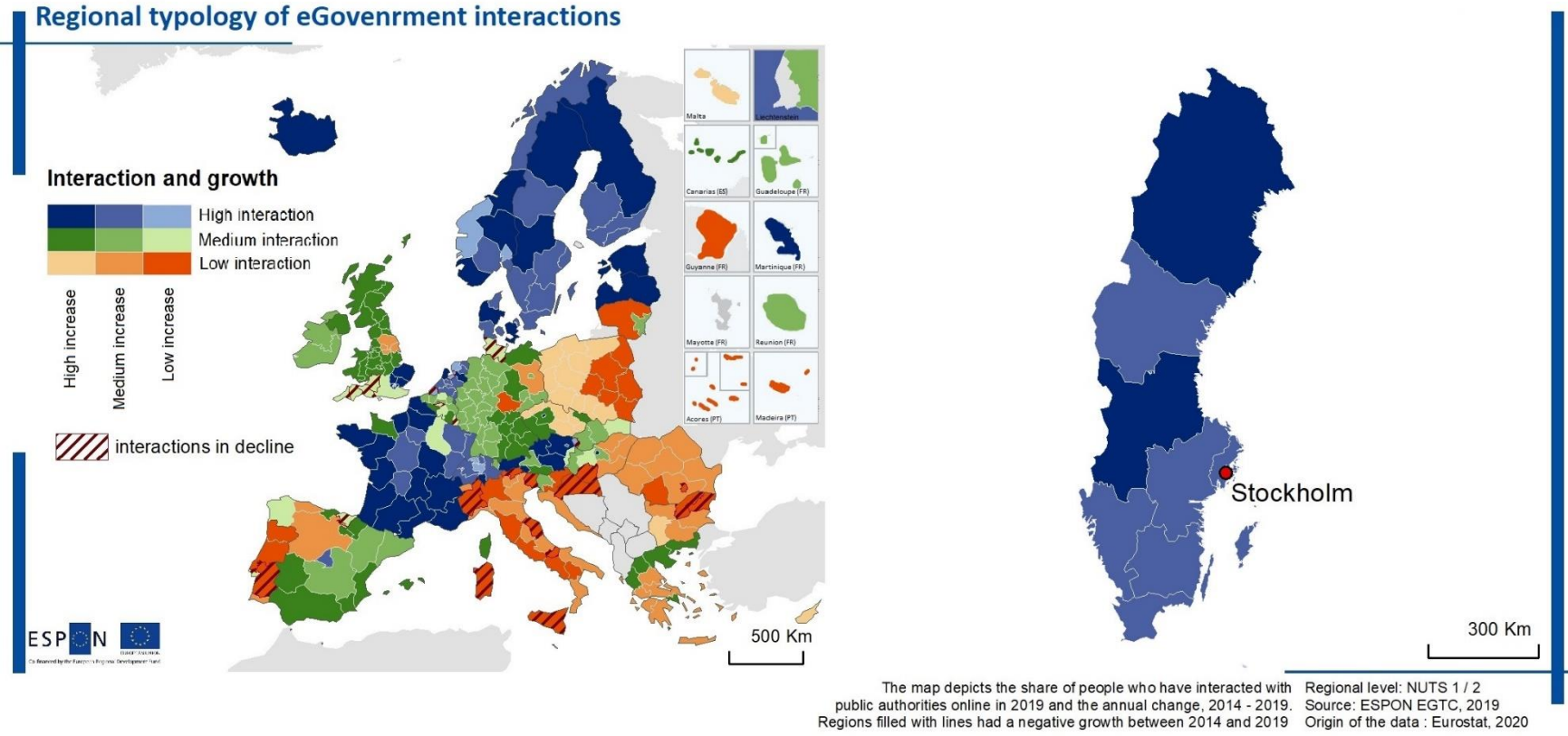
The global accessibility index for Sweden shows the highest values in the southern part of Sweden, while the northern part shows relatively low values in a European context. In total, Sweden had almost 39 million passengers by air in 2018, with Stockholm/Arlanda having the largest share of 26.8 million passengers. The accessibility values in the Skåne region are highest due to easy access to Copenhagen Airport, the largest airport in the Nordic countries. Also, the values in the regions close to Oslo are helped by access to Oslo/Gardemoen Airport.


Housing cost burden of population in 2015




The cost of housing plays an essential part in most people's budget. An increase in the share of population with housing cost overburden can imply risks of social exclusion or poverty. In particular, when a larger fraction of the household economy goes to housing costs, then other important living expenses may be at risk. The map shows Greece, Denmark, the Czech Republic, Germany, the Netherlands, Romania, Bulgaria, Macedonia, Spain, Switzerland, and the UK as the countries with the highest share of the population that have housing costs representing 40% or more of their household disposable income.

In Sweden, the share of population with housing cost overburden is estimated at between 5% and 10% in all of Sweden, which is mid-level in a European context. More than 3/4 of households have less than 25% housing cost burden as a percentage of disposable household income. This is better than in many central and eastern European countries. As the data is at the national level and so this will have to be reassessed at regional and local scales. Here, larger urban areas are likely to show a higher cost overburden and higher housing cost burden. Also, the financing system for housing in Sweden must also be taken into account.



 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.

 Together with the rest of the Nordic countries, Sweden is a frontrunner nation in eGovernment interactions and services. The creation of a successful digital multilevel governance system is well underway. This results in improved coordination between administrative levels and fair involvement of the private sector, which has an interest or can participate in co-creating and delivering new types of services. Remote regions have not suffered from a lack of development, as can be seen in other parts of Europe. This shows a deliberate and consistent effort to create equal opportunities across all of Sweden.



By using regional assets

Education of 30-34 year olds

Small and medium enterprises

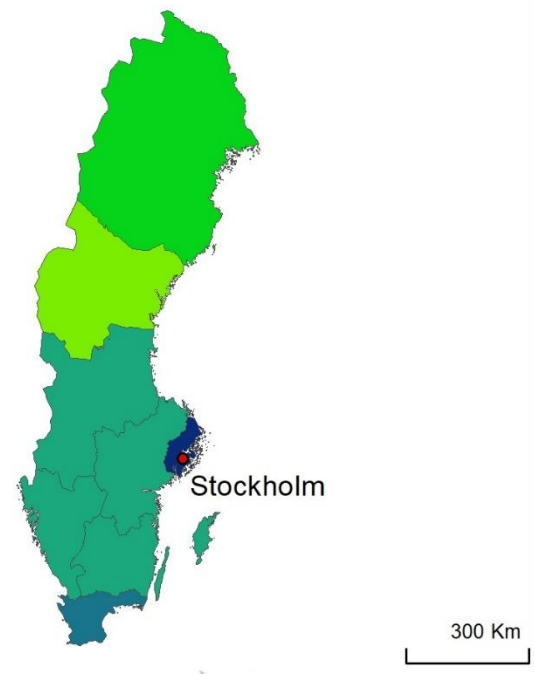
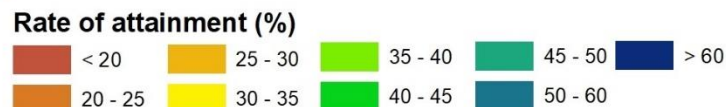
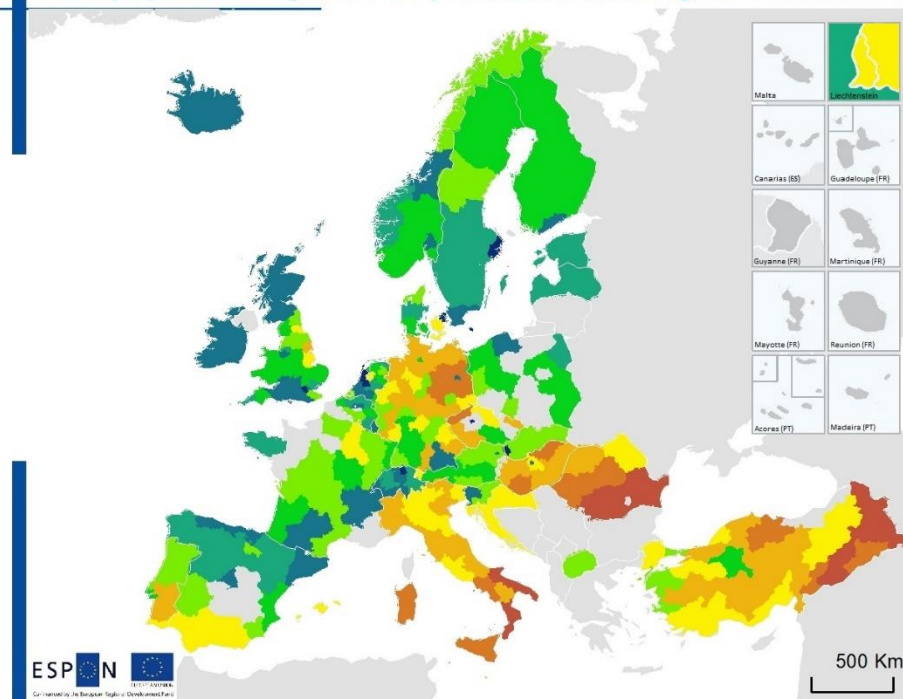
Enterprise creation

Knowledge economy

Added value of tourism

In the European context, overall education level in Sweden is at the very top. The Swedish population between 30-34 years old shows a high rate of people with a higher education degree. The share of people employed in SME's is rather high in a European context, which is mostly due to the fact that the category in the map below includes small enterprises down to 10 persons. When considering enterprise creation, Sweden has a rather low enterprise birth rate compared to Europe. However, the rate is higher in the urbanised and more populated regions around Stockholm and Malmö. As for the knowledge economy, the urbanised regions, in particular, show the highest values, as well as the best labour market and socio-economic conditions in the EU. Finally, while tourism is still a small sector in Sweden, it has gained relative economic importance the last few years.

Total population aged 30-34 years old with a higher education degree (level 5-8) in 2019



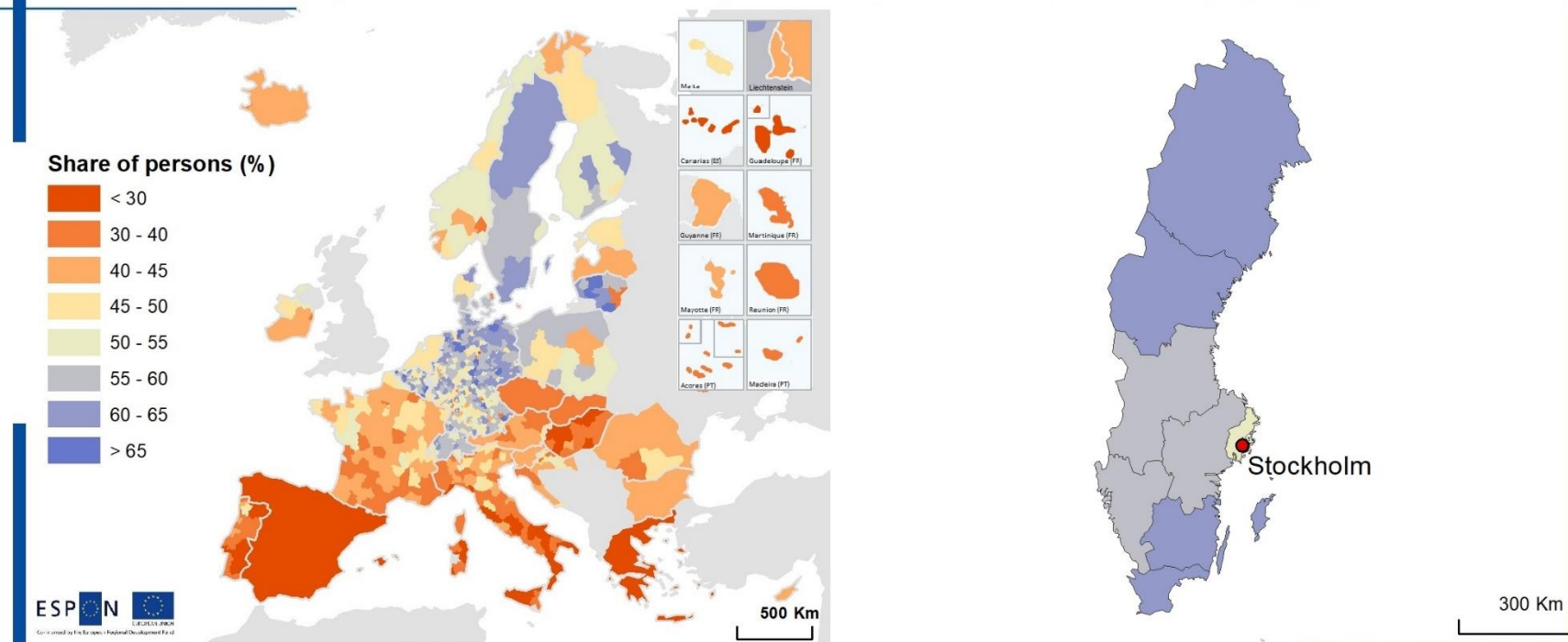
Origin of the data: Eurostat, 2020

Regional (NUTS 2) share of population from 30 to 34 years old with an educational attainment of level 5 to 8 according to the ISCED (2011) classification.

The rate of people with a higher education degree is above average in the Nordic countries, the Baltics, Switzerland, Austria, the Lowlands, and large parts of UK, France, Spain, Poland, the Czech Republic, Slovakia and Slovenia. In general, metropolitan areas in Europe have a higher rate than their surrounding areas. Italy, large parts of Germany, and several countries in Eastern Europe show a lower rate. While a large portion of the higher educated population of, for instance, Italy has emigrated to other regions in Europe for job opportunities after the financial crisis, some of the countries in Eastern Europe tend to have lower participation in higher education.


In general, the Swedish population between 30-34 years old shows a high rate of people with a higher education degree when compared to the rest of Europe. However, there are significant differences within Sweden, with a rate of attainment of above 60 % in Stockholm region and 50-60 % in the Skåne region. Northern Sweden has lower rates between 35-45%. However, taking into account that most of the population, by far, lives in the mid and southern part of Sweden, the overall education level in Sweden is at the very top in a European context. Sweden benefits from high quality schools and a student-centred education system.


Share of persons employed in small and medium enterprises enterprises in 2014 (10 - 249 employees)



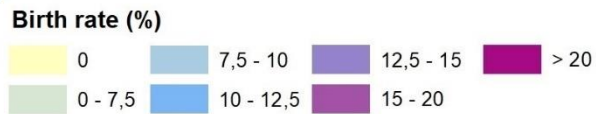
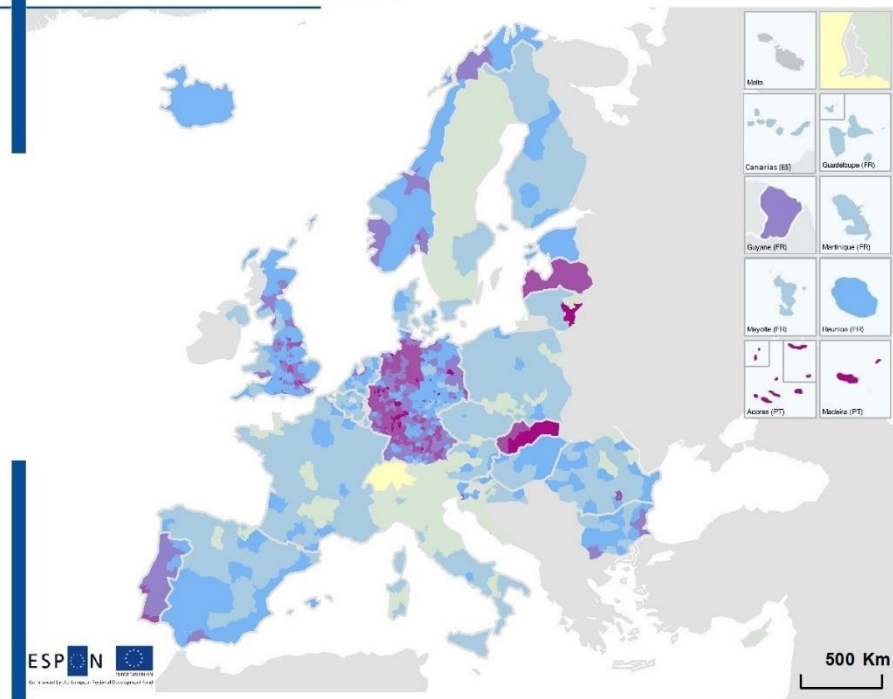
Regional level: NUTS 2 & 3
 Source: ESPON SME, 2018

Origin of data: Eurostat Business demography, Statistics Austria national SBS, Statistics Belgium Demografie Ondernemingen, ORBIS, Beschäftigtenstatistik Bundesagentur, national SBS, Statistics Finland national BD, Insee. Direction des statistiques démographiques et sociales (DSDS), Financial Agency, Central Statistics Office (CSO) national BD, Statistics Iceland national BD, Amt für Statistik Fürstentum Liechtenstein - Beschäftigungsstatistik, Statistics Norway national BD, Central Statistical Office Poland national BD, Statistics Portugal Integrated Business Accounts System, National Statistics Institute Romania national SBS, Statistics Sweden Business Register, Bundesamt für Statistik Schweiz, Small Enterprises' Institute of the Hellenic Confederation of Professionals, Craftsmen and Merchants (IME GSEVEE)

 SME's play a crucial role in economic growth, innovation, job creation and social integration in Europe. SMEs account for a high employment share in many regions in Nordic and Baltic countries and parts of central Europe. The Mediterranean and parts of Eastern Europe have low shares of people employed in SMEs. On average, the period between 2008 and 2014 showed a decrease in the amount of SME employment, except in central, some northern and southeastern parts of Europe. Urban regions show significantly lower SME employment in comparison to rural areas. This generally depicts an opposite trend compared to the smaller microenterprises.

 Consistent with trends in the other Nordic countries, Sweden's capital region, Stockholm, is home to a lower share of people employed in SME's compared to the rest of the country. This correlates with the general trend that urbanised areas tend to have a lower share than rural areas. The differences in the rest of Sweden are minimal, ranging between 55-65%. This is, however, a rather high share in a European context. Traditionally, the Swedish enterprise structure is described as an hourglass, with many employees in small and large companies, and fewer in middle sized companies. As the category in the map includes small enterprises down to 10 persons, this may explain the high share of people employed in SME's.

Enterprise birth rate in 2014



An enterprise birth is when an enterprise starts from scratch and actually starts activity; excluding mergers, break-ups, split-off or restructuring of a set of enterprises (Eurostat Regional Business Demography). The rate is calculation as the number of creation divided by the number of existing enterprises.

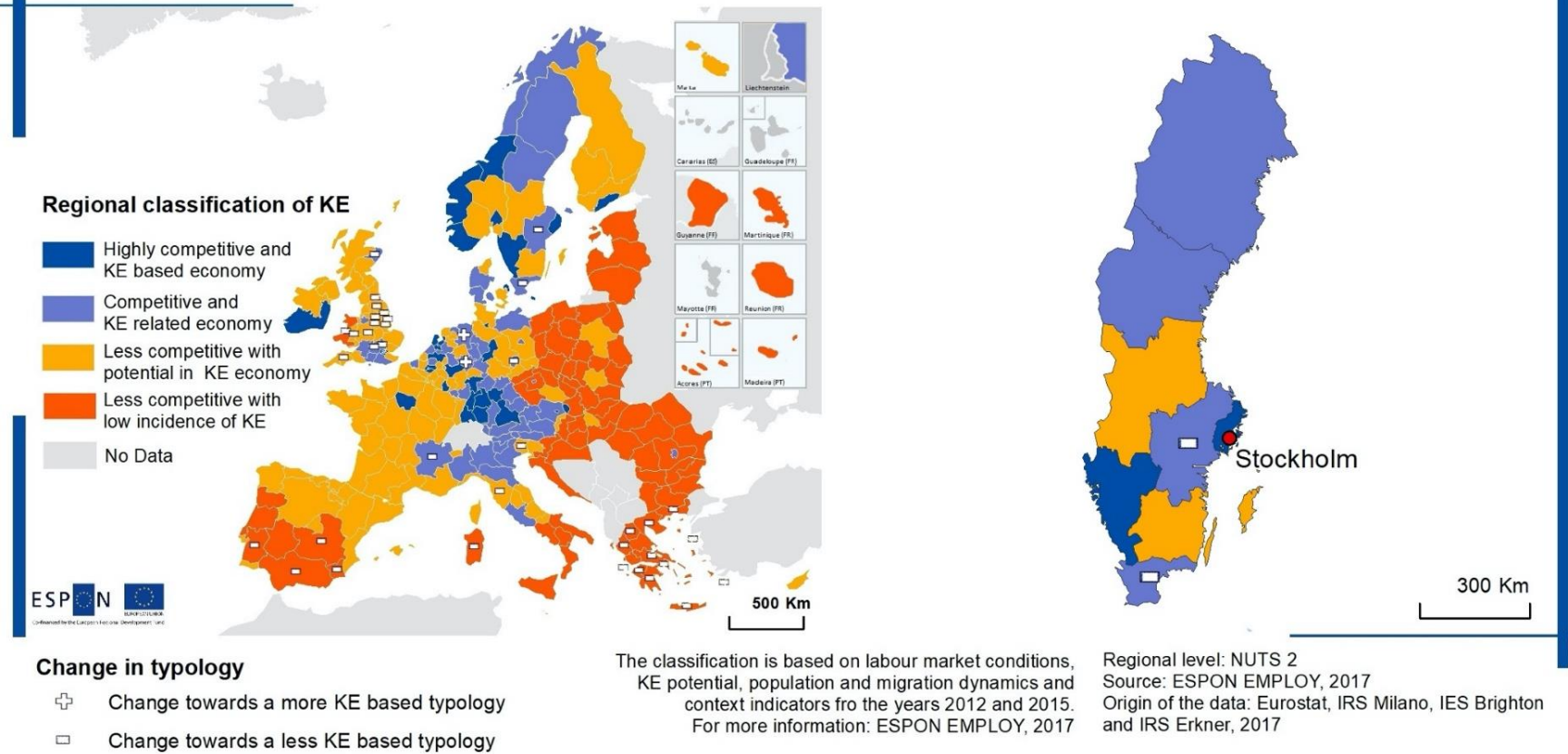


Employment in the SME sector requires good access to finance and an environment that supports growth. In areas with a greater share of Foreign Direct Investment (FDI), SMEs have more potential to grow and survive in the long-term. Latvia and Slovakia have high SME birth rates: above 15%. Most regions in western Germany and in Portugal, as well as parts of Bulgaria, Norway and the UK experience high enterprise birth rates.




In general, Sweden has a rather low enterprise birth rate compared to both Europe and the Nordic countries. However, the rate is higher (7.5-10%) in urbanised and more populated regions around Stockholm and Malmö. Still, Sweden shows very high survival rates among new enterprises, which may be seen as an indicator of efforts made to improve the quality of the guidance system during the creation of a start-up.

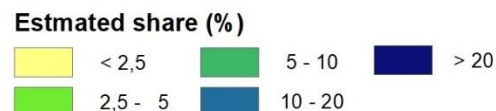
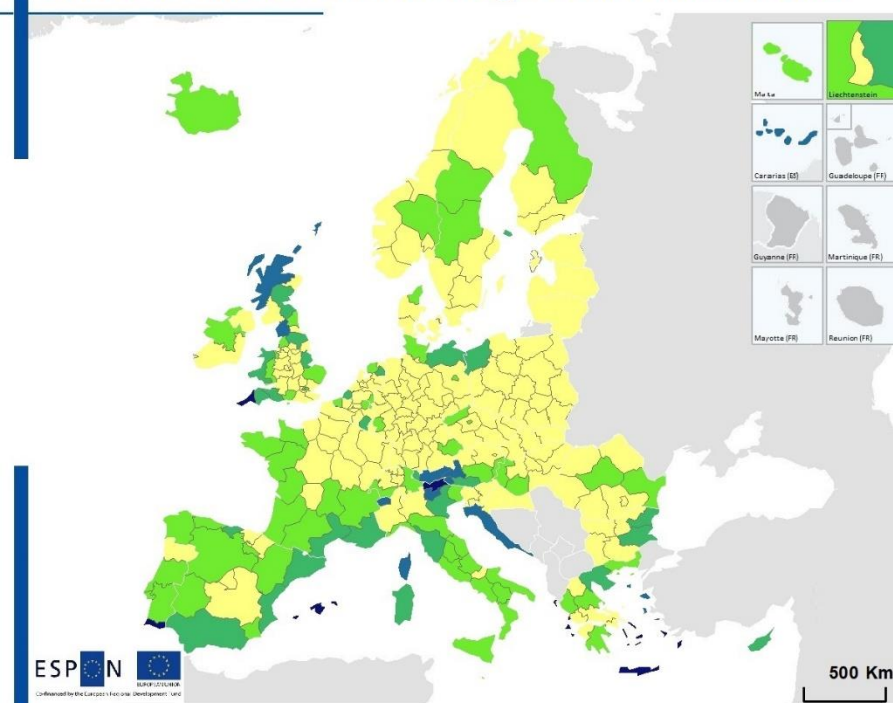
Knowledge economy (KE) clusters, 2012 - 2015




 The knowledge economy (KE) plays an important part in Europe's increasing reliance on technological development. A few metropolitan regions in northern and western Europe have a high concentration of KE parameters, which implies high R&D expenditure, high employment in technology sectors, and a capacity to turn innovation into regional growth. There is clear core-periphery polarisation at the territorial level, resulting from existing mechanisms of producing knowledge. It is the already-developed regions that tend to innovate and facilitate growth, which widens the development gap across Europe.


 In Sweden, the Stockholm region and the regions around Göteborg are highly competitive and well-situated in the European KE. The regions west of Stockholm, the Skåne region and the northern regions are considered competitive and well-related to KE, while mid-regions, Småland and the islands are less competitive and with further potential for exploitation of the KE. Hence, there is some differentiation in the Swedish KE patterns, however the most populated areas are top competitors in Europe. These regions show the highest average and growing values for KE indicators, as well as the best labour market and socio-economic conditions in the EU.

Estimated share of tourism to the gross value added in 2017



Regional level: NUTS 1 & 2 Regional level: NUTS 1/BE, BG, FR, AT, UK in NUTS 2
 Source: ESPON Territorial Futures, 2017 Calculations from: Spiekerman and Wegener Urban and Regional Research (S&W)
 Origin of the data: Regionalized estimates based on Eurostat, 2017

 The tourism sector is of notable importance for European economic development, especially in southern countries and some remote regions. In a few regions, this plays an essential part of their socioeconomic profile. It should also be noted that tourism is a very place-sensitive activity, which means that some localities inside many regions all over Europe can be almost entirely dependent on tourism. This is often the case in peripheral areas, which puts those places particularly at risk of various factors with potential negative influences on tourism, such as accessibility and transport costs.

 In Sweden, the share of tourism is 2.5-5% in mid-regions north of Stockholm and less than 2.5% in the rest of the country. Tourism is not of significant economic importance to Sweden, in international comparison. However, the tourism sector has grown significantly since 2013. More than a third of international travellers to Sweden visit Stockholm and go for skiing or nature-oriented tourism. Tourism in Sweden is very localised; hence some places have a much higher dependency on and sensitive to changes in tourism. ESPON studies generally indicate good potentials for eco-based tourism.

ESPON EGTC

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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.

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ISBN number: 978-2-919795-50-5

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

November 2020

www.espon.eu/sweden