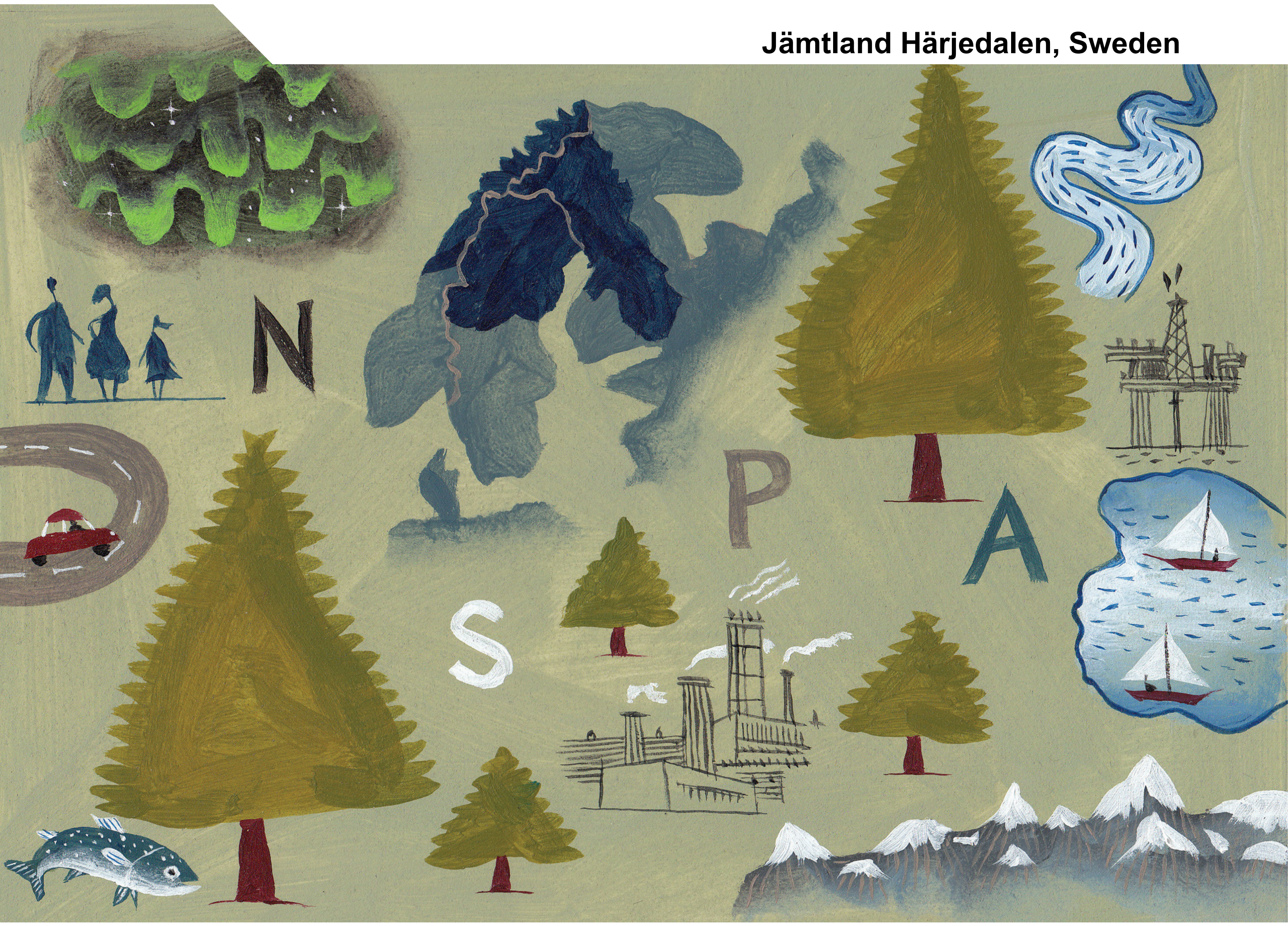
OECD Territorial Reviews

Northern Sparsely Populated Areas

Jämtland Härjedalen, Sweden



OECD

Jämtland Härjedalen, Sweden (northern sparsely populated area)

The purpose of this case study is to provide recommendations for Region Jämtland Härjedalen to enhance productivity, growth and service delivery outcomes within the context of the NSPA collaboration. The case study begins by outlining the assessment and recommendations. An overview of the region is then provided, followed by an analysis of regional economic performance. The case study concludes with an assessment of key assets/opportunities and bottlenecks/risks facing the region.

Assessment and recommendations

Jämtland Härjedalen is a landlocked county in northern Sweden which shares a border with Norway. GDP per capita in 2012 for Jämtland Härjedalen was USD 35 160 which was 83.6% of the national average, which is slightly lower than the OECD average of 35 812 and NSPA average of 37 205. In the period 1995-2012, there was a widening of the gap in GDP per capita between Jämtland Härjedalen and the national average from 8.4% to 16.4%. In this period, growth in productivity and the employment rate were important drivers of economic performance. Population declined at an average annual rate of -0.33% detracting from the growth performance of the region. In 2012, the labour productivity of the region was USD 76 534 which is 11.5% below the average of TL3 regions in Sweden of USD 86 522 and 7.8% below than the NSPA average of USD 82 978.

The absolute advantages lie in its attractive landscapes (mountains, lakes and rivers, wilderness areas), proximity to Trondheim in Norway, a history and tradition of tourism-related activity, and food producers which are integrated with the tourism industry. Jämtland Härjedalen lacks the high value-adding mining and processing industries which exist in other parts of northern Sweden. Instead, its strengths lie in small scale manufacturing and tourism-related services. Prior to the crisis, the region was growing relatively strongly and the population was increasing due to international migrants filling labour market needs in tourism and construction. Despite these strengths, the region was affected by the crisis to a greater extent than the other northern counties. Growth declined while employment largely held up, and as a result there was a drop in productivity. This paints a concerning picture about future short-term growth prospects when coupled with recent indicators such as rising unemployment and lower skills of young people. Region Jämtland Härjedalen is performing in line with the national level on key growth factors with the exception of innovation (measured by patents). The region lacks the leading firms and scale to generate high numbers of patents, and should focus on how to engage firms in incremental innovations, and also connecting firms with research and innovation resources outside of the region.

The specific policy recommendations to help address these challenges and realise future opportunities are outlined below.

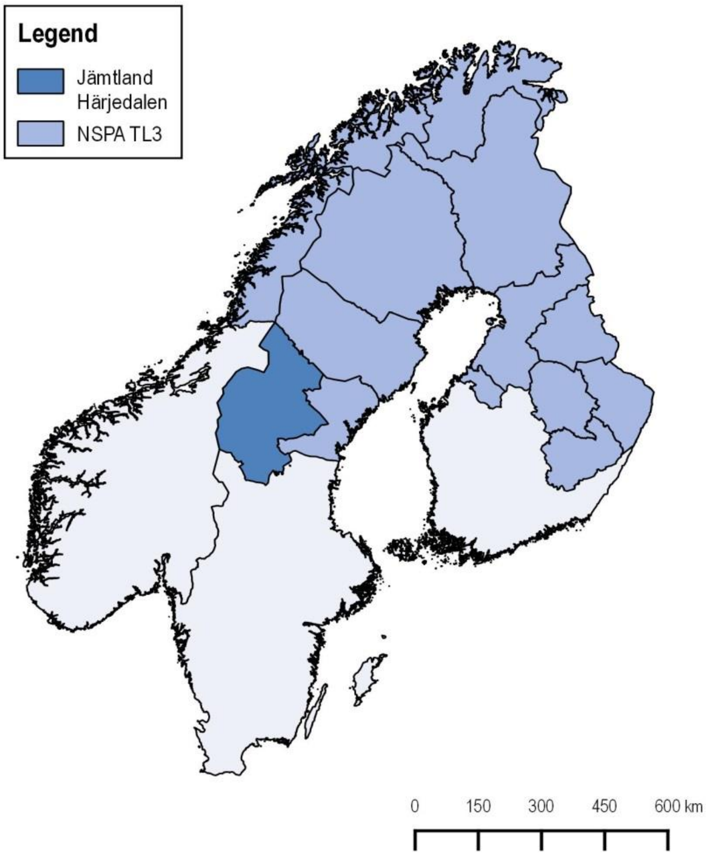
1. **Focus on leveraging strengths with entrepreneurs and small businesses related to natural amenities and tourism-related services.** Jämtland Härjedalen has a relatively small economy characterised by a larger proportion of employees in small and medium-sized enterprises (SMEs). This can create challenges in terms of generating the scale to drive productivity growth and innovation. The region will need to continue to develop innovative ways to promote innovation and enhance competitiveness by:
   a. continuing to focus on niche specialisations linked to tourism, sports and outdoor activities as part of the region's smart specialisation strategy
   b. better connecting SMEs with innovation and business networks at a national and international scale to identify new market and R&D opportunities
   c. better engaging SMEs in national innovation and skills development programmes
   d. ensuring that priorities and objectives of the region's tourism strategy are embedded within skills, infrastructure and innovation initiatives.
2. **Proactively address low skills and skills gaps to support the region's smart specialisation strategy.** Taking advantage of this migrant intake and addressing structural issues in the labour market will require a proactive approach to immigration, school education and vocational training. The region can do this by:
   a. continuing a regional approach to improving educational attainment including developing community based approaches to improving attainment and participation outcomes for young people at risk of dropping out of school
   b. developing an integrated approach to settlement support services for newly arrived migrants, and ensuring local service providers have the competencies and flexibility to lift workforce participation outcomes for migrants
   c. increasing the flexibility of delivery models for vocational education to support skills development and workforce participation, particularly with SMEs.

Assessment and recommendations *(continued)*

3. **Improve connectivity to Norway and the broader European market.** Jämtland Härjedalen is a low density economy which faces challenges in terms of ensuring access to infrastructure and services for businesses and communities in remote locations. Future challenges related to access can be addressed by:
   a. improving integration between regional development priorities and targets and the spatial planning framework and infrastructure planning
   b. improving cross-border connectivity (including in relation to innovation and skills)
   c. working with the region of Sor-Trondelag in Norway to attract direct air services from destinations outside of Scandinavia and improving transport connectivity with Trondheim to drive high value tourism growth.

Snapshot

Jämtland Härjedalen: Location within the NSPA



Note: Territorial level 3 (TL3) consists of micro regions within each OECD country. TL2 consists of macro-regions within each OECD country. Each member country has identified the statistical or administrative geography that provides the best fit for its territorial classification.

Source: Authors' own elaboration.

The region of Jämtland Härjedalen was home to 127 675 people in 2015, which is 1.3% of the Swedish population. Jämtland Härjedalen has a population density of 2.6 inhabitants per square kilometre compared to the national average of 24.2. The regional area is of 48 945 square kilometres, which is about the area of Slovakia. In the 10 years to 2015, the population grew at an average annual rate of 0.03% compared to the national average of 0.85%. The population of the region peaked in the mid-1950s at 144 393 people, and since then has been affected by the general trend of urbanisation and faster population growth in Stockholm and the southern areas of the country.

Östersund is the administrative centre of the region and is the largest urban centre. The population of the municipality of Östersund is 61 066, which is 48% of the region's population. In the period between 2005 and 2010, the population of Östersund grew at 0.44%. Another 15% of the population live in small townships such as Stromsund (11 712), Krokom (14 785), and Åre (10 677) whilst the remainder are in rural areas. A characteristic of the settlement pattern of Region Jämtland Härjedalen is the relatively even distribution of small villages and land owners across the region. These areas are generally declining, the population of the balance of the region (outside of Östersund) declined by an annual average rate of -0.34% between 2005 and 2015.

Jämtland Härjedalen's economy has historically been based on forestry and agriculture. The region was traditionally characterised by small scale agricultural holdings with dispersed and smaller sized settlements across the region. Agriculture is predominantly related to dairy and in the post-war period farms have consolidated and increased in size. The region also has significant fresh water resources which have been utilised for energy production. However, the region never developed a heavy industry base evident in other parts of northern Sweden.

As traditional agriculture and forestry restructured in the post-war period, the service sector has become more important to employment in the region. This includes tourism-related services (food, accommodation, retail), health and education services, and construction. Construction employment has increased due to investment in tourism developments, and wind power. The region has a small scale manufacturing sector characterised by firms producing specialised products related to forestry, construction, and recreational and sports equipment.

Jämtland Härjedalen shares a border with Norway (the region of Sor-Trondelag) and is close to the city of Trondheim with a population of approximately 190 000. This border area in the north-west of the region is mountainous, and includes the tourism area of Åre, which is known for winter and summer tourism activities. The south-eastern area of the region, closer to the Gulf of Bothnia, is flatter with lakes, and land used for forestry and agriculture. Major infrastructure links are by road: the east-west E14 linking Trondheim to Sundsvall on the Gulf of Bothnia, and the north-south E45 which is the main road linking the interior of the country.

The region's regional development policy framework, *Jämtland/Härjedalen 2030 - Innovative and attractive,* has a focus on creating the conditions for attracting people to Jämtland Härjedalen. It is organised around seven priority areas covering economic, social and environmental issues with a number of supporting targets (see following table).

Region Jämtland Härjedalen - regional development priorities and targets

Priorities	Targets
Business, innovation, research, and development	• More jobs and more entrepreneurs, supported by good access to venture capital • Adding value to raw products within the region and boosting conditions in rural areas • The university maintains its leading position in the county's profile areas
Expertise and knowledge development	• More pupils complete upper-secondary education and progress to higher education • Good access to continuing education adapted to the needs of the labour market
Efficient and effective resources	• Increased production of renewable energy and a sustainable power supply for the region's businesses and households • High energy efficiency in all sectors and no reliance on fossil fuels • Extensive efforts in all areas of society to deal with climate change • No uranium mining
Tourism and attractiveness	• Continued growth in the tourism industry, fulfilling the criteria for sustainability • An active and creative cultural scene, particularly for children and young adults • More companies in the cultural and creative sectors; links to the region's attractive areas
Infrastructure and public services	• Improved transport/communication to bridge long distances • High capacity broadband and good service can be offered to all inhabitants
Social inclusion and a healthy life	• Good health and the same chances and conditions, whatever a person's level of ability, for the entire population • A safe and secure region and properly functioning social welfare with equal access for all • Health care services that offer the inhabitants high class, expert care
Demographic potential	• The region is among the most attractive in Sweden for young women. A good, well designed welcome for all new inhabitants • Ageing in the region brings opportunities for the individual and for society • The proportion of people born outside the Nordic area is the same as the national average

Source: Regional Council of Jämtland (2014), *Jämtland/Härjedalen 2030, Innovative and attractive – regional development strategy*, www.regionjamtland.se/lediga-tjaenster/doc_view/548-rus-kortversion-engelska (accessed 6 February 2017).

The region's smart specialisation strategy, *Innovate Jämtland/Härjedalen 2025 - World Class Social Development through Innovation*, was released in 2014. The strategy was developed with input from around 400 individuals using a number of different engagement techniques including meetings, web surveys and workshops. The strategy aims to develop a brand for the region based on innovation and an attractive lifestyle, and identifies the following targets and priorities.

Region Jämtland Härjedalen - Smart Specialisation Strategy

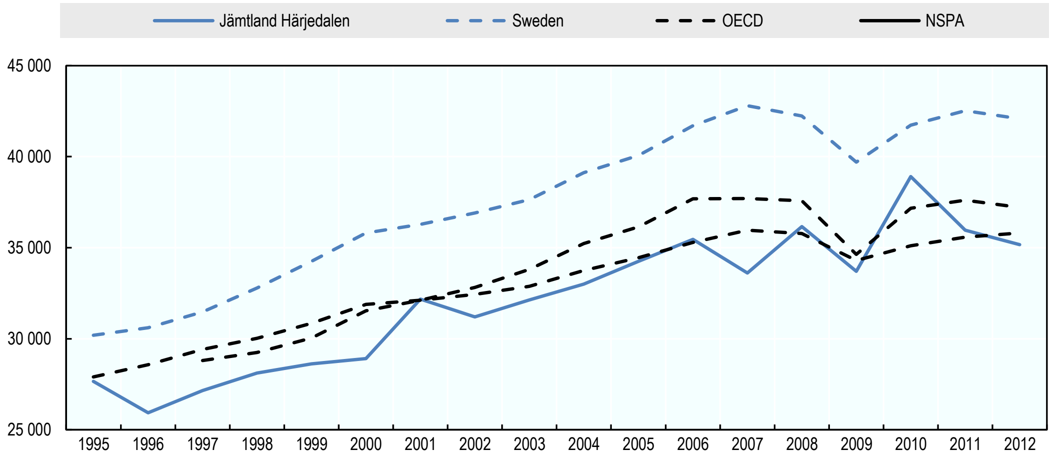
Themes	Targets and priorities
Smart specialisation on our terms	• Focus on open innovation that creates increased flows of ideas and knowledge (including increased access to global research networks) • Increased collaboration and more strategic partnerships for innovation (including supporting further cluster development in tourism, sports and the outdoors)
Boost the external view of what makes us unique	• The world's best place to live is in Jämtland Härjedalen (including targeted marketing of the region's quality of life and sporting opportunities) • More creative meeting places that create dynamism, co-operation and attractiveness (including promoting public sector innovation)
Effective use of shared resources	• More efficient use of resources and follow-up of public funding (including increasing access to venture capital) • Long-term joining of forces for commissioning, financing and organising the region's innovation support (including improving responsiveness to the needs of business)

Source: Region Jämtland Härjedalen (2015), *Innovate Jämtland/Härjedalen 2025 – World Class Social Development through Innovation*, www.regionjamtland.se/lediga-tjaenster/doc_download/589-regionala-innovationsstrategin-engelska (accessed 6 February 2017).

Economic analysis and benchmarking

GDP per capita in 2012 for Jämtland Härjedalen was USD 35 160 which was 83.6% of the national average, which is slightly lower than the OECD average of 35 812 and NSPA average of 37 205. It is the lowest GDP per capita compared with the four northern counties of Västerbotten (36 975), Västernorrland (USD 38 888), and Norrbotten (USD 44 826). Over the 1995-2012 period, there was a widening of the gap in GDP per capita between Jämtland Härjedalen and the national average from 8.4% to 16.4%.

GDP per capita trend, 1995-2012

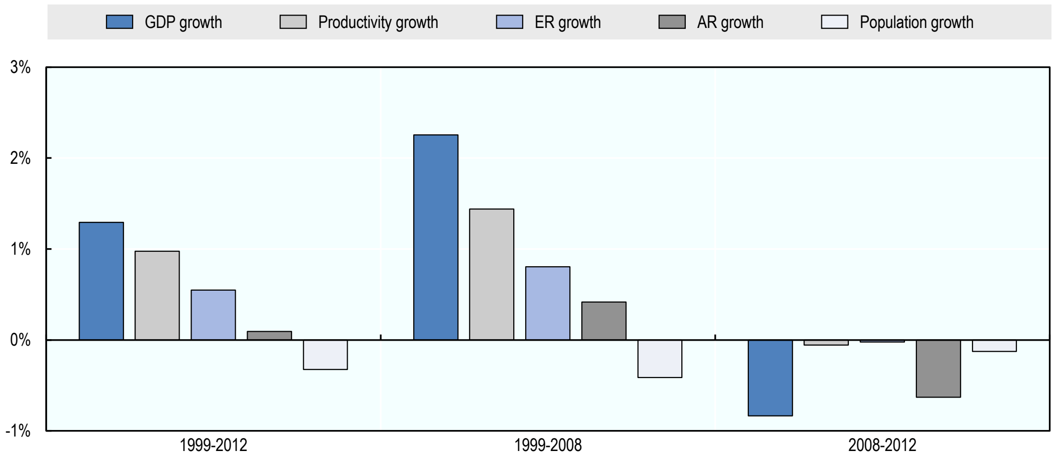


Note: GDP per capita is expressed in constant PPP, USD 2010 (System of National Accounts 2008). NSPA average not available before 1997.

Source: OECD (2016a), "Regional economy", *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/6b288ab8-en (accessed 14 December 2016).

Between 1999 and 2012, GDP growth averaged 1.3%, which is significantly lower than the national average of 2.1%. In this period, growth in productivity and the employment rate have been important drivers of economic performance. In relation to the national average, Jämtland Härjedalen performed slightly lower than the national average (-0.10%) in terms of productivity. The other northern counties had productivity growth higher than the national average during the 1999-2012 period. In terms of employment and activity growth, Jämtland Härjedalen's performance was slightly above the national average (+0.06% and +0.07% respectively). Over this period, population declined at an average annual rate of -0.33% detracting from the growth performance of the region.

GDP growth decomposition, 1999-2012



Note: Growth rates refer to average yearly growth rates over the periods indicated. Productivity is measured as GDP in constant PPP divided by employment at place of residence (15 years and older); Employment rate (ER) is measured as employment at place of residence (15 years and older) divided by population aged 15-64; Activity rate (AR) is measured as population aged 15-64 divided by total population.

Source: Calculations based on OECD (2016b), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en (accessed 14 December 2016).

Compared to the national average, the crisis had a larger impact on the growth performance of the region. The most significant difference post-crisis has been the decline of productivity and population growth. Coupled with declines in the employment and activity rates, this paints a challenging picture for the regional economy. The percentage difference with the national level in the decline of GDP post-crisis (-1.53%) is greater than the other northern counties of Västernorrland (-0.43%), Norrbotten (-0.20%), and Västerbotten (+0.04%).

GDP growth decomposition with respect to national averages

	1999-2012 (%)	1999-2008 (%)	2008-2012 (%)
GDP growth	-0.85	-0.54	-1.53
Productivity growth	-0.10	0.04	-0.42
Employment rate growth	0.06	0.11	-0.04
Activity rate growth	0.07	0.17	-0.16
Population growth	-0.88	-0.86	-0.92

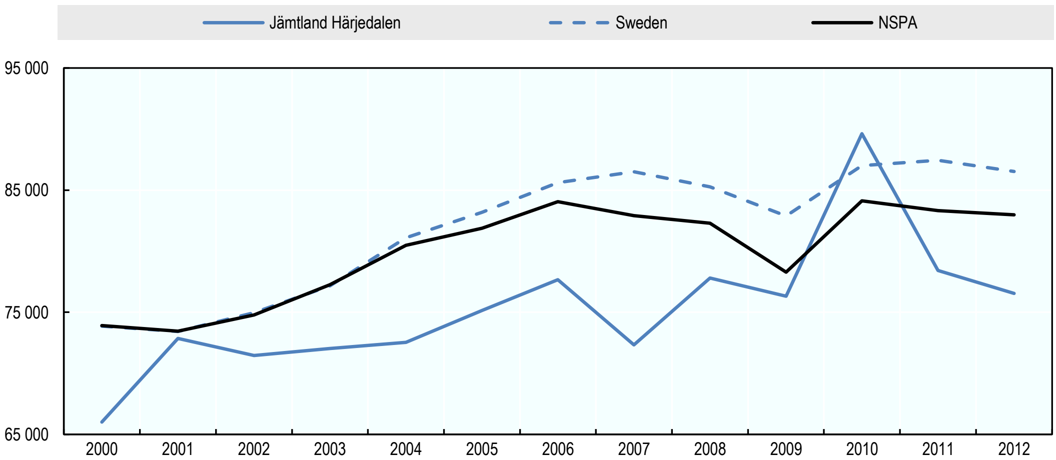
Note: Growth rates refer to the difference between regional growth rates and national growth rates. For further details, see Annex.

Source: Calculations based on OECD (2016b), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en (accessed 14 December 2016).

In the section below, we summarise the key factors of growth contributing to these growth trends compared to national and OECD averages.

The productivity gap between the region and the country level has increased slightly. In 2012, the labour productivity of the region was USD 76 534 which is 11.5% below the average of TL3 regions in Sweden of USD 86 522 and 7.8% below the NSPA average of USD 82 978. The national productivity gap has increased slightly from 10.6% in 2000. There has been a slight overall decline in productivity post-crisis punctuated by a jump between 2009 and 2011 (due to a significant mining project in the region). The trends for the market and non-market sectors are broadly similar with levels of rates of growth slightly below the national averages. Jämtland Härjedalen has a lower productivity level than the other northern counties of Västerbotten (USD 77 511), Västernorrland (USD 82 968), and Norrbotten (USD 93 642) due to its industry mix (the lack of mining and heavy industry).

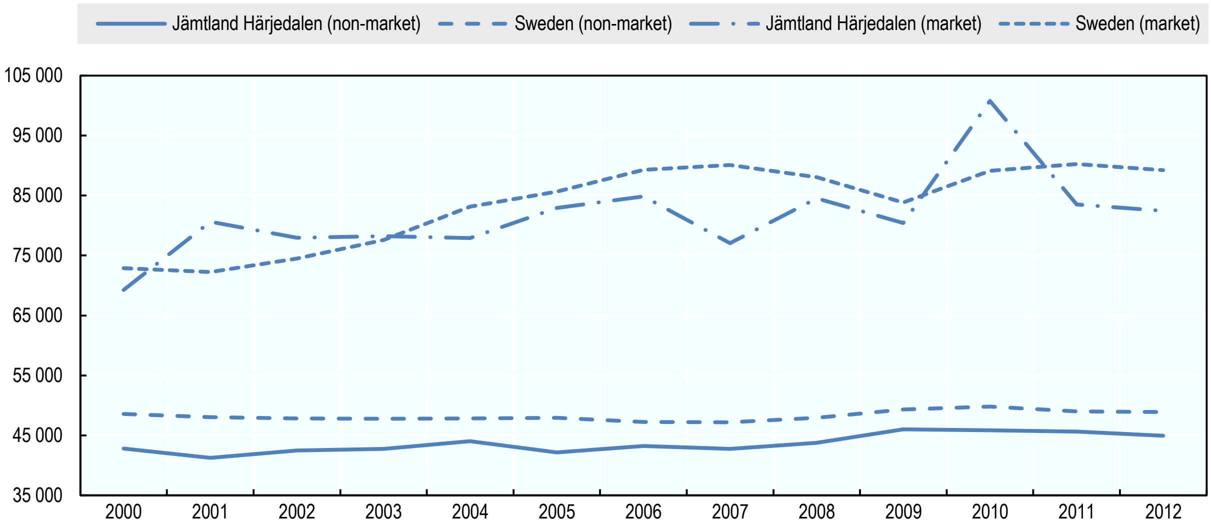
Labour productivity trend, 2000-12



Note: Labour productivity is measured as GDP in constant PPP, USD 2010, divided by employment at place of work (System of National Accounts 2008).

Source: Calculations based on OECD (2016b), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en (accessed 14 December 2016).

Labour productivity, market vs non-market sector, 2000-12



Note: Labour productivity is measured as gross value added (GVA) in constant PPP, USD 2010, divided by employment at place of work (System of National Accounts 2008). The non-market sector includes public administration and defence, compulsory social security, health and education. The market sector includes all other economic activities.

Source: Calculations based on OECD (2016b), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en (accessed 14 December 2016).

Jämtland Härjedalen is a low density region which is highly specialised in forestry and agriculture, tourism and public services. Jämtland Härjedalen has a strong natural resource base to its economy through the agricultural and forestry industries. Unlike other northern regions, there isn't any significant industrial processing of wood, which is moved in bulk to the neighbouring regions of Västernorrland and Nord-Trondelag (Norway). However, a key feature of Jämtland Härjedalen is the role of the services sector. Tourism is a key industry for the region, which has supported employment in the construction sector. Public sector activity is also important to the region, in part due to the older age profile of the region. Another key feature of the economy is the comparative lack of specialisation in manufacturing compared with other regions in northern Sweden.

The big shifts in the structure of the regional economy have been in tourism and energy. Since 2000, renewable energy and tourism-related services (particularly concentrated in the area around Åre close to the border with Norway and in Harjedalen in the west of the region) have become key economic drivers for the region. Stone quarrying has also grown in the region, which is connected with the construction industry. Another key feature is the employment occurring in the agricultural sector. Compared to other regions in northern Sweden, Jämtland Härjedalen has a more significant agricultural sector specialising in dairy and livestock. Close to 40% of the labour force is employed in the public sector, which is significantly above the national average of 32%. This figure is similar to Västerbotten and higher than Norrbotten and Västernorrland.

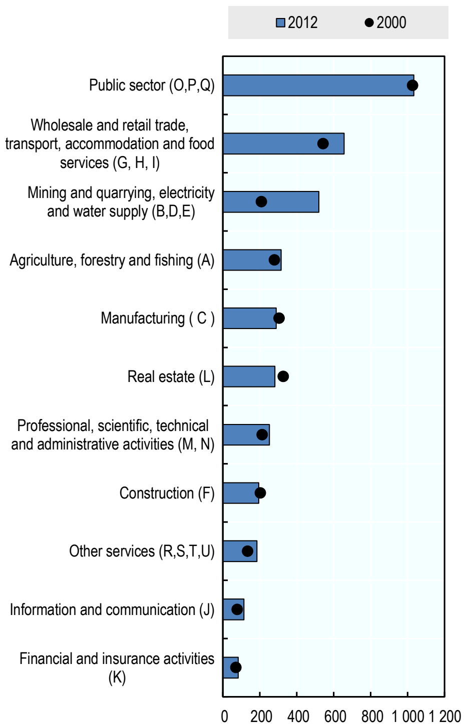
Specialisation index, by economic activity

	Sweden		NSPA	
	GVA	Employment	GVA	Employment
Agriculture, forestry and fishing (A)	**5.04**	**2.90**	**1.58**	**1.14**
Other services (R,S,T,U)	**1.61**	**1.08**	**1.63**	**1.12**
Public administration and defence, compulsory social security, education and human health (O,P,Q)	**1.29**	**1.25**	0.94	**1.10**
Construction (F)	0.94	**1.23**	0.72	**1.08**
Wholesale and retail trade, transportation, accommodation and food services (G, H, I)	0.90	1.00	**1.11**	**1.07**
Mining and quarrying,electricity and water supply (B,D,E)	0.83	0.36	**1.78**	0.89
Real estate (L)	0.83	**1.06**	0.71	**1.65**
Professional, scientific, technical and administrative activities (M, N)	0.61	0.73	**1.08**	**1.07**
Financial and insurance activities (K)	0.52	0.84	0.98	**1.42**
Information and communication (J)	0.51	0.47	0.81	0.78
Manufacturing (C)	0.42	0.53	0.56	0.73

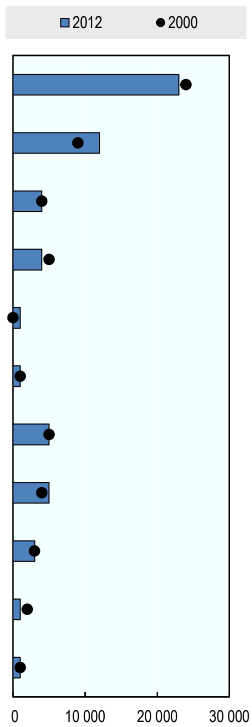
Note: The specialisation index for each sector is the ratio between the sector weight in the regional gross value added (GVA)/employment, and the weight of the same sector in the national (NSPA) GVA/employment. A value above 1 implies that the region is more specialised in that sector than the rest of the economy. Calculations based on GVA for the year 2012, expressed in constant PPP, USD 2010 (System of National Accounts 2008), and employment at place of work for the year 2012. GVA specialisation indexes with respect to the NSPA are based on GVA for the year 2011, expressed in constant PPP, USD 2005 (System of National Accounts 1993), due to lack of more updated data for Norwegian regions.

Source: Calculations based on OECD (2016b), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en (accessed 14 December 2016).

GVA by sector



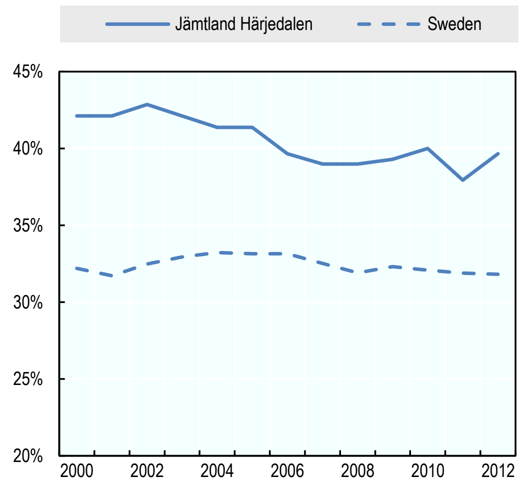
Employment by sector



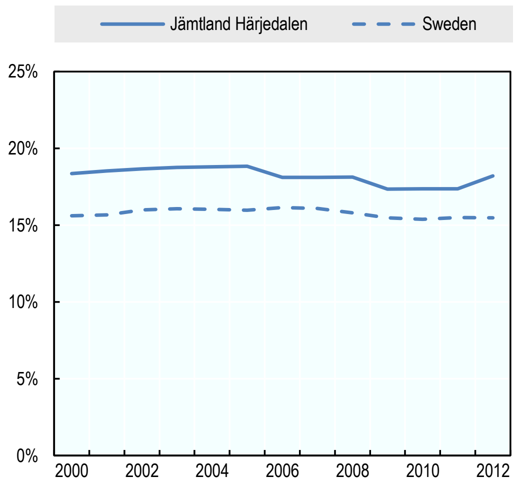
Note: Gross value added (GVA) is expressed in constant PPP, USD 2010 (million) (System of National Accounts 2008). Employment at place of work is expressed as number of persons (System of National Accounts 2008). It is important to note the limitations in relation to this sectoral analysis in small regional economies where changes may reflect the decisions of single firms. We have sought to overcome this by using a longer time period encompassing the period before and after the 2009 financial crisis.

Source: Calculations based on OECD (2016a), "Regional economy", *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/6b288ab8-en (accessed 14 December 2016).

Share of employment in the public sector, 2000-12



Share of population in public employment, 2000-12

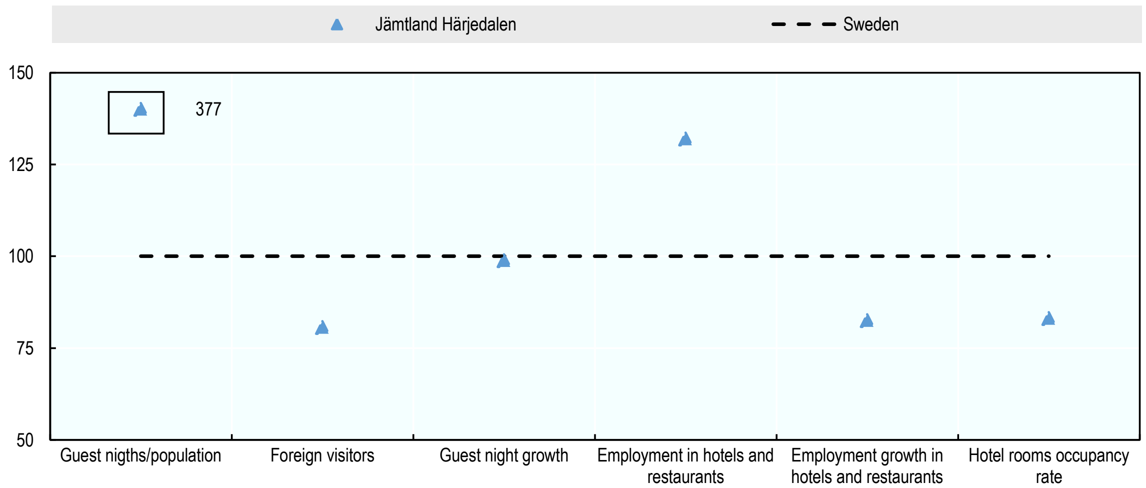


Note: The public sector includes public administration and defence, compulsory social security, health and education (sectors O,P,Q).

Source: OECD (2016b), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en (accessed 14 December 2016).

Tourism-related activity is a key driver for the economy of Jämtland Härjedalen. The region has a much higher level of specialisation in tourism than its northern neighbours. However, it also has the lowest level of employment growth. Jämtland Härjedalen's range of nature-based tourism attractions across both summer and winter. The focal point for winter tourism is the ski resort of Åre, which is well-known both nationally and internationally as a centre for winter sports. Summer activities include hiking, camping, and fishing. Jämtland Härjedalen has also developed linkages with the local Sami community and food producers.

Benchmarking Region Jämtland Härjedalen's tourism performance

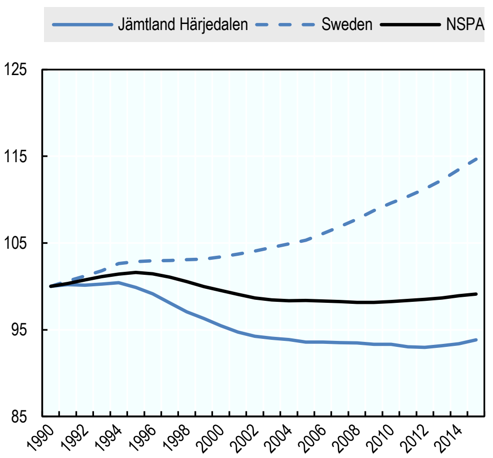


Note: National values are set to 100. Regional values have been rescaled with respect to national values. Foreign visitors is based on the share of nights spent by foreigners in the region in 2015. Guest night growth refers to the period 2008-15. Employment in hotels and restaurants refers to the year 2014. Employment growth refers to the period 2008-14. The occupancy rate of hotel rooms refers to the year 2015.

Source: Statistics Sweden (2016), *Statistical database*, www.scb.se (accessed 15 December 2016).

Similar to other NSPA regions, the population of the region is growing at a slower rate and ageing faster than the national average. Compared to the national level, there has been a much slower rate of population growth (0.03% for Jämtland Härjedalen compared with the national figure of 0.85% between 2005 and 2015). This rate of growth is similar to the neighbouring County of Västernorrland. The population of Jämtland Härjedalen is also ageing at a faster rate than the national average and this has increased rapidly over the past decade. The elderly dependency ratio is 37.41 compared to the national average of 31.09. The sex ratio (males to females) in Jämtland Härjedalen is 100.98, which is slightly higher than the national (99.94), and NSPA (98.05) averages. However, it is lower than the other northern counties of Västernorrland (100.38), Norrbotten (103.6), and Västerbotten (101.76).

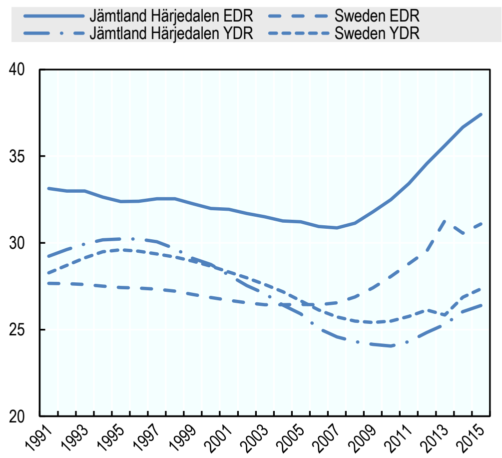
Population trend, 1990-2015



Note: 1990 value = 100. Population at 31 December.

Source: Statistics Sweden (2016), *Statistical database*, www.scb.se (accessed 15 December 2016).

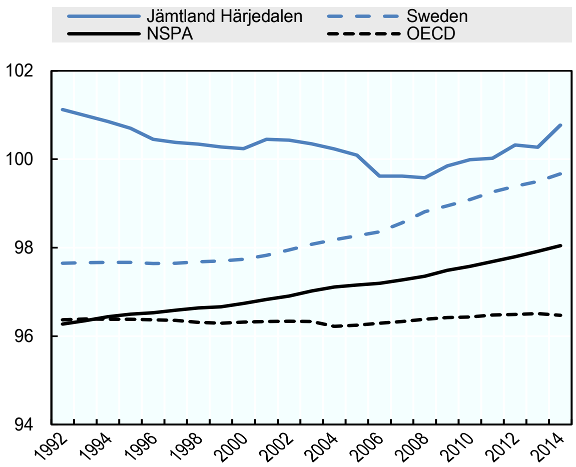
Elderly and youth dependency ratios, 1991-2015



Note: EDR = elderly dependency ration; YDR = youth dependency ratio.

Source: OECD (2016c), “Regional demography”, *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/a8f15243-en (accessed 14 December 2016).

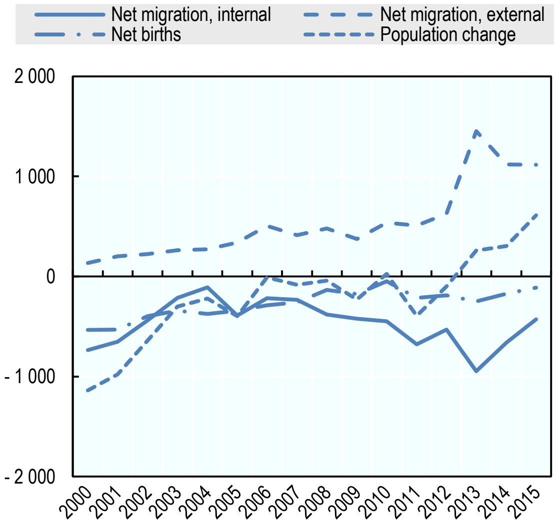
Sex ratio (males/females), 1992-2014



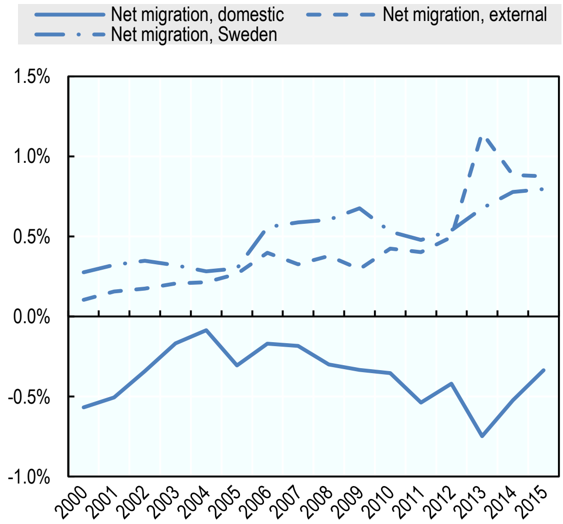
Source: OECD (2016c), “Regional demography”, *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/a8f15243-en (accessed 14 December 2016).

The recent growth in population is driven by international migration and a reduction in the loss of population to other regions within Sweden. In the period 2002-14, domestic net migration was negative, although in this respect Jämtland Härjedalen has performed better than the other three northern counties. The four NSPA counties in Sweden have all experienced an increase in international migration in the period 2012-14. Jämtland Härjedalen along with Västernorrland has an international net migration to population ratio which is higher than the national average.

Decomposition of population trend, 2000-15



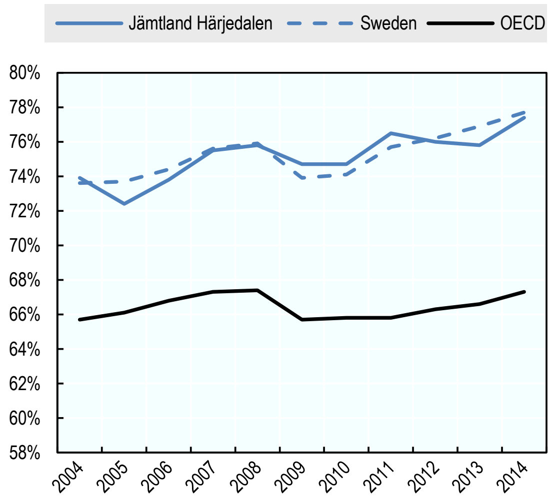
Migration as share of total population, 2000-15



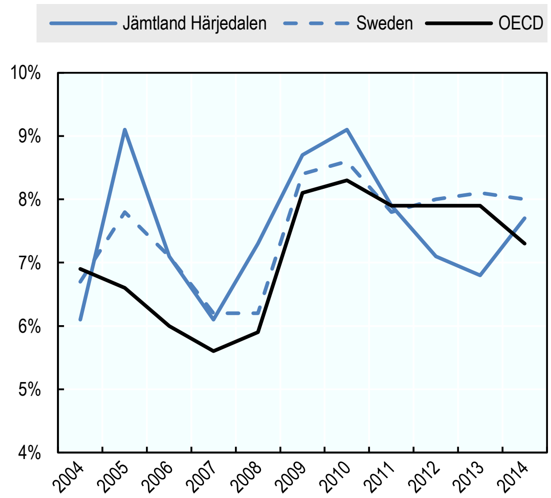
Source: Statistics Sweden (2016), *Statistical database*, www.scb.se (accessed 15 December 2016).

The labour market performance of the region has been weaker than the national level with a poor recovery since the crisis. The employment rate in Jämtland Härjedalen is 64.1% compared with 66.2% for Sweden and 67.3% for the OECD. The employment rate is higher in Jämtland Härjedalen than Norrbotten (62.4%) and lower than Västernorrland (64.8%), and Västerbotten (65.9%). A small proportion of the labour force, estimated at 2-3%, work across the border in Norway. During the crisis, there was a drop in the employment rate, which was initially similar to the national trend. Since 2010, there has been a further drop in the employment rate, indicating a more sluggish recovery for the labour market, which has been slower than the other northern counties that have recovered to their pre-crisis levels. The unemployment rate in Jämtland Härjedalen is 7.7%, which is slightly lower than the national figure (8%), and higher than the OECD level of 7.3%. There was also a sharp rise in the rate of youth unemployment from 2012-14, which was significantly higher than the other three northern counties. However, there was a drop in the rate of youth unemployment in 2014-15 which is now lower than the national average.

Employment rate, 2004-14

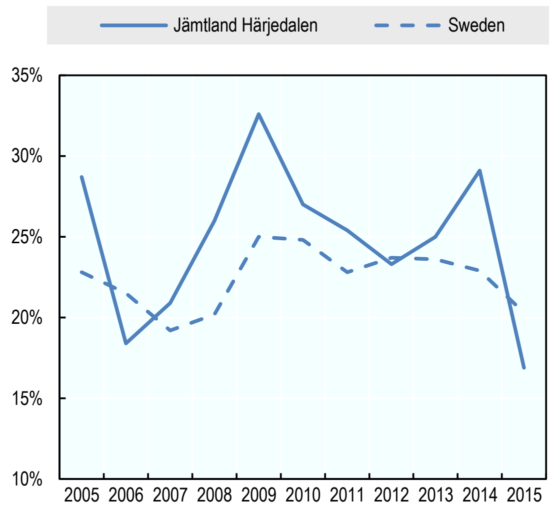


Unemployment rate, 2004-14



Source: OECD (2016d), "Regional labour markets", *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/f7445d96-en (accessed 14 December 2016).

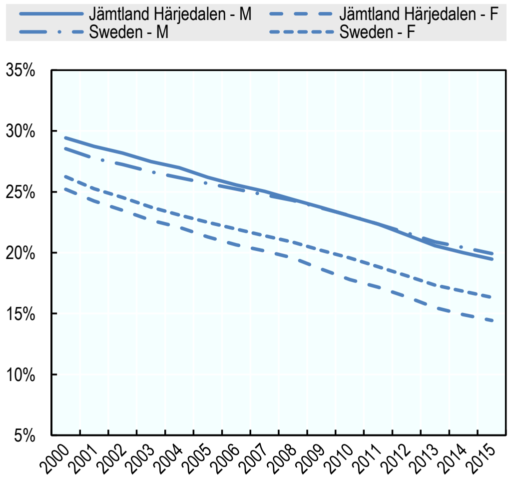
Youth unemployment rate, 2005-15



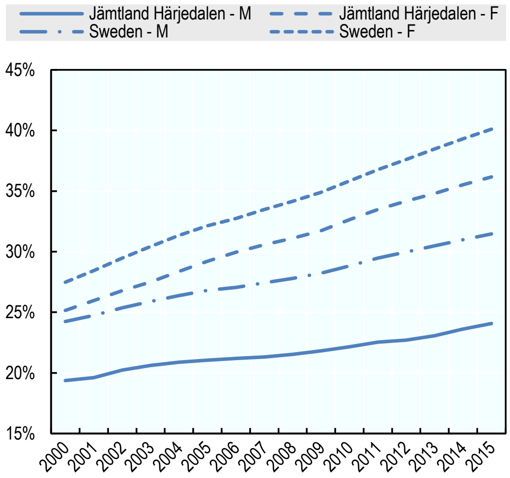
Source: Tillväxtverket, (Swedish Agency for Economic and Regional Growth) (2016), *Regional utveckling*, https://tillvaxtverket.se/english.html (accessed 10 December 2016).

Along with the other northern counties, the share of workers with a lower education has declined. However, outcomes for youth in Jämtland Härjedalen is an area of concern. The share of the population with low education has declined significantly in the last 30 years in Sweden and the four northern counties. Nevertheless, there has been a divergence in the level of higher education with the national level, particularly for men, which reflects the labour market structure of the region and the move of higher skilled young people to cities. This pattern is similar to the other northern counties with the exception of Västerbotten, which has a large university and hospital. From a very low base, the share of young people with low skills has risen rapidly since the crisis, which is a potential risk for the future. These skills and employment outcomes for young people are worse in Jämtland Härjedalen than the other northern counties.

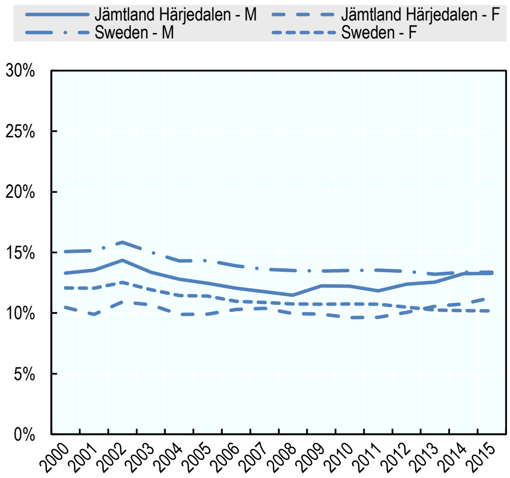
Share of population 15-74 with lower education, 2000-15



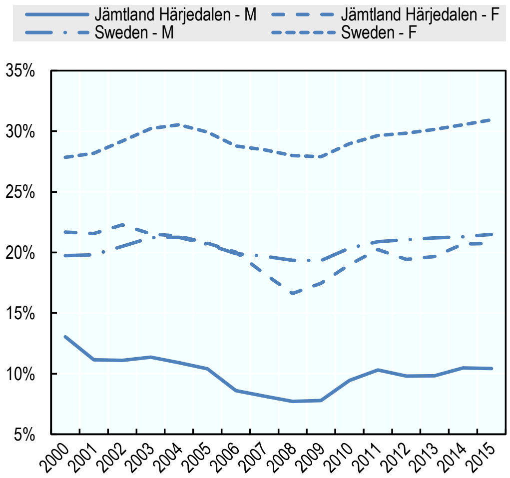
Share of population 15-74 with higher education, 2000-15



Share of population 20-24 with lower education, 2000-15



Share of population 20-24 with higher education, 2000-15

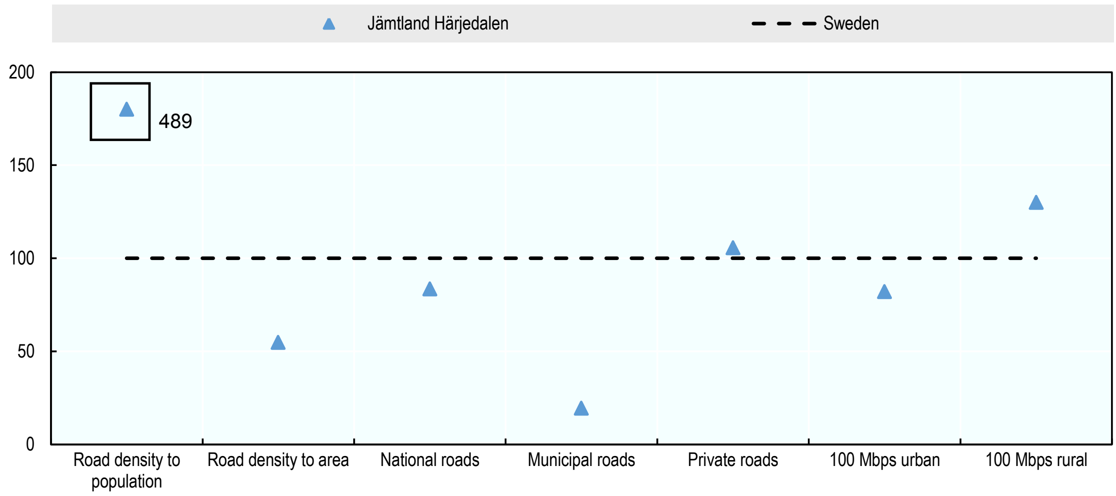


Note: Lower education refers to the categories "primary and secondary education less than 9 years (ISCED97 1)" and "primary and secondary education 9-10 years (ISCED97 2)". Higher education refers to the categories "post-secondary education, less than 3 years (ISCED97 4+5B)", "post-secondary education 3 years or more (ISCED97 5A)" and "post-graduate education (ISCED97 6)".

Source: Statistics Sweden (2016), *Statistical database*, www.scb.se (accessed 15 December 2016).

Jämtland Härjedalen is a remote and low density region with good accessibility via air services which benefits its tourism industry. A key advantage for Jämtland Härjedalen is its proximity to Norway. Trondheim which has a population of 187 353 is a little over 2 hours on the national E14 road from Åre, and 3 and a half hours from Östersund. There is also a rail link connection to Trondheim, which takes close to 4 hours from Östersund. This connection is currently non-electrified on the Norwegian side and with upgrades could improve connectivity for key visitor attractions within the region. It takes around 2 and half hours by road to reach the coast at Sundsvall from Östersund. There are domestic air connections to Östersund to Stockholm with the flight taking about 1 hour. Åre is also accessible by air from Trondheim airport which has connections to Oslo, and a range of other European destinations including Amsterdam, Berlin, Copenhagen, and Tallin. As a sparsely populated region, it has high infrastructure density to population, and low infrastructure density in terms of its area. Jämtland Härjedalen has relatively good internet capacity, particularly in rural areas, which would also be beneficial to its tourism industry.

Benchmarking key infrastructure indicators

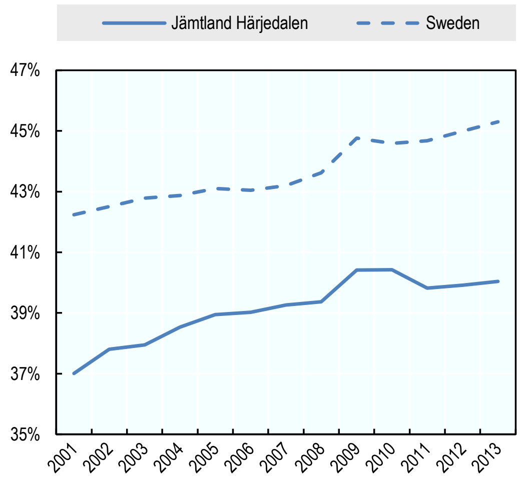


Note: Regional values have been rescaled with respect to national values. National values are set to 100. Road density to population and to area refer are calculated as road in square kilometres divided by total regional population (2010). The shares of national, municipal and private roads are based on road length in kilometres (2010). 100 Mbps refers to the share of household with access to at least 100Mbps internet in 2015.

Source: Statistics Sweden (2016), *Statistical database*, www.scb.se (accessed 15 December 2016).

Levels of innovation are low compared to the other northern counties and since the crisis there has been a drop in the number of new enterprises. Levels of innovation (in terms of patents at 31.57 per million inhabitants) are low compared to Sweden (292.37) and the NSPA (142.02). It is also low compared to the other northern counties of Västerbotten (155.23), Västernorrland (169.31), and Norrbotten (199.63). This outcome is understandable given the industry structure of Jämtland Härjedalen and the comparatively smaller university and R&D infrastructure. The economic structure of the region is also characterised by smaller scale manufacturing and tourism-related enterprises. For these firms, user-driven innovations are more important than the formal science-based innovation seen elsewhere in Sweden. In terms of entrepreneurship, after achieving similar rates of growth to the national level in enterprise formation until the crisis, there has been a divergence which has increased in recent years, unlike the other northern counties that have maintained business growth.

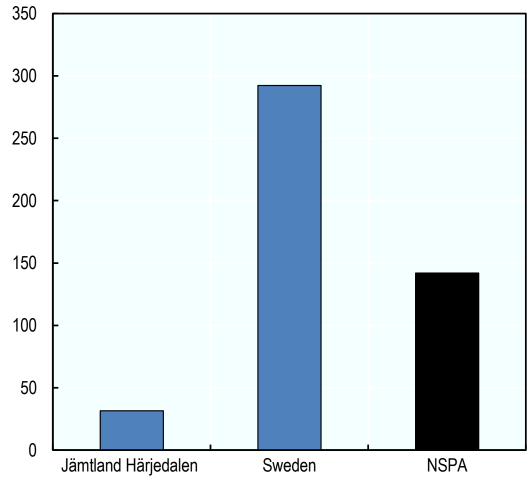
Share of employment in high-skilled occupations, 2001-13



Note: High-skilled occupation includes the three highest occupational categories according to the ISCO classification: mangers; professionals; technicians and associate professionals. These are occupations that require tertiary education.

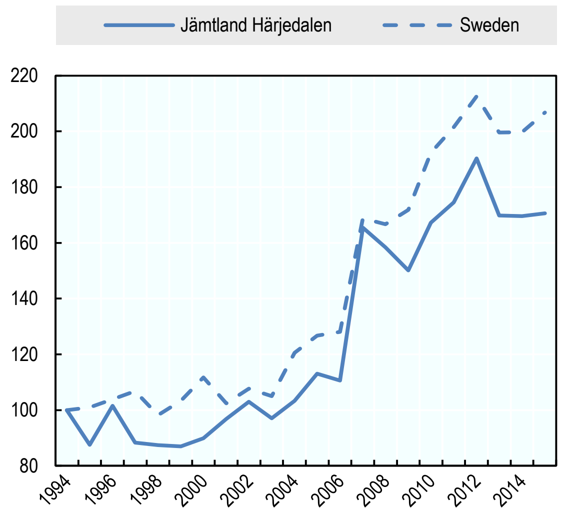
Source: Statistics Sweden (2016), *Statistical database*, www.scb.se (accessed 15 December 2016).

Patent applications per million inhabitants, 2011



Source: OECD (2016e), "Regional innovation", *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/1c89e05a-en (accessed 14 December 2016).

New enterprises, 1994-2015

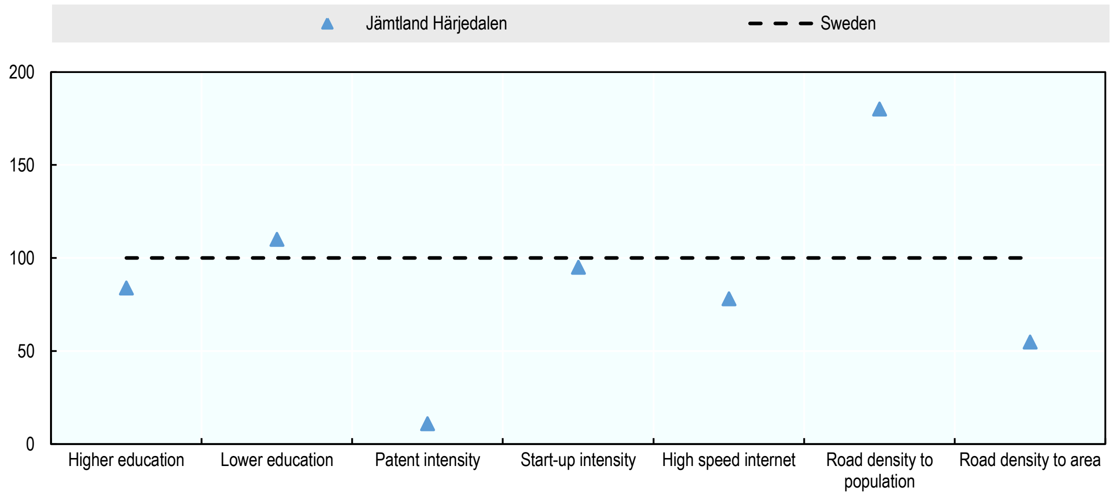


Note: Except agriculture and public administration.1994 value = 100.

Source: Tillväxtanalys (2016), *Statistikportalen*, http://statistikportalen.tillvaxtanalys.se/ (accessed 1 February 2017).

In sum, improving the economic performance of the region will require a focus on increasing productivity. This can be achieved by facilitating high value-adding activities linked to core strengths whilst improving skills and innovation outcomes. Jämtland Härjedalen is a small low density region with growth opportunities linked closely to its natural assets. Its absolute advantages lie in its attractive landscapes (mountains, lakes and rivers, wilderness areas), proximity to Trondheim, a history and tradition of tourism-related activity, and food producers which are integrated with the tourism industry. Relative to other remote rural regions in the OECD countries, Jämtland Härjedalen as with the other Swedish NSPA regions, has a high level of prosperity and well-being. However, this position to a considerable extent reflects ongoing support from the Swedish national government that provides a high level of social services across all the national territory. The region has a lower level of GDP per capita than the other three northern counties and the gap with the national level is increasing. Jämtland Härjedalen lacks the high value-adding mining and processing industries which exist in other parts of northern Sweden. Instead, its strengths lie in the services sector and in particular tourism. Prior to the crisis, the region was growing relatively strongly and the population was increasing due to international migrants filling labour market needs in tourism and construction. Despite these strengths, the region was affected by the crisis to a greater extent than the other northern counties. Growth declined while employment largely held up, and as a result there was a drop in productivity. This paints a concerning picture about future short-term growth prospects when coupled with recent indicators such as rising unemployment and lower skills of young people. Jämtland Härjedalen is performing in line with the national level on key growth factors with the exception of innovation (measured by patents). The region lacks the leading firms and scale to generate high numbers of patents and should focus on how to engage firms in incremental innovations, while also connecting small scale manufacturing firms with research and innovation resources outside of the region.

Benchmarking Jämtland Härjedalen in relation to key growth factors



Note: A higher value for lower education means the region has a lower share of lower educated persons. Values for higher and lower education and high speed internet refer to the year 2015. Patent values refer to the year 2011. Start-up values refer to the year 2014. Road values refer to the year 2010.

Source: Statistics Sweden (2016), *Statistical database*, www.scb.se (accessed 15 December 2016) (education, internet and road data); Tillväxtanalys (2016), *Statistikportalen*, http://statistikportalen.tillvaxtanalys.se/ (accessed 1 February 2017) (enterprise creation); OECD (2016b), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en (accessed 14 December 2016) (patents).

Assessment of strengths and challenges

Despite relatively high levels of well-being, like its peer counties in Sweden and the remainder of the NSPA region, Jämtland Härjedalen faces development challenges, particularly in terms of securing future investment and jobs growth for the local population.

The economic analysis and benchmarking in the previous section identified the importance of overcoming challenges associated with skills and entrepreneurship. The following part of the case study provides an overview of the assets/growth opportunities and bottlenecks/risks identified during the OECD mission to Jämtland Härjedalen conducted in February 2016.

Assets and growth opportunities

Region Jämtland Härjedalen has been proactive at building upon its key strength as a visitor destination. Jämtland Härjedalen has a long history as a tourism destination and, relative to other regions in Sweden, has the highest share of tourism-related activities. The railway to Jämtland Härjedalen, which opened in the 19th century, enabled the development of the tourism industry and growth of the county as a summer destination for health and well-being purposes. The region's ski industry began to develop with the first ski lift, which was opened early in the 20th century. The World Ski Championships held in Åre in 1954 significantly raised the profile of the region as a winter tourism destination. The region now provides the opportunity for visitors to experience a mix of summer and winter outdoor, recreational, health and well-being, and cultural activities. Linkages have also been developed between tourism and the agricultural sectors to provide local food experiences. The region has invested in attracting major events such as the Downhill World Cup (2007 and 2019), and the Biathlon World Cup (2009 and 2019), which has helped market the region to international audiences. Since 2004, visitor numbers to the region have grown strongly with a high proportion coming from Norway. Other important international markets for the region are Denmark, the United Kingdom, the Baltic States, and the Netherlands. The region's tourism strategy is underpinned by a co-operative approach with local businesses based around the goal of "excellence in Europe – first class customer service". This strategy encompasses destination management, infrastructure, marketing and research and development.

Region Jämtland Härjedalen has supported the development of niche activities in agriculture and this is integrated with its tourism strategy. With rich black soil in river valleys and lowland areas in the region, food and agricultural production is a historical strength of Jämtland Härjedalen. The region has developed a range of local agriculture and food production activities that are certified for organic production. Food producers are usually small and engaged in niche activities. One example is Eldrimner, the Swedish National Centre for Small-scale Artisan Food Processing, which is situated in Ås, close to Östersund. Over the last decade, Eldrimner has supported food and agricultural entrepreneurs with training and support. Today there are over 200 companies of this type in Jämtland Härjedalen. A vibrant ecosystem of food-connected businesses and related public actors has developed within the region, which is recognised nationally and internationally. In September 2010, the Swedish Ministry of Agriculture appointed Östersund as Sweden's Culinary Capital in 2011. Östersund and Jämtland Härjedalen region were appointed as a "UNESCO Creative City of Gastronomy" in July 2010, which means that UNESCO endorsed Östersund and Jämtland Härjedalen as a gastronomic region in a global network of cities that has identified cultural and creative industries as a strategic factor for development. The 2016 annual meeting of the UNESCO network will be held in Östersund. The region has begun to organise a more strategic approach to food and agriculture. The "Jämtland Creative Region of Gastronomy" initiative is a collaborative effort between private and public actors to develop a vision and set of priorities for the development of artisan food/gastronomy, culture and tourism in the region. It includes the region, the County Administrative Board of Region Jämtland Härjedalen, the eight municipalities, representatives of the Sami community, the regional federation of farmers, tourism associations, and the Mid-Sweden University.

Increasing investment in renewable energy presents future growth opportunities. Region Jämtland Härjedalen has a strong commitment to increasing the use of renewable energy in its regional development strategy. Tradeable Green Certificates have boosted investment in Wind Power in the region and this has contributed to the strong growth of the construction sector over the past decade. If all the county's current planned wind farms were built, it would generate about 5 TWh per year which, together with existing wind farms in the region, would represent a quarter of the government's proposed 20 TWh on land for the whole of Sweden. The region has also developed a Biogas Strategy and there are initiatives underway in the region to produce electricity and heating via co-generation. A small number of dairy farmers are currently using biogas to supplement their energy requirements for milk production. The region's timber resources also have the potential to meet the future bioenergy requirements of the region. A number of issues will need to be addressed to achieve this potential including managing land-use implications, the capacity of the regional electricity grid, and attracting investment in new technologies.

Jämtland Härjedalen has a strong culture of entrepreneurship. Jämtland has the second highest percentage of entrepreneurs in the population of all the counties in Sweden (based on a measure developed by the Confederation of Swedish Employers). There are also a higher proportion of micro and small enterprises than the national average. Businesses in the region have been able to self-organise and work in collaboration to mobilise funding from different levels of government and the European Commission to promote local development. In addition, companies have come up with innovative funding and service models. An example of this is the village of Trångsviken which only has a population of approximately 200 people. Community leaders and business owners in the village have mobilised their own resources to create a local venture capital fund and seed funding for local entrepreneurs. Local manufacturing firms have also pooled their resources to set up a jointly owned venture that can provide specialised engineering services which they cannot afford on their own.

Local and regional innovations in Jämtland Härjedalen

Trångsviken Community Centre: Trångsviken

Trångsviken is a small community of less than 800 people located 43 km from Östersund in central Sweden. One remarkable fact about the community is that it hosts about 80 distinct entrepreneurial ventures, including some that have a considerable number of employees. But earlier, in 1990, businesses were closing and the community hall had been condemned leaving no place for community meetings. A local group organised to build a new community facility and after a ten year effort managed to build a new multi-purpose community centre that holds 17 different services, including: a chapel, meeting rooms, a day care centre, a performance auditorium, a pharmacy, a restaurant, a bank, and the community library. Because of its multiple functions, it attracts hundreds of people every day and it has become the heart of the community and a source of local pride.

The Trångsviken story shows that a small but committed group can have a large role in the fate of a community, even though it may take time for success. The story also points out an increasingly common approach to service delivery in small rural communities. By combining both public and private services in a single facility they all became more affordable and co-locating them provides significant benefits to the local population because they can make one trip to accomplish multiple tasks. Finally, success in constructing the community centre contributed to a major change in popular opinion. People began to believe that the community had a future and this triggered and reinforced the great increase in local entrepreneurship.

Ultimately constructing the new centre changed the local perception of Trångsviken from a declining community to a place with opportunities. As a result, new entrepreneurial activities emerged as people looked for ways to build upon the new image. And, as the community prospered, it began to attract visitors and a small number of new families which helps to ensure its long-term viability.

Local and regional innovations in Jämtland Härjedalen *(continued)*

Proposed Engineering Services Company: Östersund, Jämtland Härjedalen

Östersund has a considerable number of small and medium-sized metal fabricating and industrial engineering companies, many of which employ one or two professional engineers on their staff. Often the in-house engineers do not have the expertise for some of the projects that a company is engaged in, and then consulting engineers are brought in from Stockholm to cover the missing expertise. Companies are not fully satisfied with this solution because there is a lack of continuity, costs are high and there is a lag in getting the person fully engaged. However, because these needs are intermittent it does not make sense to directly hire a full time person. And, because they are intermittent and the local market is small, no specialised local consulting engineering firm has developed. To better address firm needs the idea of forming a collaborative engineering services company is being explored. The firm would be jointly owned by a number of the larger local firms that already employ multiple engineers directly. These engineers would be seconded to the new company and form its core staff. Where there was an essential missing capacity a new person could be hired. Firms in the consortium would then rely on it for engineering services and the consortium could do contract work for non-members to generate additional revenue.

The approach identifies a new path for resolving skill gaps in the local economy. The consortium approach ensures that there is sufficient work to make the stand-alone company viable and provides an opportunity to add missing engineering skills to the group instead of having to seek them in Stockholm. The consortium also has the advantage of spreading workloads across a bigger pool and providing an opportunity for peer learning among the local engineers. While most places might not need an engineering consortium the idea of firms pooling their resources to create a local service company is something that has applications in many types of industry.

Innovative capacity linked to the region's specialisation in tourism and outdoor activities. In the past decade, the region has invested in measures to improve the innovative performance of tourism and visitor related services in the region. The creation of the Mid Sweden University in 2005 enabled a strong platform for the development of a research specialisation in elite winter sports, which also has a commercial component. For example, the university has established a holding company to test new sports clothing and equipment. Peak Innovation was established in 2007 with the support of the national innovation agency Vinnova. Peak Innovation focuses on tourism, sports and outdoor business development and provides services such as research and development, and business development and networking. Peak innovation is owned by the region, the Mid-Sweden University and participating local firms. Civil society is represented by *Jämtland Härjedalen's Idrottsförbund* (Region Jämtland Härjedalen Sports Federation). The region's smart specialisation also focuses on this sector and has been used to attract further national and European Union (EU) investment in the innovation infrastructure of the region. However, these initiatives are still at a small scale compared to other regions in the country.

Bottlenecks and risks

The region has a small tradeable base with low innovation performance which is not well integrated into global value chains. In 2013, the total value of the exports of goods from Jämtland Härjedalen was estimated to be 3 000 million Swedish krona (SEK), and the region has had the lowest level of exports as a proportion of gross regional product (GRP) of all regions in Sweden. Two thirds of these exports are to the Nordic countries. The majority of exporting companies are small compared to other regions in northern Sweden where exports tend to be dominated by larger companies. Poor innovation performance is one factor which is impacting on the capacity of firms to grow and participate in international markets. Because the business structure of the region consists of more SMEs, and has a lower proportion of manufacturing, the region has one of the lowest levels of R&D in the country. The region lacks any of the 13 national areas of industrial excellence (such as life sciences, aeronautics, and robotics), which reduces the scope to attract public R&D funding. The region's innovation strategy, *Innovate Jämtland/Härjedalen 2025*, does recognise these challenges, and aims to address them by building innovation linkages within and outside of the region. The region and municipalities have also developed local programmes such as the *Kommunala Näringslivskontor* (Municipal Economic Development Agency) to provide targeted support to small businesses and entrepreneurs at a local level.

Jämtland Härjedalen is not maximising the opportunities associated with its cross-border linkages. The region has been collaborating with the Norwegian region of Sor-Trondelag on improving transport connectivity with Trondheim. A key priority for both regions is the electrification of the rail line from Östersund to Trondheim, which is important in terms of fostering better economic linkages in terms of commuting and also access for the tourism industry. However, Region Jämtland Härjedalen could place more emphasis on collaboration in relation to economic development and innovation. For example, shared approaches with other regions to tourism marketing and destination management, and in terms of research and innovation. The region of Sor-Trondelag is a key research and innovation centre for Norway and is home to the Norwegian University of Science and Technology, and the Foundation for Scientific and Industrial Research. This region has R&D expenditure as a percentage of GRP at 7%, which is the highest in Norway. The new Interreg Sweden-Norway Programme (2014-2020) has been established with funding from the EU to further develop these linkages.

There is a need to better integrate economic development and spatial planning. The increasing importance of tourism and renewable energy, and the changing relationships between agriculture and tourism, are generating new pressures related to land use in the region. These changes will also need to be properly managed with environmental objectives, and the land-use requirements of forestry, traditional agricultural producers, and industry. Tourism and visitor-related activities are dependent upon maintaining and enhancing high levels of amenity, and providing for development opportunities that enable visitors to experience these natural assets. The protection of landscapes, public access to land, and the appropriate provision of infrastructure, visitor accommodation, and housing can generate conflicts with other land users. This includes land use and cultural heritage of indigenous communities. Some of these pressures are already apparent within and around Åre, and the region will need to provide greater clarity about the land-use changes required for achieving its economic development objectives.

These economic changes are also affecting transport and mobility requirements for the region. Road infrastructure has traditionally been important for the forestry sectors with about three-quarters of the timber from the region processed outside of it. Long distances, winter frosts, and heavy loads are factors which lead to higher maintenance requirements on the road network. The needs of the tourism industry are also becoming more important factors in shaping transport infrastructure priorities. For example, the region is currently seeking to attract air services that provide direct international access to Åre. It is important that these efforts are part of the broader cross-border collaboration and complement services provided through Trondheim.

Public services are under cost pressure in rural areas. Rural areas in the region are sparsely populated and these populations are declining over time. At the same time, these municipalities are facing cost pressures in the provision of health and social care services to small and remote locations where the population is ageing. These cost pressures are being exacerbated by the arrival of an increasing number of refugees and asylum seekers as the responsibility for initial settlement and integration is borne by the municipalities and local communities. Addressing these issues will require a greater focus on service delivery innovation, including partnerships with communities and the private sector. Region Jämtland Härjedalen has already made progress on this front. An e-services platform has recently been procured by all eight municipalities for the delivery of education services, and the region has decided to install "virtual health rooms" with cutting edge technology in order to improve accessibility to health services. The region has also provided support for social economy initiatives to mobilise local communities in the delivery of public services.

The size of the labour force is declining and there are skills shortages. Due to population ageing and migration from the region, the size of the potential workforce is declining. Forecasts made by *Arbetsförmedlingen* (the Swedish Public Employment Service) during 2013 predicted a decrease of population of working age of 18-64 years by over 6 000 people by 2025. Skills shortages are experienced in occupations that are experiencing growth and also in rural areas. For example, chefs and hospitality staff in tourism-related services, and health and social care services in remote rural areas. The latter is also putting increased pressure on the delivery of public services for small municipalities. Skills are identified as a binding constraint for businesses and public entities in the region. Attracting skilled workers from other locations is also a challenge, 23% of the employers (highest in the country) indicate difficulties in the recruitment process to find candidates who are willing to move to the location. Municipalities in the region have taken a lead role in a number of initiatives to enhance skills. This includes *LärCentrum* (Learning Centre), which provides a common online platform for adult learning and education across municipalities in the region, and participating in national programmes to reduce high school drop-out rates. In 2010, the government gave responsibility to the region for a *Kompetensplattformen* (Competence Platform) to improve labour market matching. The Competence Platform brings together education and training providers with business to improve communication and dialogue, and should provide a better mechanism for addressing the labour market challenges the region is facing.

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Annex: Statistical summary

	Period	Jämtland-Härjedalen	Sweden	OECD	National gap	OECD gap
GDP pc	1995	27 660	30 197	27 905	92%	99%
	2012	35 160	42 082	35 812	84%	98%
GDP	2012	4 439	400 599	19 363		
GDP share	2011	1.1%	n.a.	n.a.		
Productivity	2000	66 013	73 873	59 692	89%	111%
	2012	76 534	86 522	73 944	88%	104%
Area (in km^2)		48 945	407 340			
Area share of national		12,0%	n.a.	n.a.		
Population	2015	126 765	9 747 360			
Population share	2015	1.3%	n.a.	n.a.		
Population density	2015	2.59	23.93	343.39		
Elderly dependency ratio	2015	37.41	30.56	27.68		
Youth dependency ratio	2015	26.39	26.87	25.68		
Road density (p)	2015			-		
Road density (a)	2015			-		
Primary attainment % of the population	2015	4.5%	5.0%	-		
Tertiary attainment % of the population	2015	30.0%	35.7%	-		
Unemployment rate	2014	7.7	8.0	8.7	-0.3	-1.0
Employment rate	2014	64.1	66.2	53.6	-2.1	10.5
Youth unemployment rate	2009	34.1	25.0	21.46	9.1	12.6
Patent applications	2011	4.00	131.00	105.72		
Patents per million	2011	31.57	292.37	60.28		
Changes						
GDP pc growth	1995-2012	1.42%	1.97%			
GDP growth	1995-2012	0.98%	2.43%			
Productivity growth	2000-2012	1.24%	1.33%			
Population growth	1991-2015	-0.28%	0.51%			
Elderly dependency (pp change)	1991-2015	4.27	3.42			
Youth dependency (pp change)	1991-2015	-2.85	-0.94			
Primary education (pp change)	1985-2015	-27.9	-23.2			
Tertiary education (pp change)	1985-2015	18.1	22.0			
Unemployment rate (pp change)	1999-2014	-0.4	0.4			
Employment rate (pp change)	1999-2014	2.9	3.2			

Notes: All national average values are weighted, apart from patent applications. All OECD average values are unweighted meaning each regional value is treated as one observation (besides GDP pc). LF = labour force; pc = per capita; pp = percentage point; p = population; a = area.

Source: Calculations based on OECD (2016b), *OECD Regional Statistics* (database), http://dx.doi.org/10.1787/region-data-en (accessed 14 December 2016).