OUTOKUMPU MINING CASE STUDY

Preliminary reflections
7 March 2019

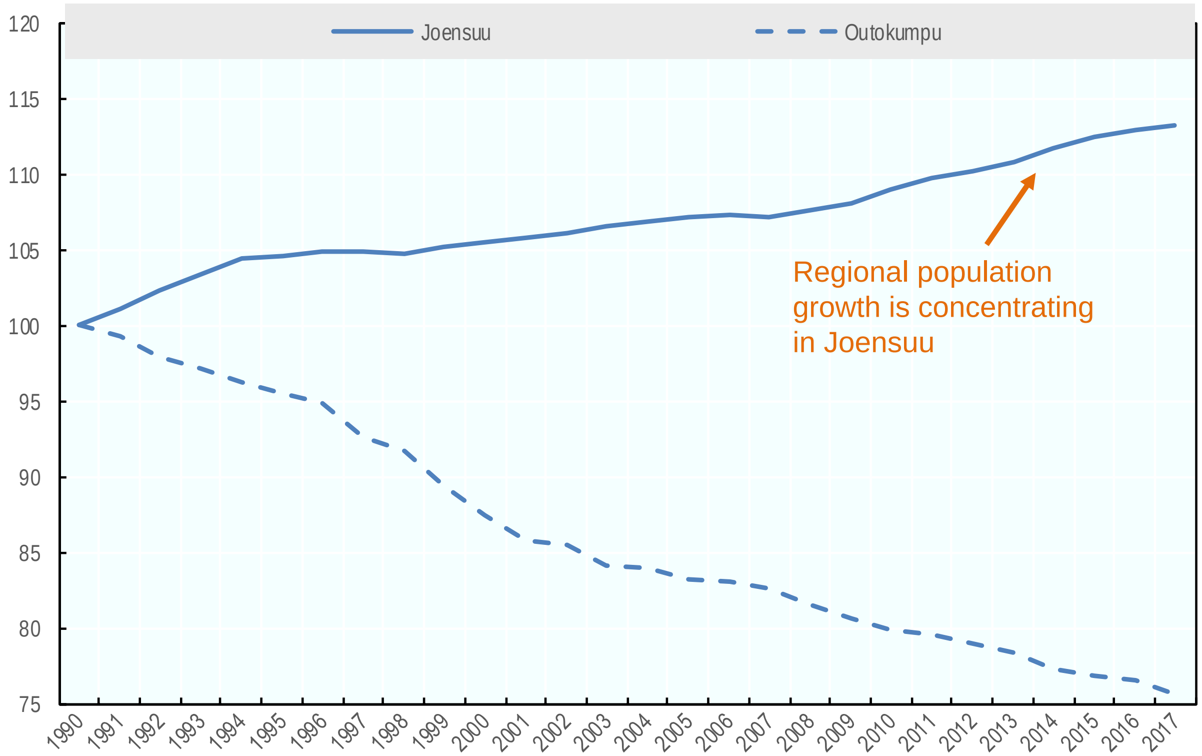
BETTER POLICIES FOR BETTER LIVES

1. **Regional strengths of Outokumpu**
2. Challenges for sustained growth
3. Policy options
4. Data appendix

1. Geographic location – proximity to Joensuu

- 50 kilometres distance to Joensuu (average travel time of 40 minutes) and 40km to Joensuu airport (travel time 35 minutes)
- 90 kilometres distance to Kuopio (average travel time of 75 minutes)
- Less than 120 kilometres distance to the Russian border

Population trend (1990 = 100)



Outokumpu is part of the largest labour market in North Karelia (Joensuu).

2. A strong industrial sector and a high share of tradable activities

Share of employed population by economic sector (2016)

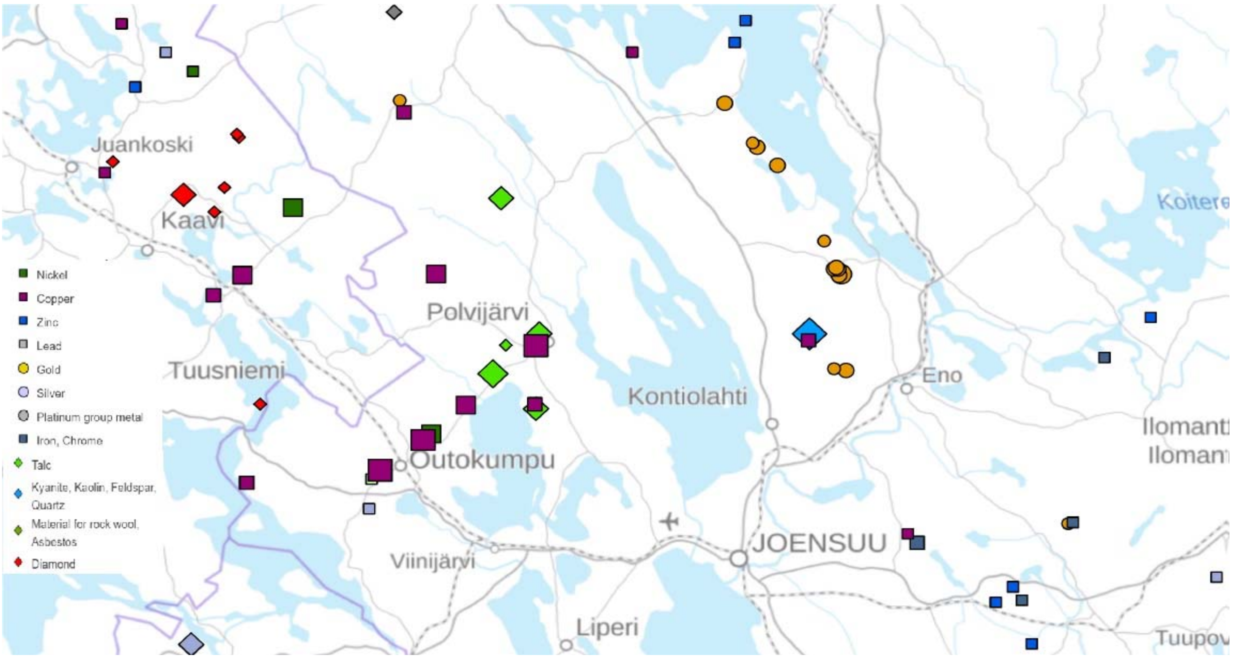
	Finland	Local labour market	Outokumpu
Agriculture, forestry and fishing (A) (T)	3%	8%	4%
Public administration and defence, compulsory social security, education and human health (O,P,Q) (NT)	29%	32%	30%
Construction (F) (NT)	7%	7%	6%
Real estate (L) (NT)	1%	1%	1%
Other services (R,S,T,U) (T)	5%	5%	5%
Mining and quarrying, electricity and water supply (B,D,E) (T)	**1%**	**2%**	**4%**
Manufacturing (C) (T)	**13%**	**16%**	**24%**
Whole sale and retail trade, transportation, accommodation and food services (G, H, I) (NT)	21%	17%	14%
Information and communication (J) (T)	4%	1%	1%
Professional, scientific, technical and administrative activities (M, N) (NT)	13%	8%	10%
Financial and insurance activities (K) (T)	2%	1%	1%

- **Outokumpu's industry plays an instrumental role in the smart specialization strategy of North Karelia**

3. Potential to become a key player for the mining sector

Mining potential

i) Ongoing exploration projects in the municipality,
ii) Proximity to active mines and known deposits,
iii) Potential for undiscovered deposits,
iv) Industry with mining expertise
v) Social license and political willingness.



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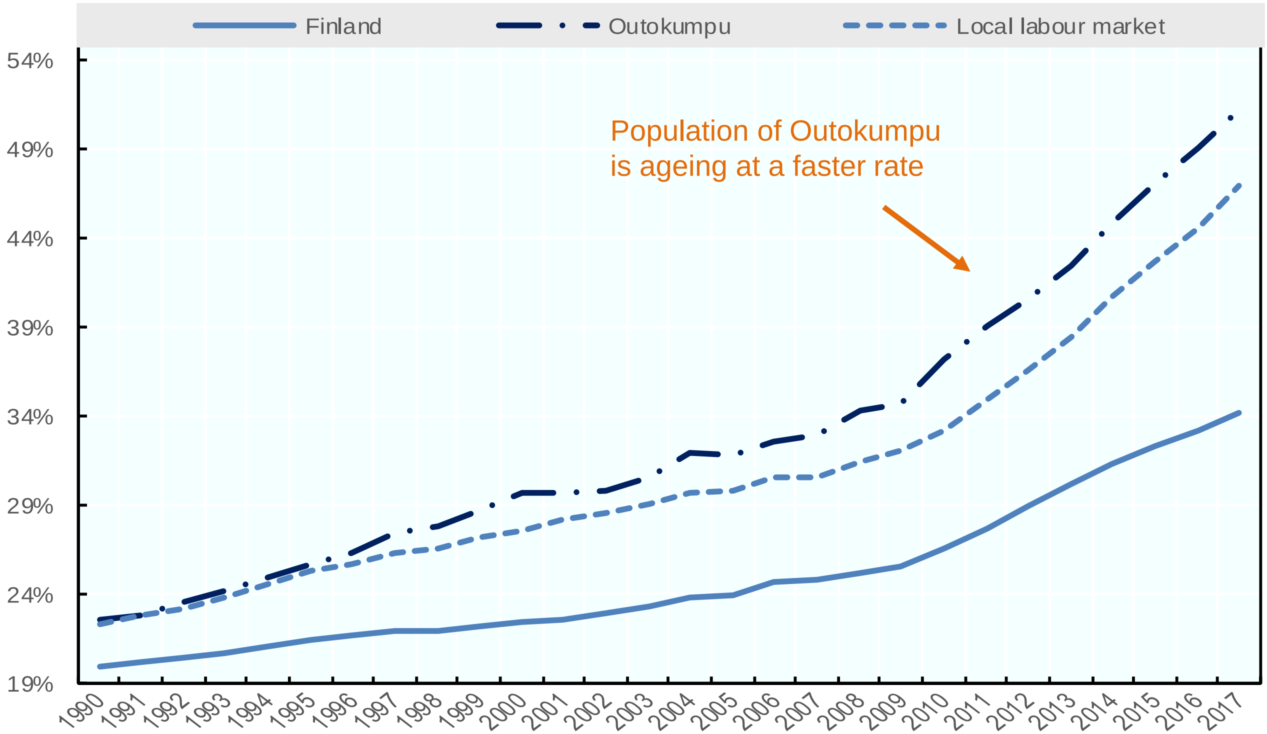
1. Demographic shift: population decline and high share of elderly population

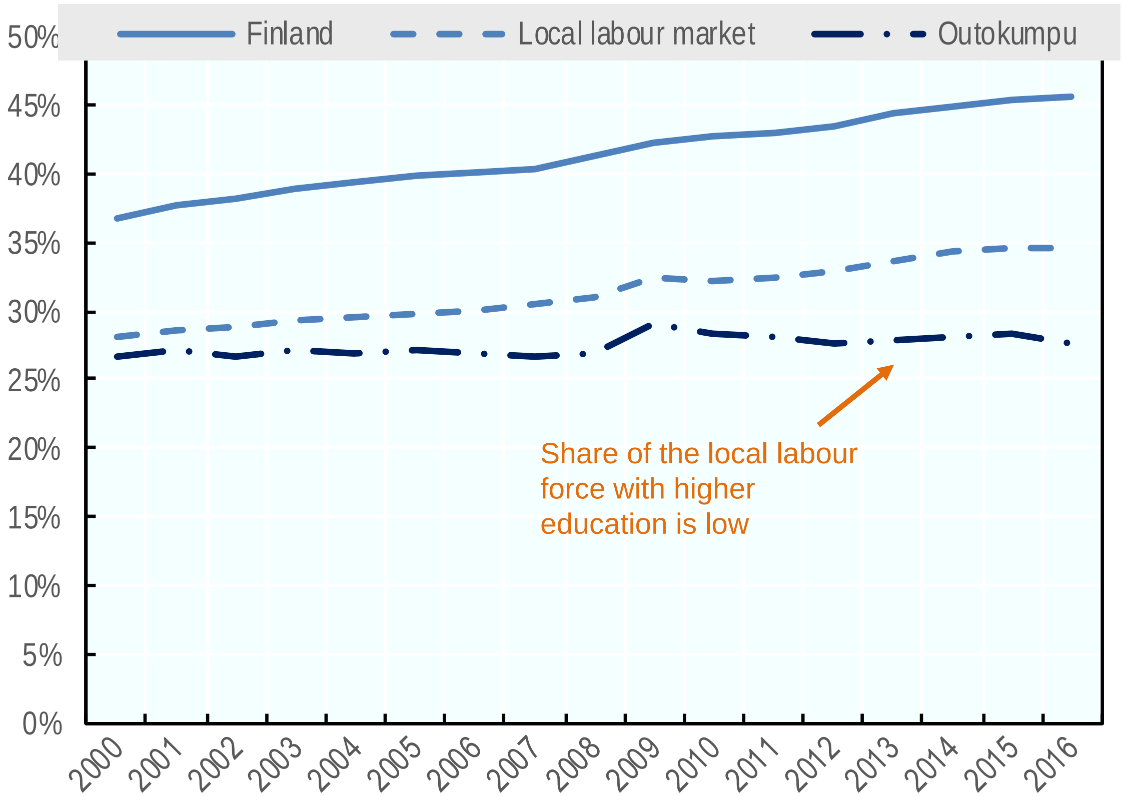
Old-age dependency ratio 1990-2017



- Population decline in Outokumpu is a mix between a constant natural population decline and net outmigration.
- The elderly population of Outokumpu is growing. In contrast the youth population and labour force is declining

2. Labour market mismatches

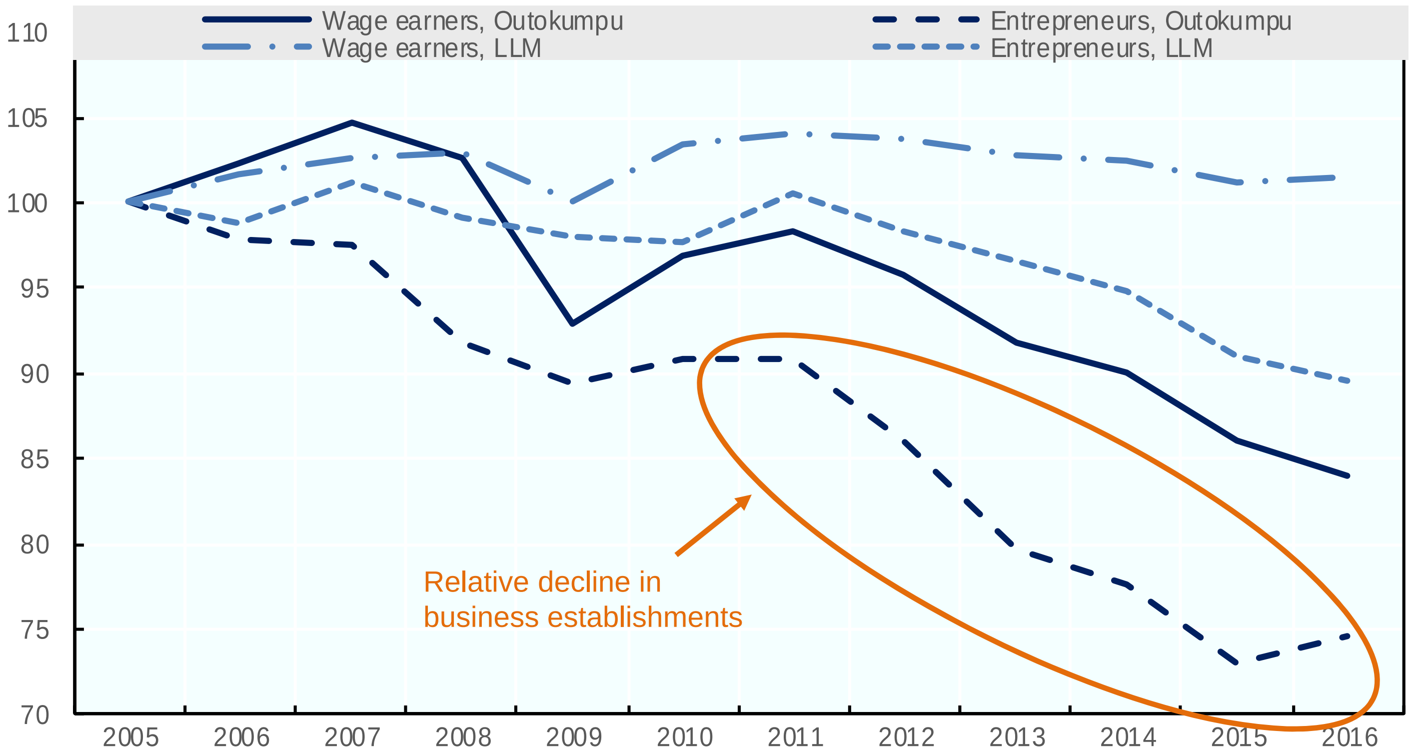
B. Share of employed labour force with higher education



- Demand for labour of the local industrial sector does not fit with the skills of the local work force and the local unemployment rate is high (close to 20%)
- On average, people leaving the municipality have higher educational attainment than people moving into the municipality (“Brain Drain”)

3. Low levels and decline in entrepreneurship is a bottleneck to diversification

Evolution of employed workforce and entrepreneurship in Outokumpu and in Local labour market (2005=100)



- During 2005-2016, self-employed population had a larger decrease (-2.4% annual average growth) than the employed population (-1.4%) and the same figure in the LLM (-1.6%).
- Low levels of entrepreneurship: ratio of entrepreneurs over local labour force – Outokumpu (11%) and the LLM (15%)

4. Fragmented approach to mining and regional development

At the local and regional level

- There is competition amongst municipalities for investment
- No cohesive regional strategy for workforce development and skills
- Mining cluster activity within the region is weak and North Karelia does not have a clear marketing strategy on mining

At the national and supra-national level

- Finland’s mining policy lacks a territorial approach – does not articulate the important role of sub-national governments, or the role and relationship between local mining clusters
- Scope to strengthen co-operation on smart specialisation and mining technology and innovation between Finnish and EU regions

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Policy options [preliminary for discussion]

1. Mobilise local assets	I. Strengthen the local mining cluster on promoting green mining technologies and improving the local investment climate for expanding mining activities II. Enhance inter-regional (Finland and EU) co-operation on smart specialization and green mining technologies III. Develop a clear local and regional brand for Outokumpu mining services and technologies, and a marketing strategy to promote it
2. Diversify the economy	I. Develop an entrepreneur-based strategy to facilitate start-ups linked to the industrial fabric of Outokumpu II. Implement a regional approach to regional skills and workforce development (including migrant attraction and integration) III. Upgrade the experience of mining tourism and integrate it with nature-based destinations in the region
3. Improve policies and governance	I. Strengthen inter-municipal co-operation on business attraction and development through Business Joensuu II. Incorporate a territorial dimension to the national mining strategy (including role of sub-national governments, and supporting linkages and complementarities between local mining clusters) III. Ensure continuity of sector specific support for local SMEs to integrate into global value chains (e.g. Mining Sector Growth Programme)

Note - Regional reform will alter roles and responsibilities e.g. the national government will need to shift toward a more brokering and facilitating role

Missing information

- What was the impact of the crisis on the business demography of the municipality?
- Do you have specific data on local skills mismatches / gaps?
- Have you undertaken any evaluations of efforts to attract skilled residents?
- What is the skills profile of the high skilled people commuting to Outokumpu, and how are they different to the skills of the unemployed/ inactive working age population?
- What is the formal coordinating mechanism between municipalities and regional council for regional development / smart specialisation?
- Is there formal coordination mechanisms among municipalities (e.g. to steer investment or promote common projects)?
- Is there a forum for North Karelia to coordinate with adjacent regions? In the case of municipalities, is there an inter-regional municipal forum?

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Data appendix

1. **Key messages from the data**
2. Statistical profile of Outokumpu
3. Statistical profile of North Karelia

Key messages

Outokumpu	North Karelia
• Long term structural trend of an ageing and declining population • Relatively weak labour market performance since the crisis • Experiencing a “brain drain” – increasingly people with skills commute elsewhere, or leave • Strong industrial fabric with specialisation in manufacturing that has held up well since the crisis - but not particularly dynamic • This industrial fabric is important to the economy of North Karelia and its smart specialisation objectives	• Relatively strong productivity performance in a national and EU context • Ageing and declining population • Relatively strong labour market (driven by Joensuu) • Specialisation in industry and national resource exploitation – but also diversifying into services (again driven by Joensuu) • Significant restructuring in the regional manufacturing sector since the crisis • Did not take advantage of the commodity price boom in terms of increased mining activity

Data appendix

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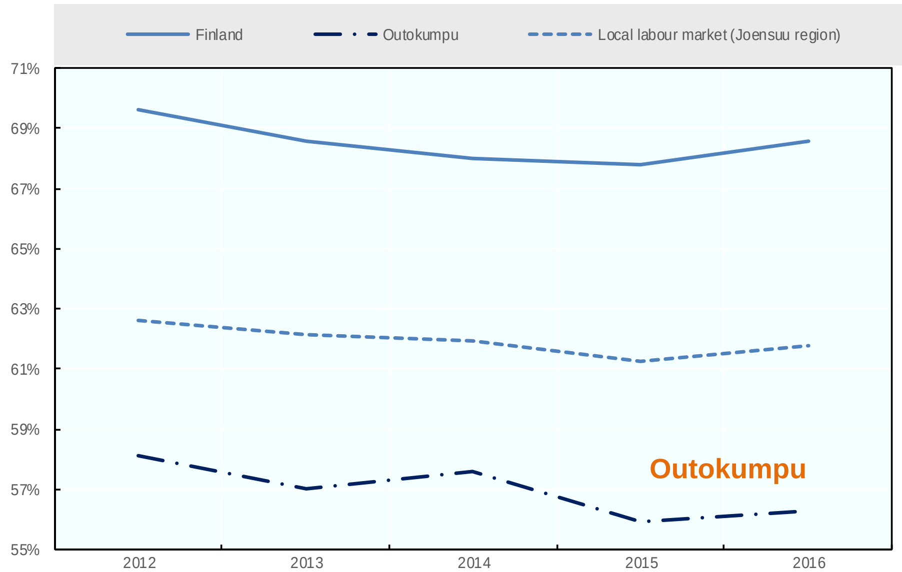
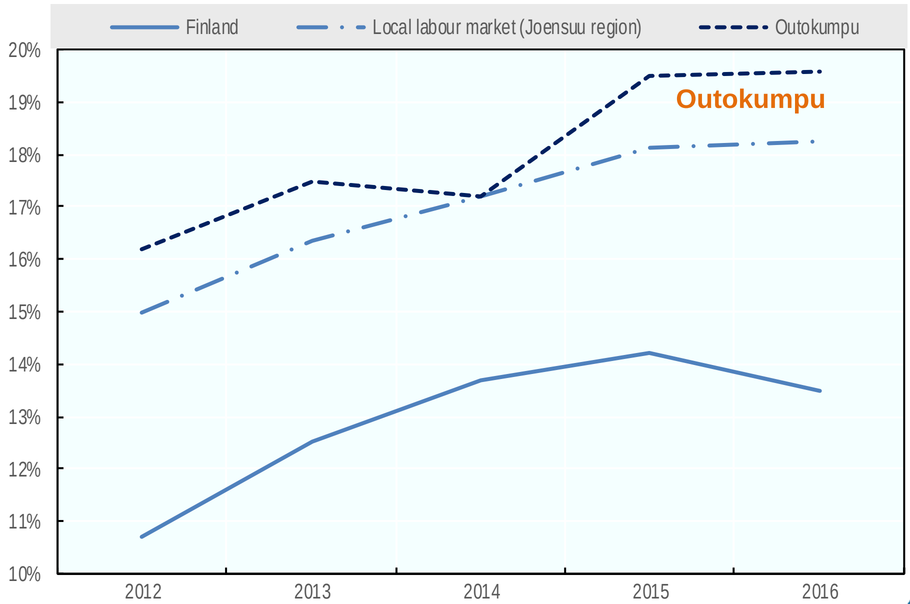
Labour market trend 2012-16

- Outokumpu is underperforming in terms of labour market outcomes.
- In 2016, the employment rate in Outokumpu was 56% and unemployment rate at 20%.

Employed working age population



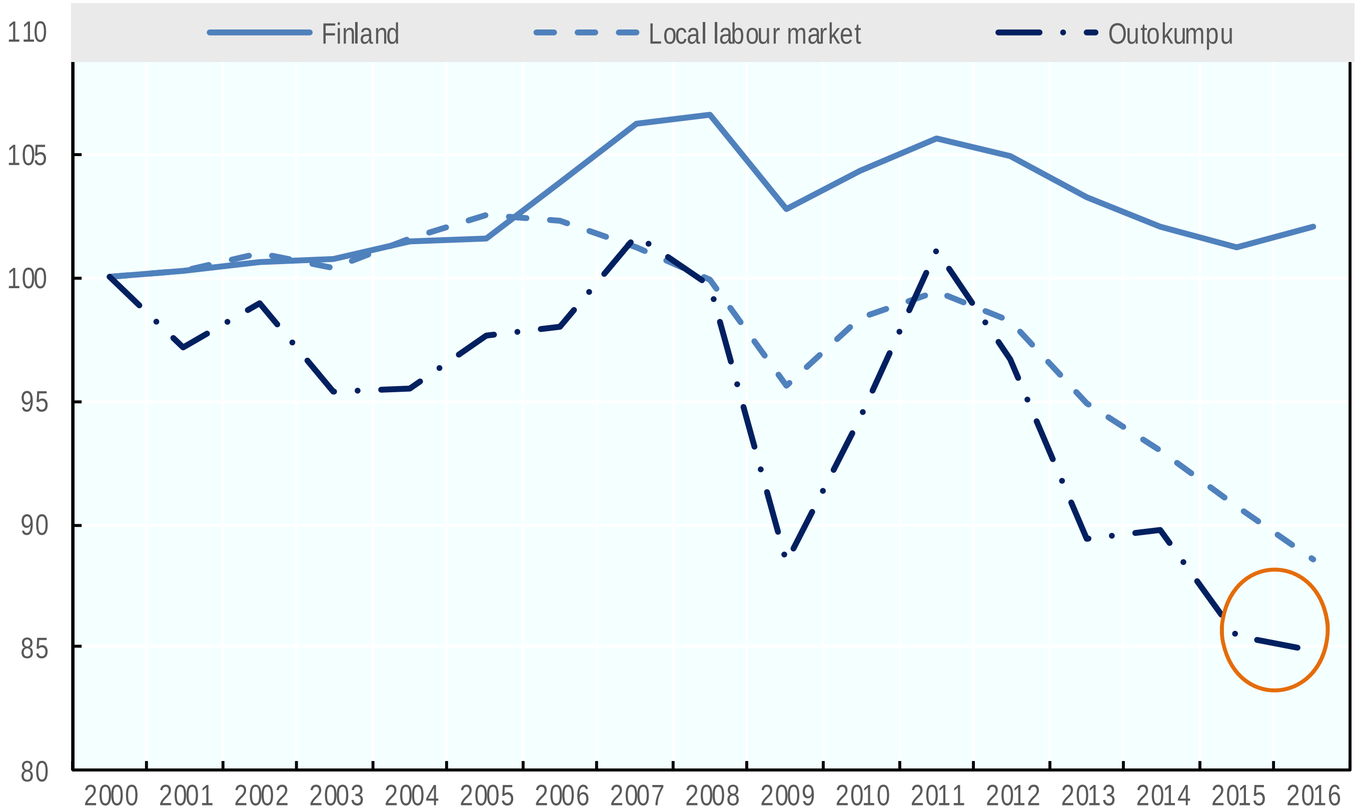
Unemployed labour force



Number of created jobs is decreasing

- In 2016, the number of jobs created in Outokumpu was 2 366, which was 420 less than in 2000.
- The decline in jobs created has been higher in Outokumpu than in the local labour market on average.

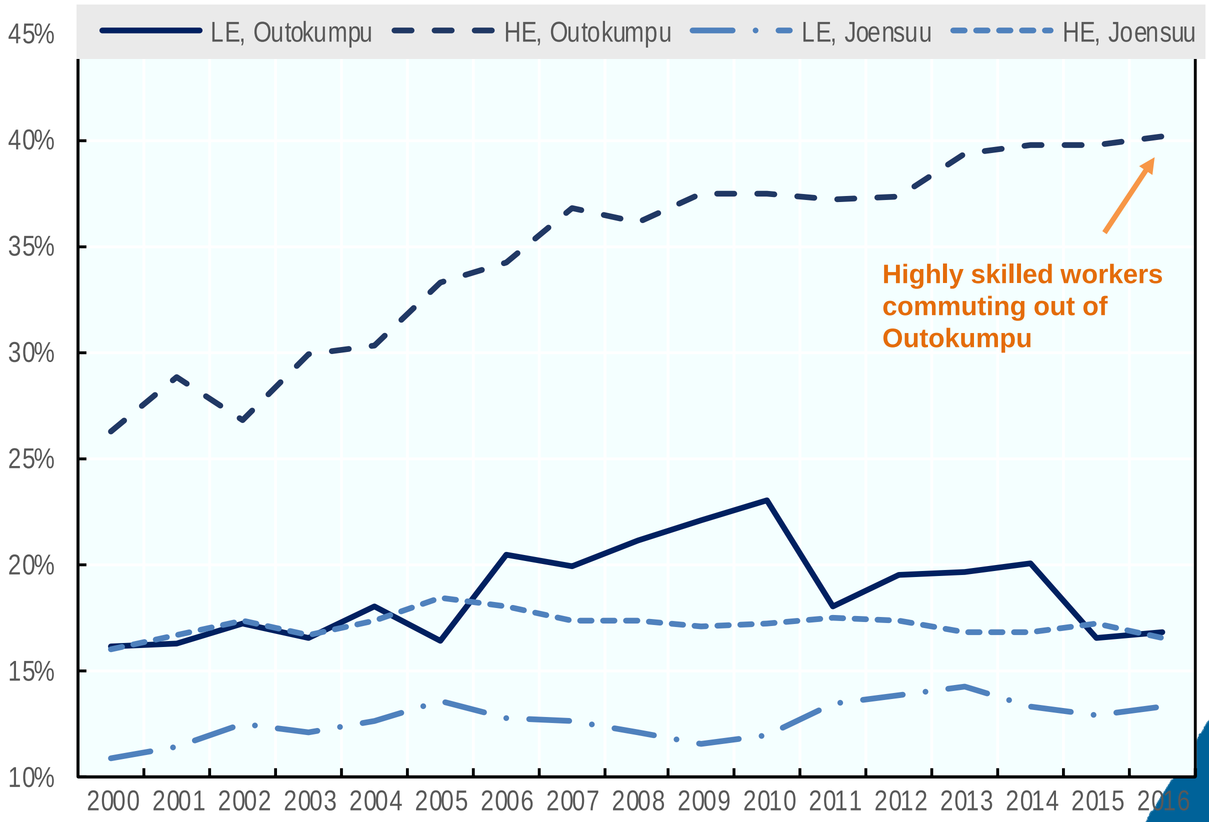
Job creation trend, 2000-16 (2000 = 100)



High skilled people living in Outokumpu increasingly work elsewhere

- Population with higher skills are more likely to work elsewhere
- In 2016, 40% employed labour force with a higher education commuted, compared to 17% in Joensuu

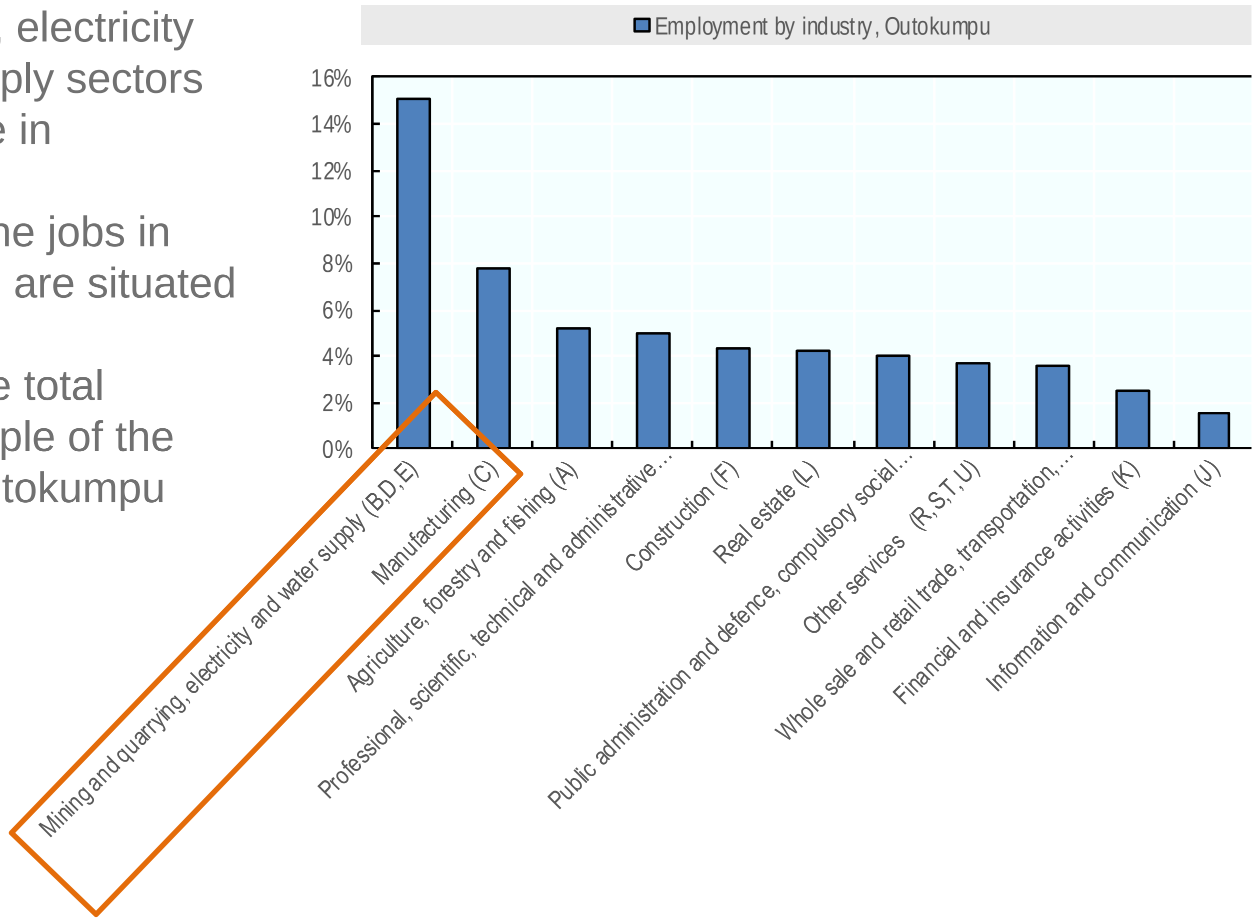
Commuting employed labour force by education level, 2000-16



Outokumpu has a strong industrial sector

- 20% of the jobs in Mining and quarrying, electricity and water supply sectors of the LLM are in Outokumpu
- About 8% of the jobs in manufacturing are situated in Outokumpu
- Only 5% of the total employed people of the LLM are in Outokumpu

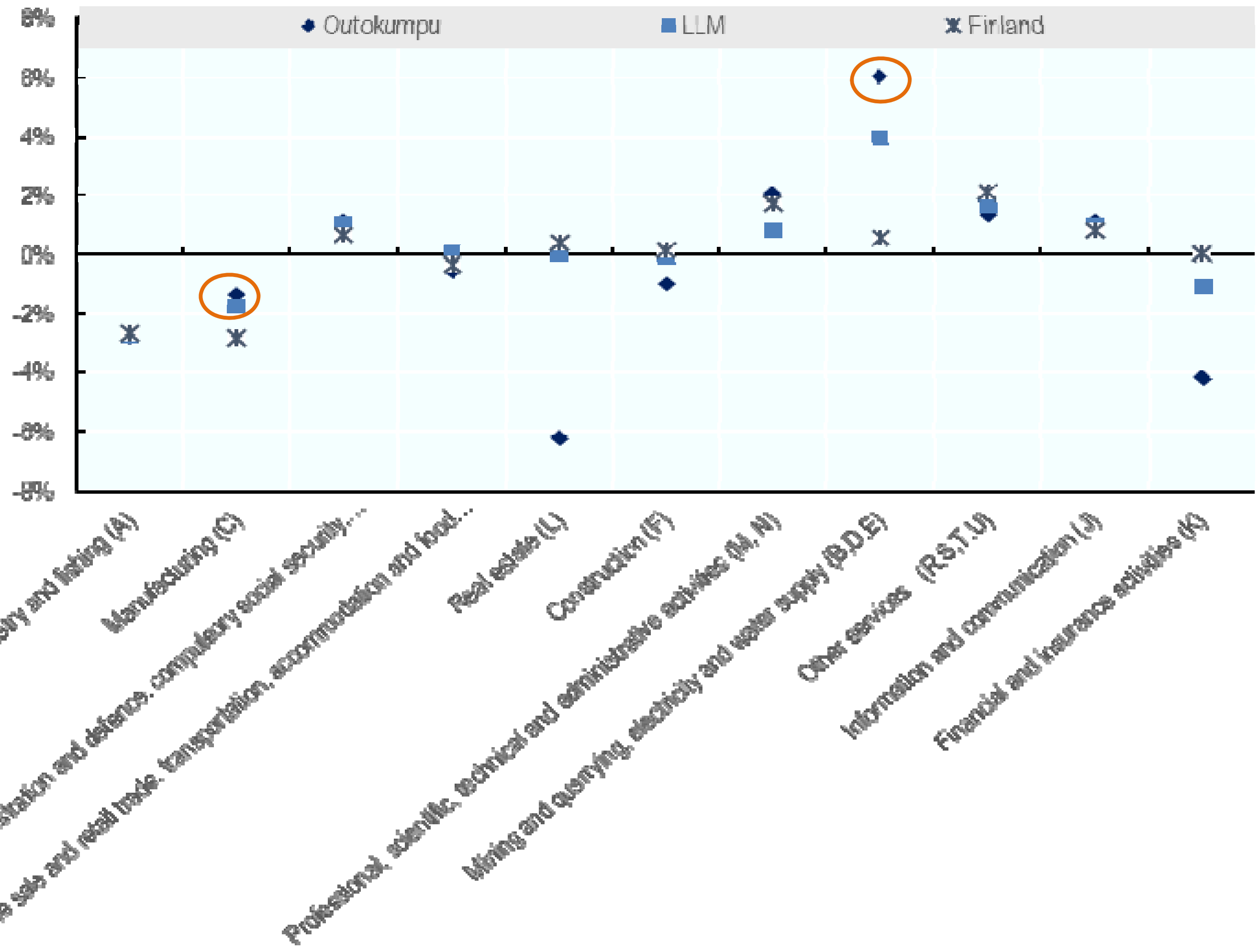
Employment by sector in Outokumpu over the employment by sector in the local labour market, 2016



Small changes in the manufacturing sector have a significant impact for the local economy

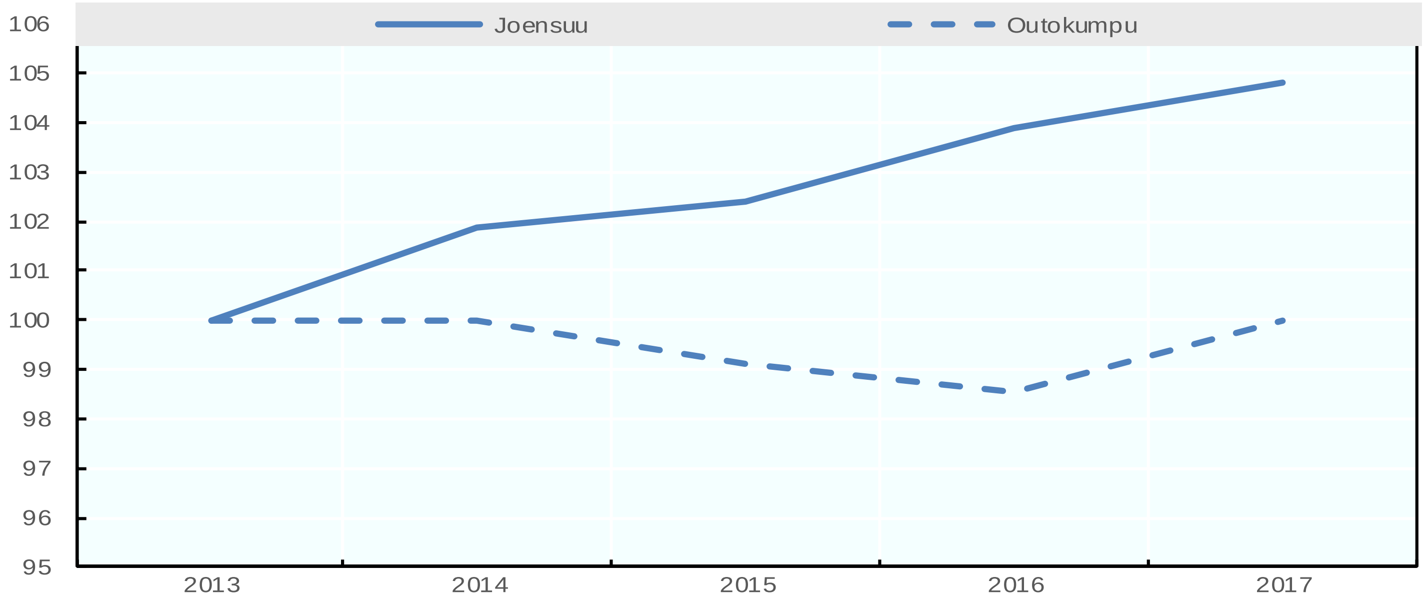
- Employment in manufacturing declined by 1%
- Mining and energy jobs are growing in importance to Outokumpu

Change in employment by sector 2007-16



Number of businesses in Outokumpu has stagnated

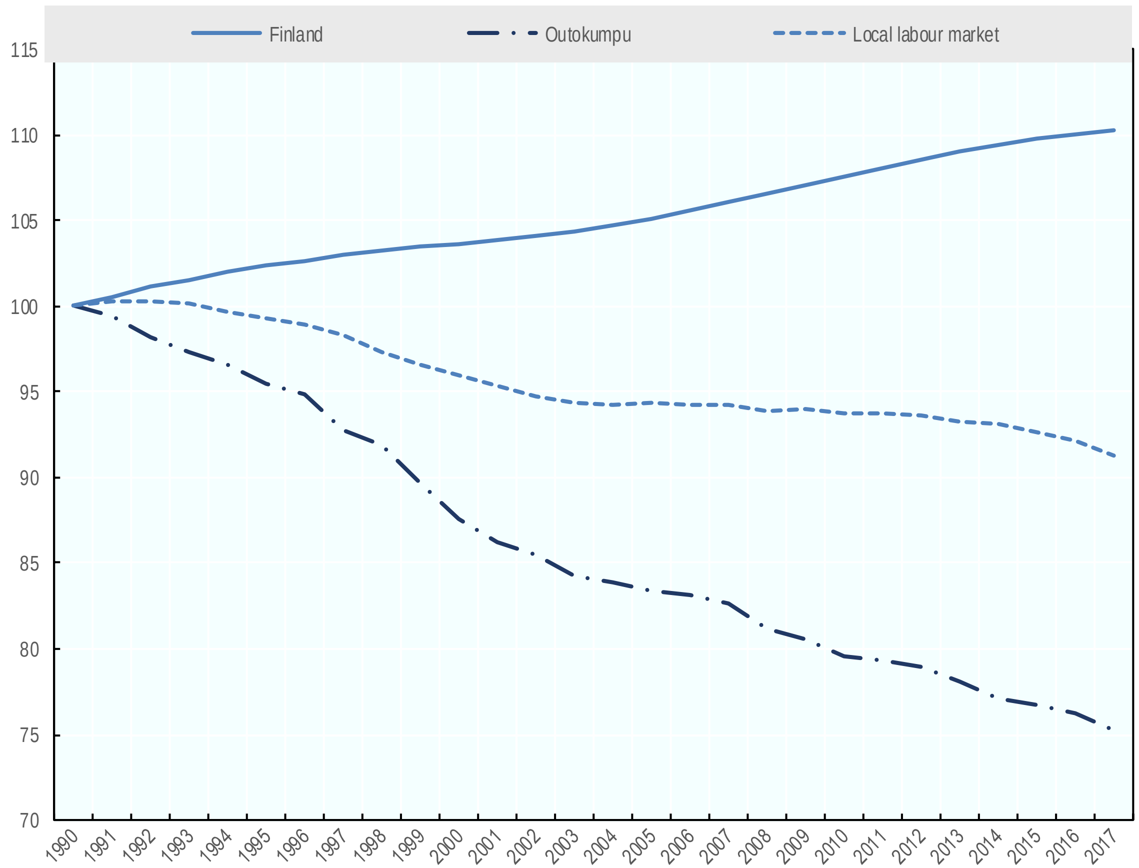
Total number of businesses, 2013 = 100



- In this period the number of manufacturing enterprises decreased from 184 to 173.

Outokumpu's population is declining at a fast pace

Population trends (1990 = 100)

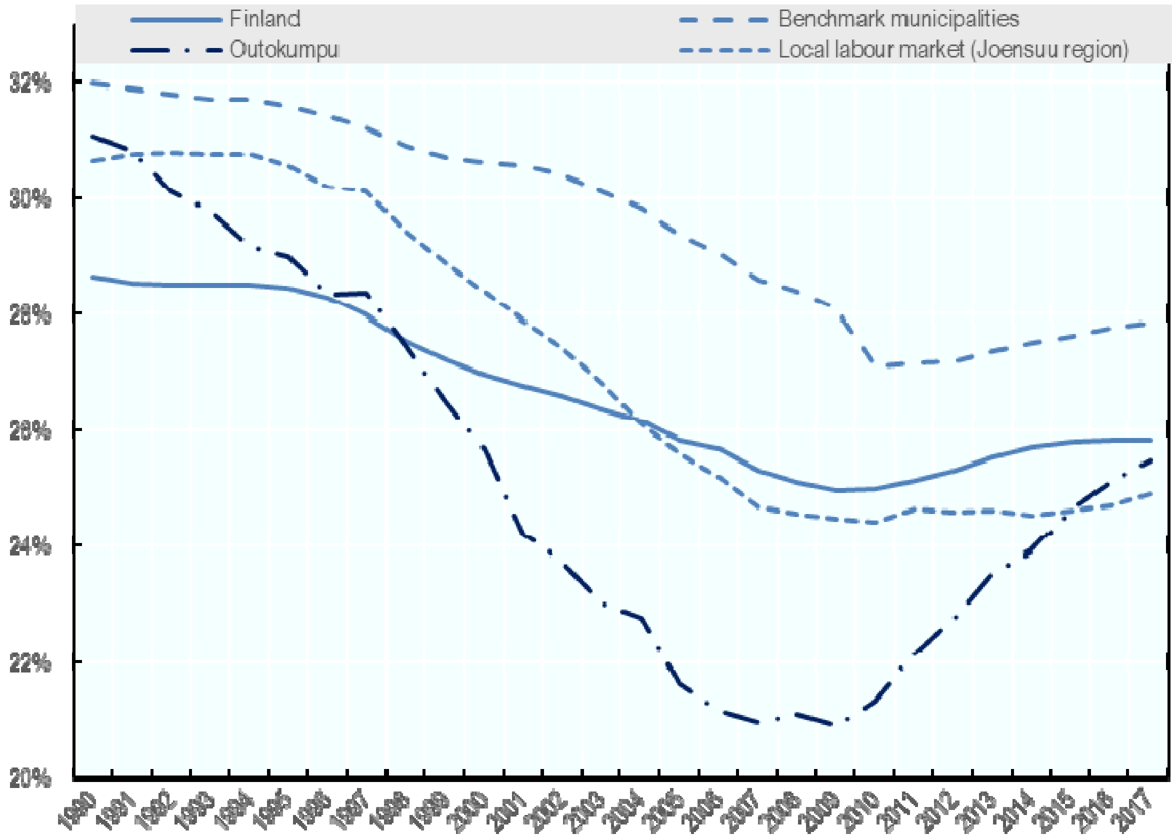


- Population in Outokumpu has decreased since 1990 at a faster pace than the local labour market

Youth dependency ratio is increasing due to decline of the working age population

- Youth dependency ratio was at 25% in 2017, which was 2 pp higher than in the local labour market.
- The youth dependency ratio decreased from 31% to 21% in 1990-2009. After 2010, the youth dependency ratio recovered by 7 percentage points.
- The reason for the increase is that the working age population is declining faster than youth population

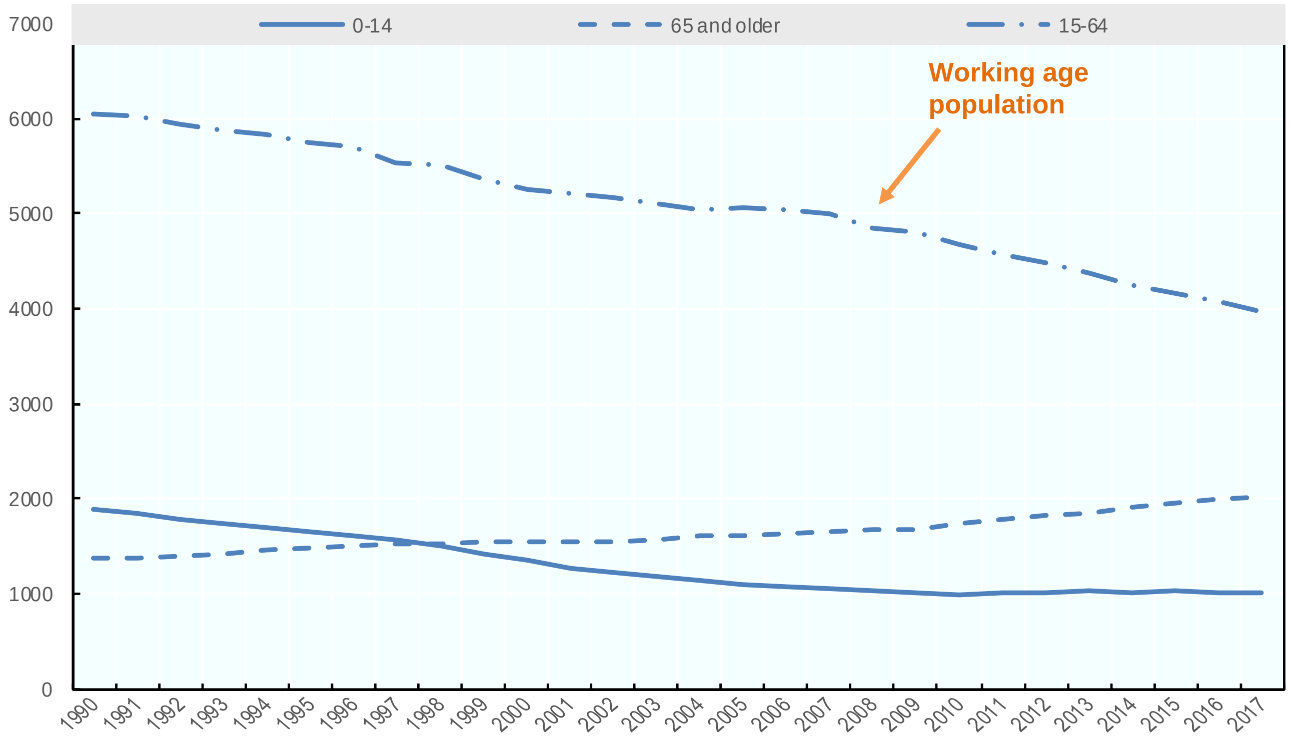
Youth dependency ratio 1990-2017



Demographic change in absolute numbers

- Although youth dependency ratio has increased, the youth population is declining
- The decrease of working age population has been greater than the decrease of the youth population, as after the year 2008, the annual change has been around 2%.
- Elderly population is increasing steadily.

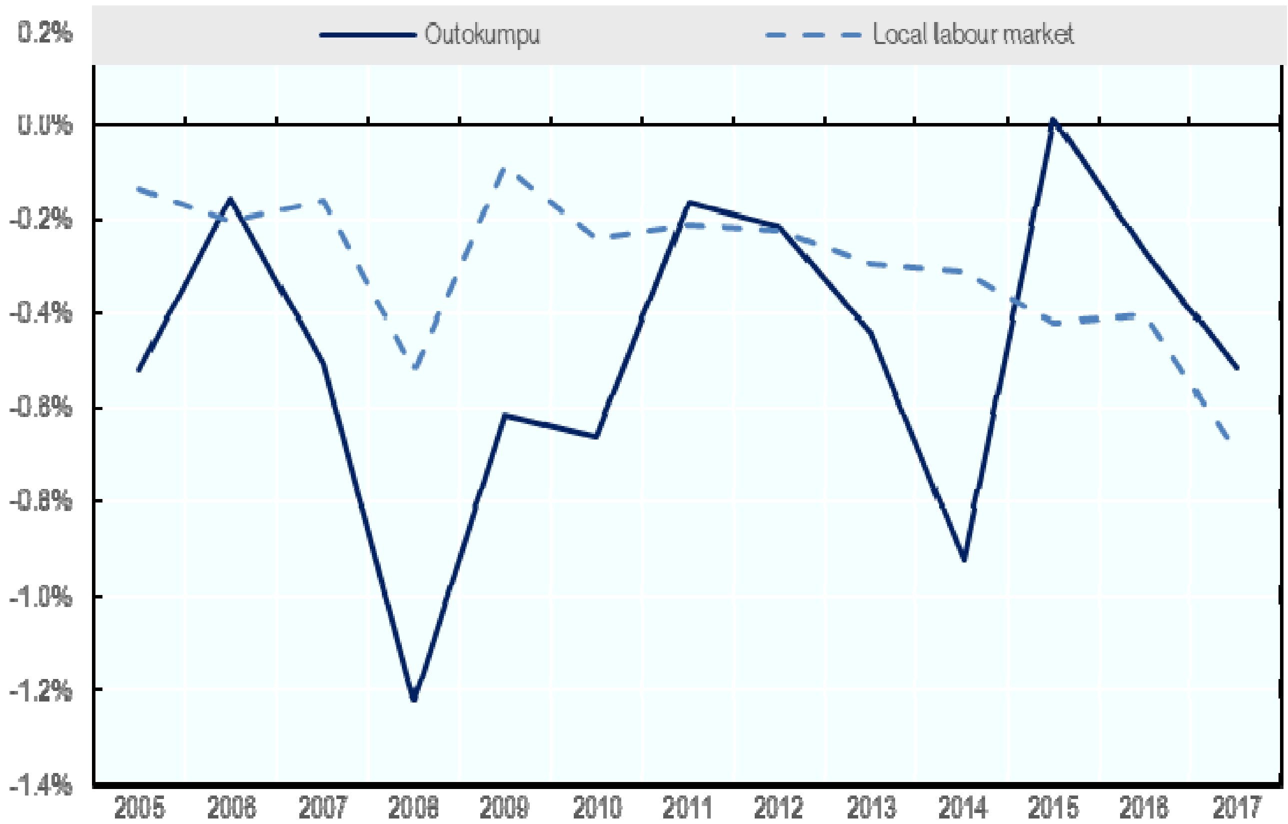
Demographic change (absolute numbers), 1990-2017 Outokumpu



Negative rates of net migration

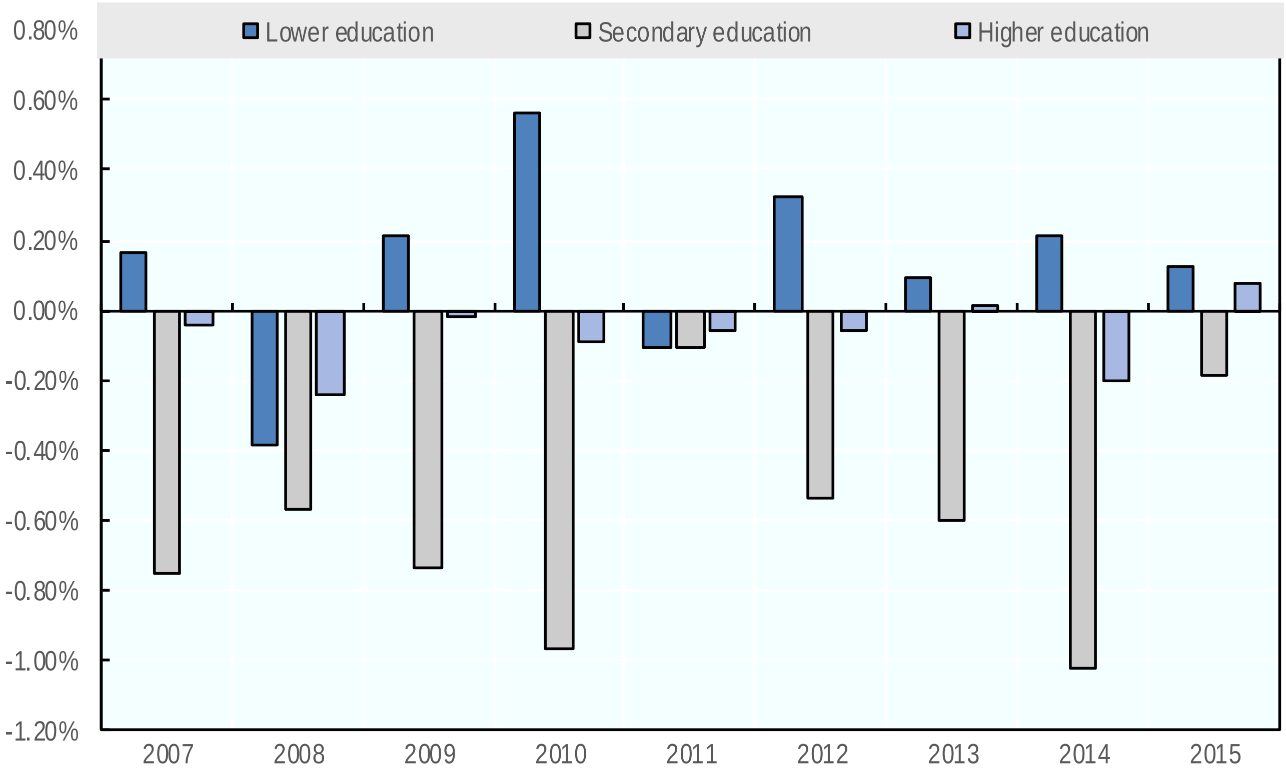
- Outokumpu's net migration was -0.5% in 2017.

Ratio of net migration to total population, 2005-2017



"Brain drain" → population with higher levels of education are moving out of Outokumpu

Ratio of net migration to total population by level of education, 2007-2015



- Population with higher education are more likely to move from Outokumpu
- In 2014, 1.2% of the population with at least upper secondary education moved away from Outokumpu

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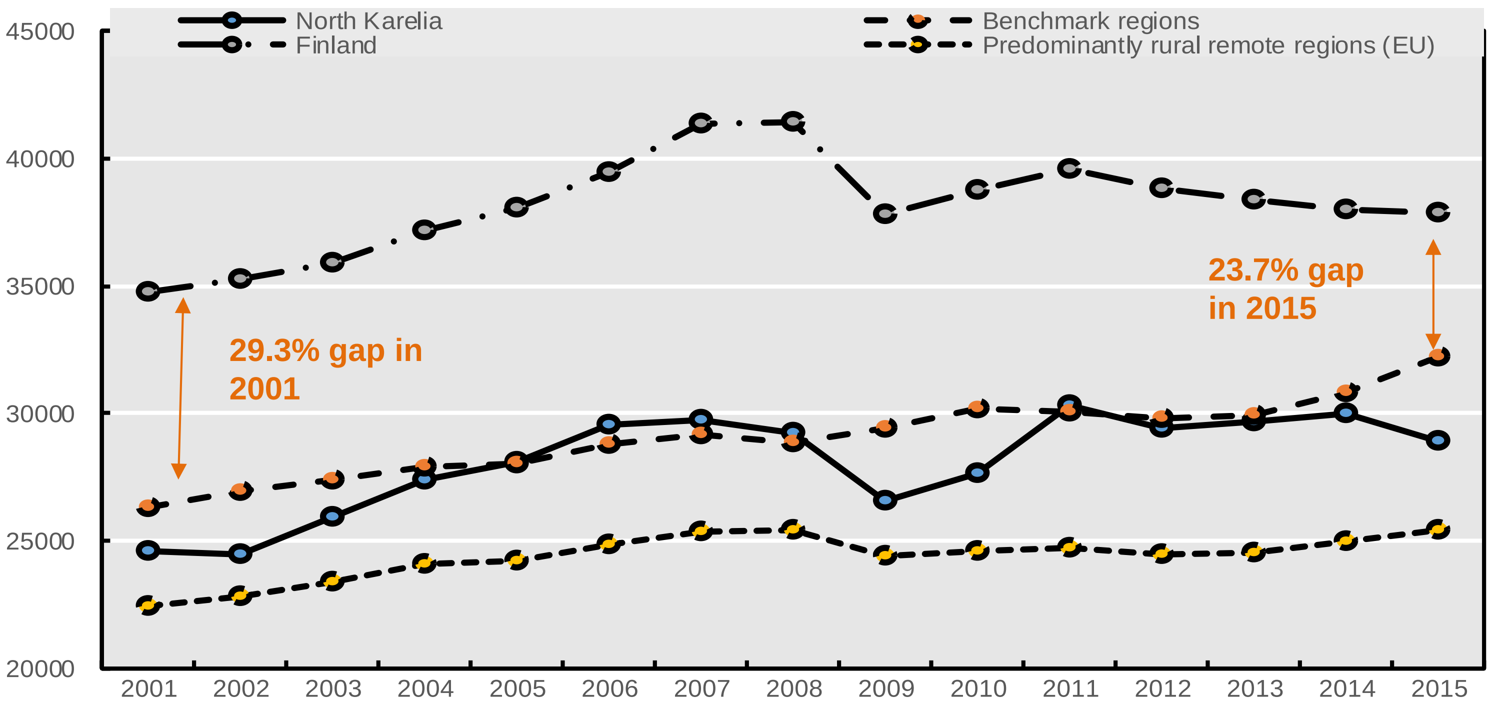
Gap in GDP per capita between regional and national level has reduced

GDP per capita (USD PPP 2010) trend, 2001-15



- GDP per capita for North Karelia in 2015 was USD 28 900, which was 23.7% below the national level of USD 37 889
- North Karelia average annual growth rate in GDP per capita was 1%, which was above the national average of 0.6%

Gap in labour productivity has also reduced

Relatively high levels of labour productivity

Labour productivity by industry, 2015

	North Karelia (USD)	Median (USD)	Quintile
Labour productivity	**63 792**	**52 578**	**2**
Labour productivity mining	200 330	122 211	2
Labour productivity industry	80 894	69 633	2

.. Labour productivity is relatively high in an EU context for predominantly rural regions (21.3% above the median)

North Karelia has a specialisation in forestry and industry

Locational quotient*, North Karelia , 2015

	Employment	GVA
Agriculture, forestry and fishing	**2.0**	**2.8**
Manufacturing	**1.1**	**1.0**
Industry (exc. Manufacturing)	**1.1**	**1.1**
Construction	1.0	1.1
Distribute trade, transport, accommodation and food services	0.8	0.8
Information and communication	0.5	0.5
Financial and insurance	0.6	0.6
Real estate	0.9	**1.1**
Professional services	0.6	0.5
Public administration	**1.1**	**1.2**
Other services	**1.1**	**1.0**

*Compared to the national level. 1= same share of the industry as Finland. A score over 1 implies specialisation.

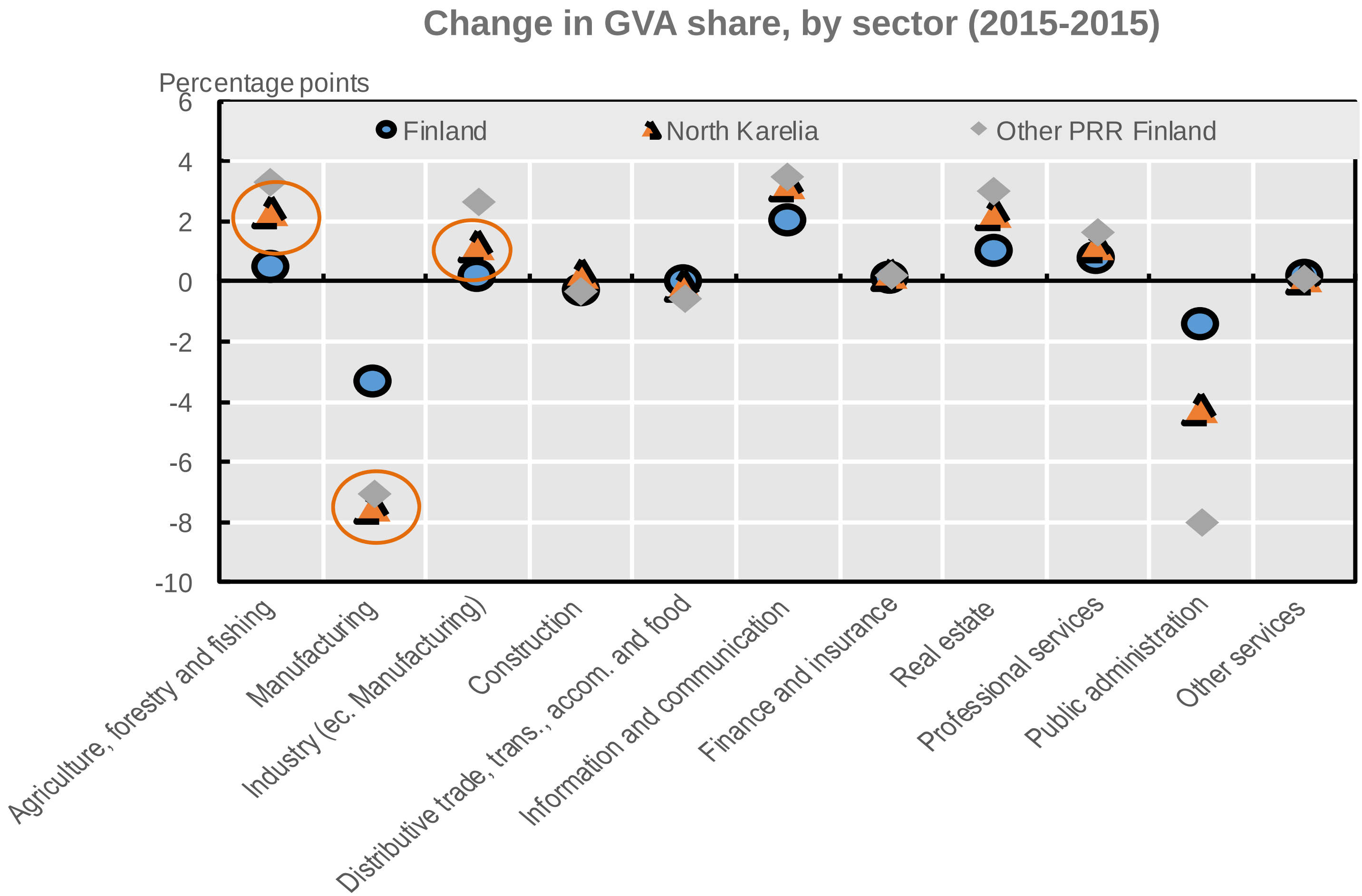
North Karelia is a relatively specialized industrial region in an EU context

North Karelia, select indicators of specialisation and economic structure

	North Karelia (%)	Median (%)	Quintile
GVA industry	**21.5**	**18.3**	**2**
GVA mining and energy	4.6	3.2	3
Tradable sector	54.7	48	3
Natural resource specialisation*	**12.7**	**12.4**	**2**
Tradable services	9.3	9.2	2

*Includes agriculture, forestry, mining, energy and water

Most significant negative change in the regional economy has been in the manufacturing sector



Significant restructuring within the manufacturing sector

Change in output, manufacturing sub-sectors, North Karelia and Finland, 2007 – 2016

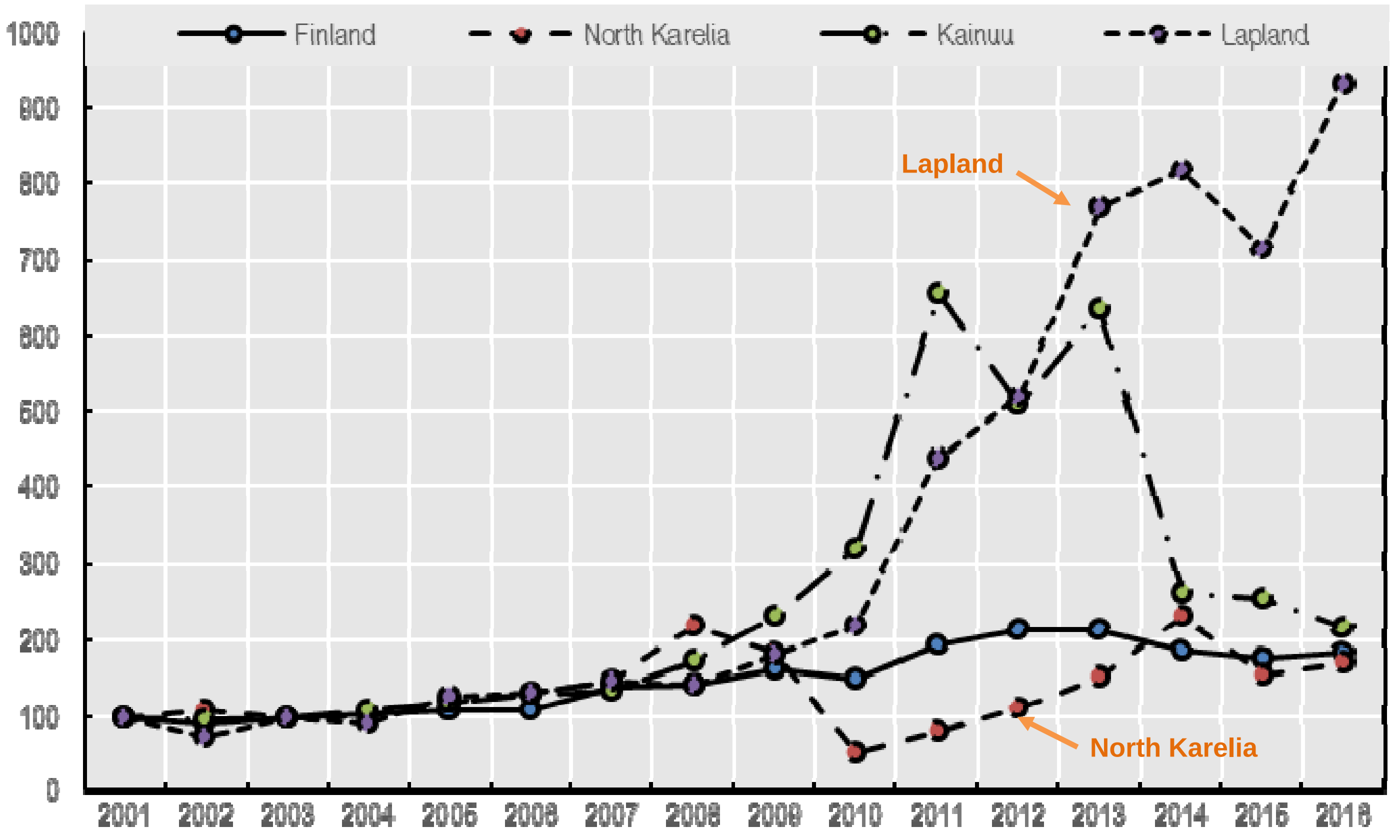
	Percentage of North Karelia economy (2007)	Percentage point change in output, North Karelia (2007-2016)	Percentage point change in output, Finland (2007-2016)
Woodworking industry	6.3	-16.4	-20.1
Manufacture of machinery and equipment	4.8	35.0	-5.6
Paper industry: Printing	4.7	20.5	-14.8
Manufacture of electrical and electronic products	4.0	-62.6	-50.4
Manufacture of fabricated metal products	3.6	16.1	-24.7
Chemical industry	2.9	10.3	1.8
Manufacture of other non-metallic mineral products	1.5	-40.5	-13.0
Other manufacturing: Repair and installation of machinery and equipment	1.5	-7.3	0.2
Manufacture of transport equipment	0.2	-1.6	-11.3
	29.5	-5.2	-15.3

- Manufacturing constituted close to 30% of regional output in 2007
- Output has decreased by 4% in the period 2007-2016 (current prices)
- The most significant areas of growth have been in the manufacture of machinery and equipment and decreases have been in the woodworking industry and electrical and electronic products

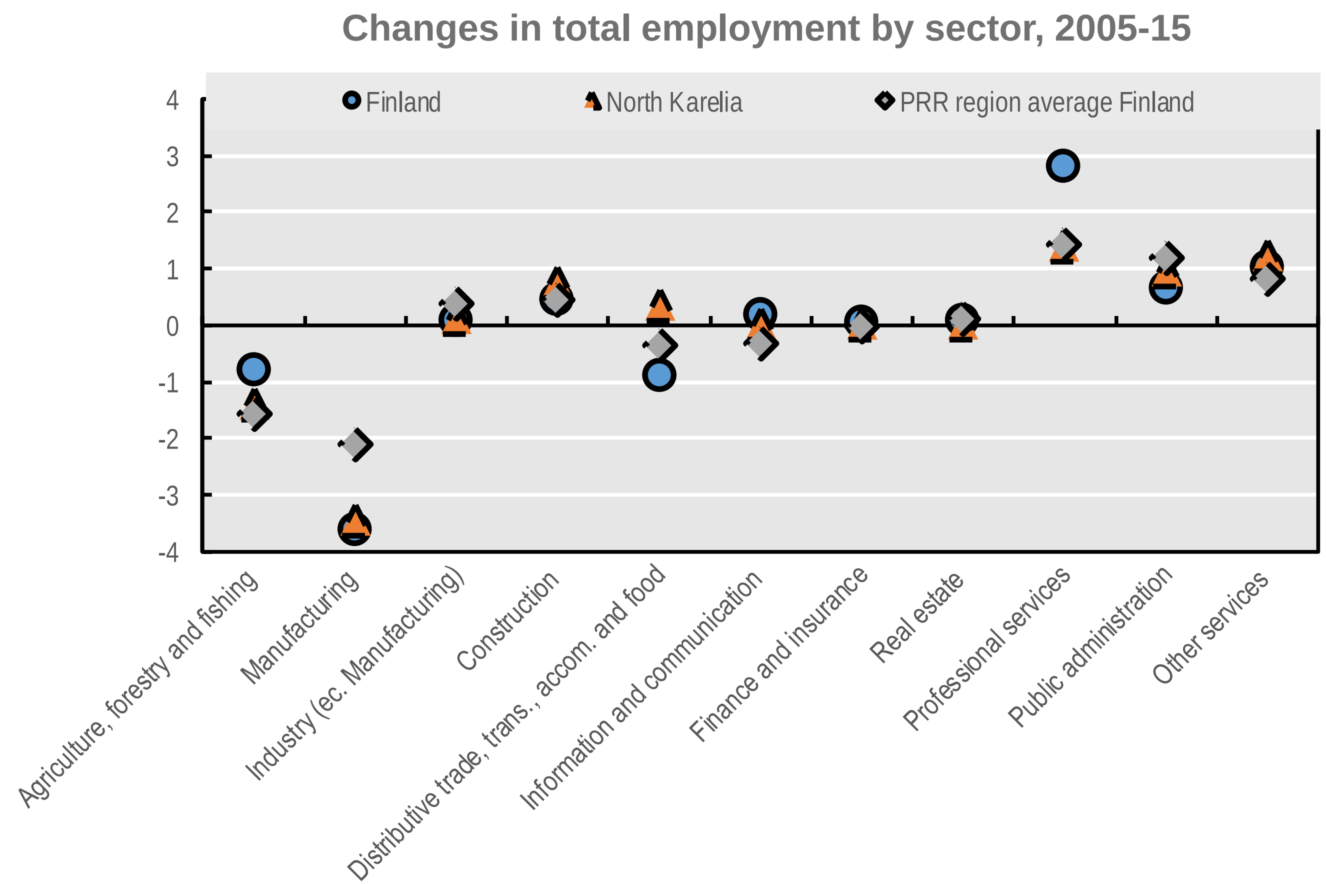
The commodity price boom has not resulted in increased mining activity in North Karelia

Lapland has been the main driver of the Finnish mining industry (10 fold increase in this period)

Growth Index, regional output, North Karelia, Finland and select regions (mining and quarrying) 2000- 2016

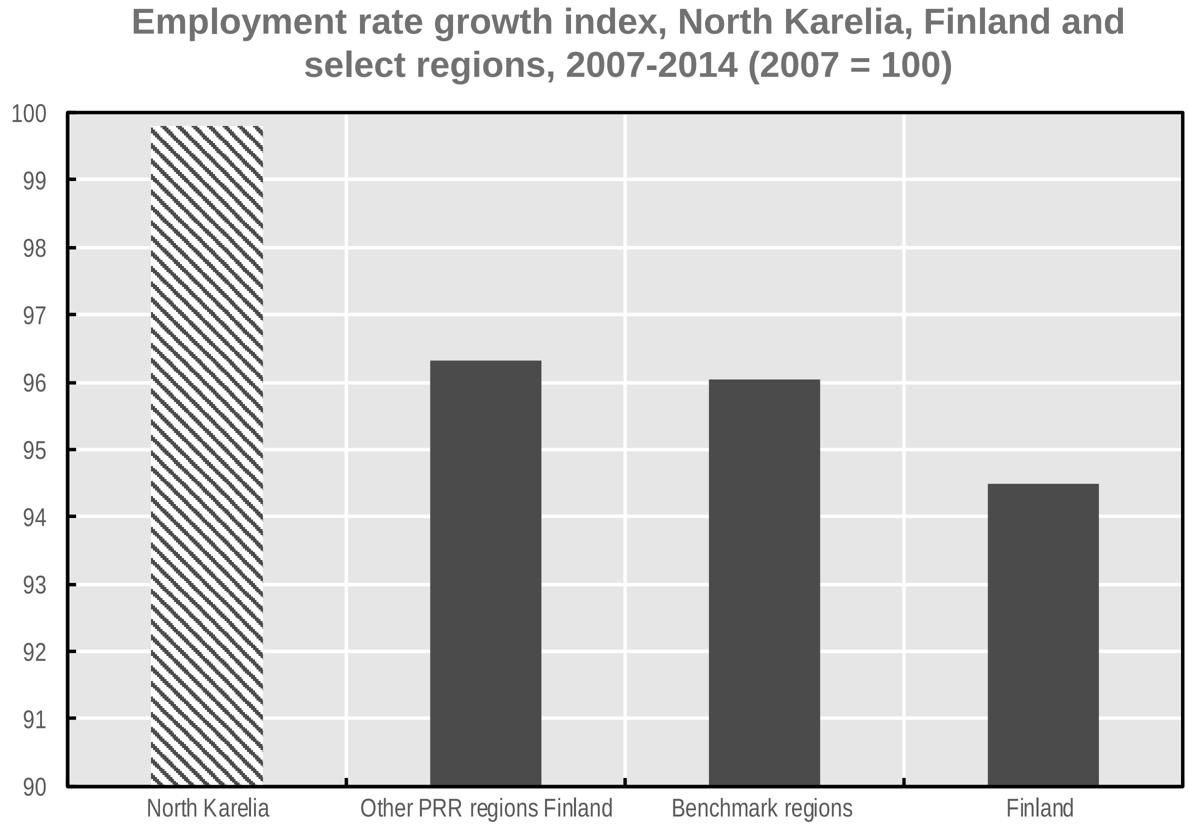


Employment is increasing in services



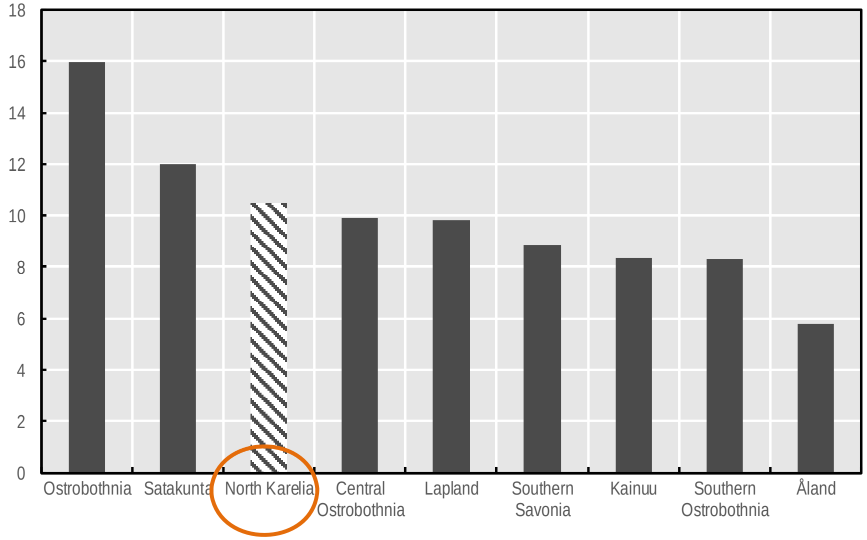
- The main area of decline in employment has been in the manufacturing sector (same as the national average)
- The main areas of growth have been in professional and technical services, public administration, and other services

Relatively strong regional labour market performance since the crisis

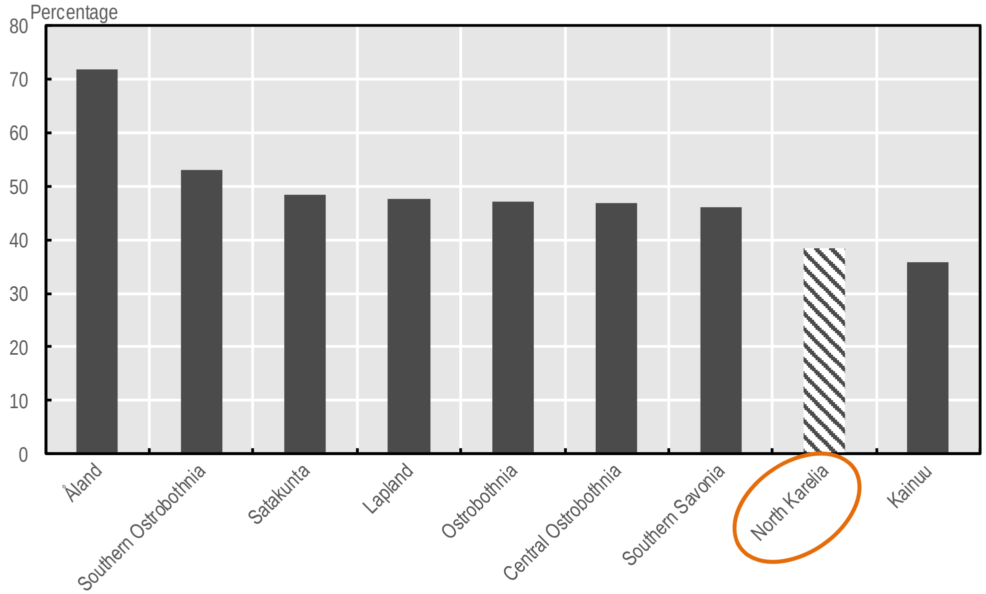


North Karelia has relatively fewer firms that are larger compared to other predominantly rural remote regions in Finland

Average size of establishments, predominantly rural remote regions, Finland (2014)

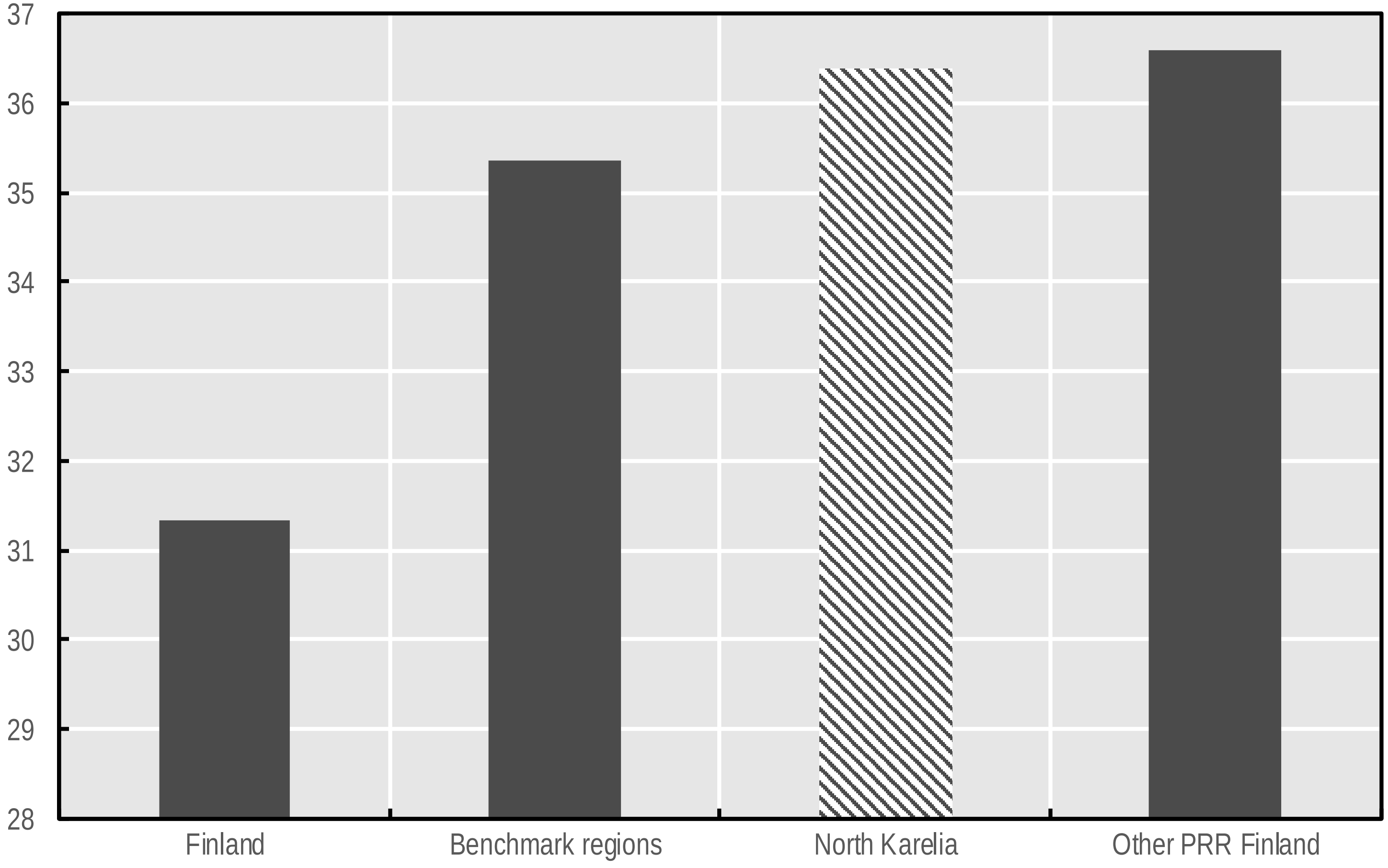


Density of establishments, predominantly rural remote regions, Finland (2014)



North Karelia has an ageing population

Dependency Ratio, North Karelia compared with Finland and select regions (2015)



Demographic trend of North Karelia is similar to other predominantly rural remote regions

Population growth and ageing

Population growth and ageing, North Karelia, Finland and selected regions, 2001 – 2015 (2001=100)

	Population growth index	Population aged 65+ growth index
Finland	105.6	140.4
North Karelia	96.3	130.2
Other PRR Finland	98.4	132.2
Benchmark regions	98.6	116.2

- Population is declining faster than other regions and the national level
- Population in North Karelia is ageing but the pace is slower than the national average