Evidence-based policymaking – quantitative analyses for smart specialisation – identifying the economic and innovative potential

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Rational for Smart Specialisation

- The underlying rational behind the Smart Specialisation concept is that by **concentrating knowledge resources and linking them to a limited number of priority economic activities**, countries and regions can become — and remain — competitive in the global economy

- This type of specialisation allows regions to take advantage of scale, scope and spillovers in knowledge production and use, which are important drivers of productivity

Rational for Smart Specialisation

- Strategies that combine innovation with specific strengths of the national/regional economy offer a much greater chance of success
- Imitating other regions by trying to create 'miracle growth' in headline industries not only lessens the chances for the imitating region to succeed, but also perpetuates patterns of market dominance with leaders and followers
- Smart Specialisation is about **generating unique assets and capabilities based on the region's distinctive industry structures and knowledge bases**

S3 and Eastern Partnership countries

- European Commission's Smart Specialisation Platform (S3P) assists EU countries and regions in developing, implementing and reviewing their Smart Specialisation Strategies (S3)
- S3P also supports the efforts of EU Enlargement and Neighbourhood countries to develop S3 strategies
- To achieve this objective, it is necessary to adapt the existing approaches and develop new guidance that takes into account the context of non-EU countries
- Most EaP countries expressed their interest in applying the S3 approach

RIS3 design

- A national/regional research and innovation strategy for smart specialisation can be seen as an economic transformation agenda based on four general principles summarised in four 'Cs':

  - **(Tough) Choices and Critical mass: limited number of priorities on the basis of own strengths and international specialisation**
  - *Competitive Advantage*
  - *Connectivity and Clusters*
  - *Collaborative Leadership*

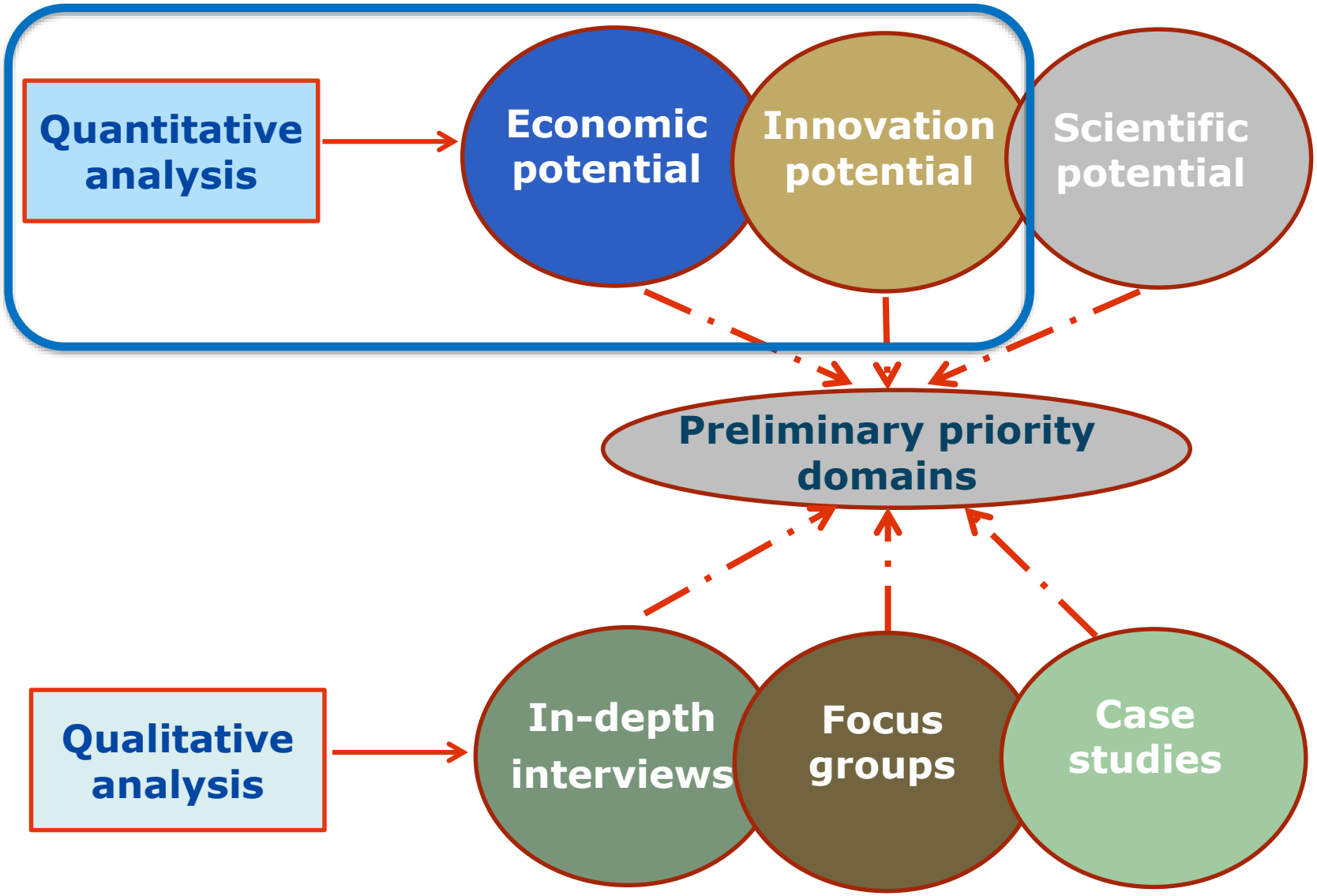
Six-step approach to RIS3

- **Analysis of the regional context and potential for innovation**
- *Set up of a sound and inclusive governance structure*
- *Production of a shared vision about the future of the region*
- *Selection of a limited number of priorities for regional development*
- *Establishment of suitable policy mixes*
- *Integration of monitoring and evaluation mechanisms*

Step 1 - Analysis of the regional context and potential for innovation

- RIS3 needs to be based on a sound analysis of the regional economy, society, and innovation structure, aiming at assessing both existing assets and prospects for future development

S3 Analytical Framework



Why do we need an evidence base?

"Access to data is critical for evidence-informed policies. Data are a precondition for the development of innovative businesses, creating growth, boosting productivity, promoting innovation, transforming public services and … improving citizens' quality of life"

JRC: "Supporting an Innovation Agenda for the Western Balkans - Tools and Methodologies"

Objectives of mapping economic and innovation potential

- The diagnosis results in a set of **preliminary priority domains** that are based on matching strengths in terms of critical mass of economic activities and innovative companies

- Priority domains are defined at industry level using **industry classifications**

Industry classification: An example

- Section C: Manufacturing
  - 27 Manufacture of electrical equipment
    - Nine 3-digit industries
    - 27.3 Manufacture of wiring and wiring devices
      - 27.31 Manufacture of fibre optic cables
      - 27.32 Manufacture of other electronic and electric wires and cables
      - 27.33 Manufacture of wiring devices

NACE is the classification of economic activities in the European Union; NACE is a four-digit classification providing the framework for collecting and presenting a large range of statistical data according to economic activity in the field of economic statistics

Mapping the …

Objective of mapping economic potential

- The objective is to identify industries with both current strengths and a potential to drive economic transformation
- Involves an **analysis of regional economic specialisation**: quantitative analyses calculate degrees of specialisation of regional economies on the basis of employment (or value-added) data
- **Location quotients** measure whether some industries are over-represented in a regional economy compared to other regions or countries

What is a Location Quotient?

- A Location Quotient (LQ) is a way of quantifying how concentrated an industry is within an area compared to the country as a whole

$$LQ = \frac{\text{Regional Industry Concentration}}{\text{National Industry Concentration}}$$

- A LQ greater than one indicates that the regional market has a higher concentration of employment in a particular industry compared to the national average

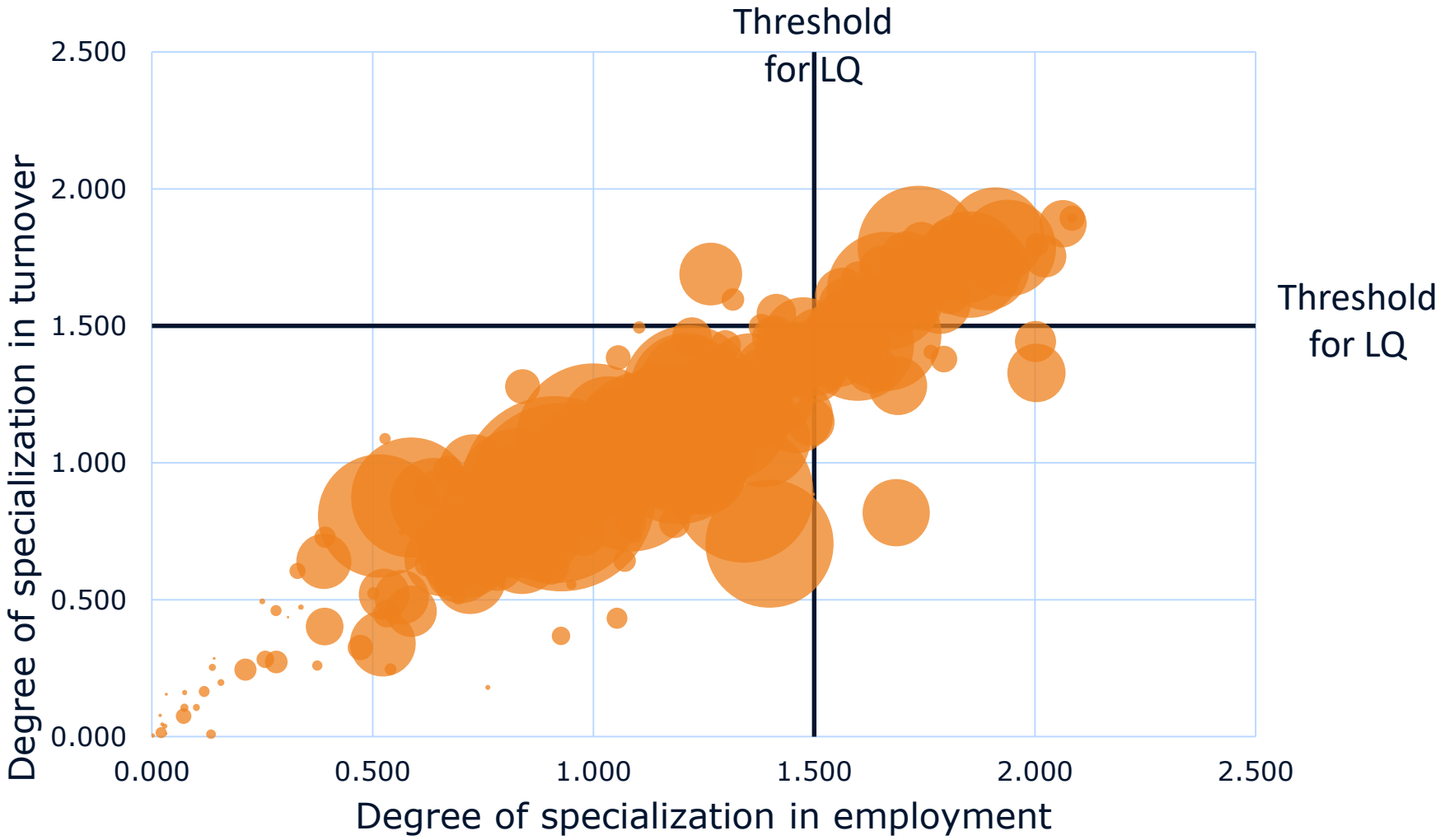
Key indicators mapping economic potential

Indicator	Disaggregation	Data source
Specialisation, growth dynamics and relative importance of industrial subsectors (Structural Business Statistics): • Number of enterprises • Employment • Value added/Turnover • Wages	• Industrial classification (NACE): at least 3 digit • Up to 10 years • Regionalised ('NUTS2')	Preferred source: • Official statistics (National Statistics Office) Alternative: • ORBIS

Methodology: possible criteria

- **Degree of specialisation**
  - Measures if, in relative terms, an industry is more important for (present in) the region
- **Critical mass**
  - Absolute size of an industry matters, too small industries have a small economic impact
- **Wages**
  - Focus on industries with above average wages
- **Growth/change over time**
  - Growing industries are more likely to drive economic transformation

Example: Identifying specialized industries (1)



Size of the bubble measures the relative size of the industry in the economy

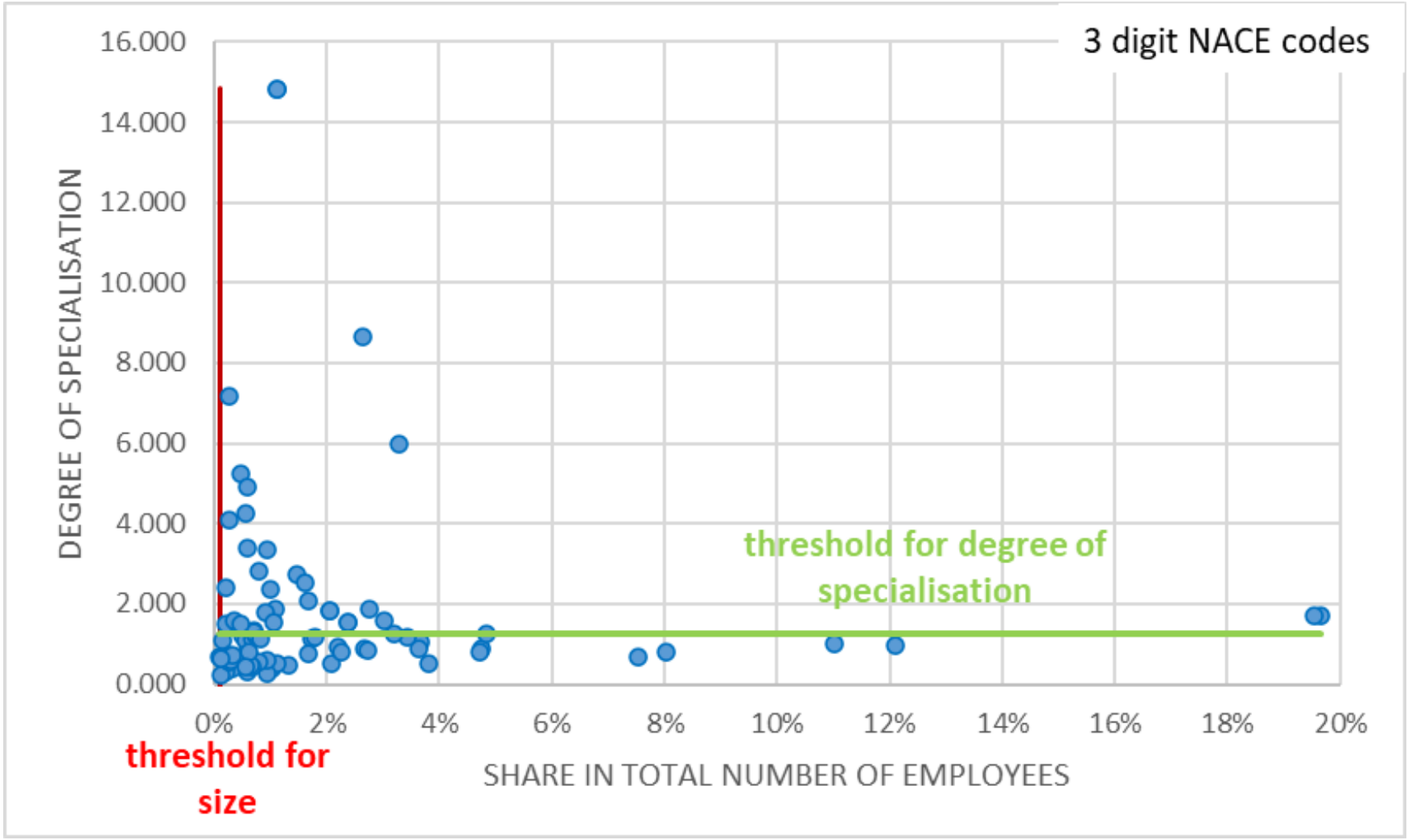
Example: Identifying specialized industries (2)

Size of the bubble measures the relative size of the industry in the economy

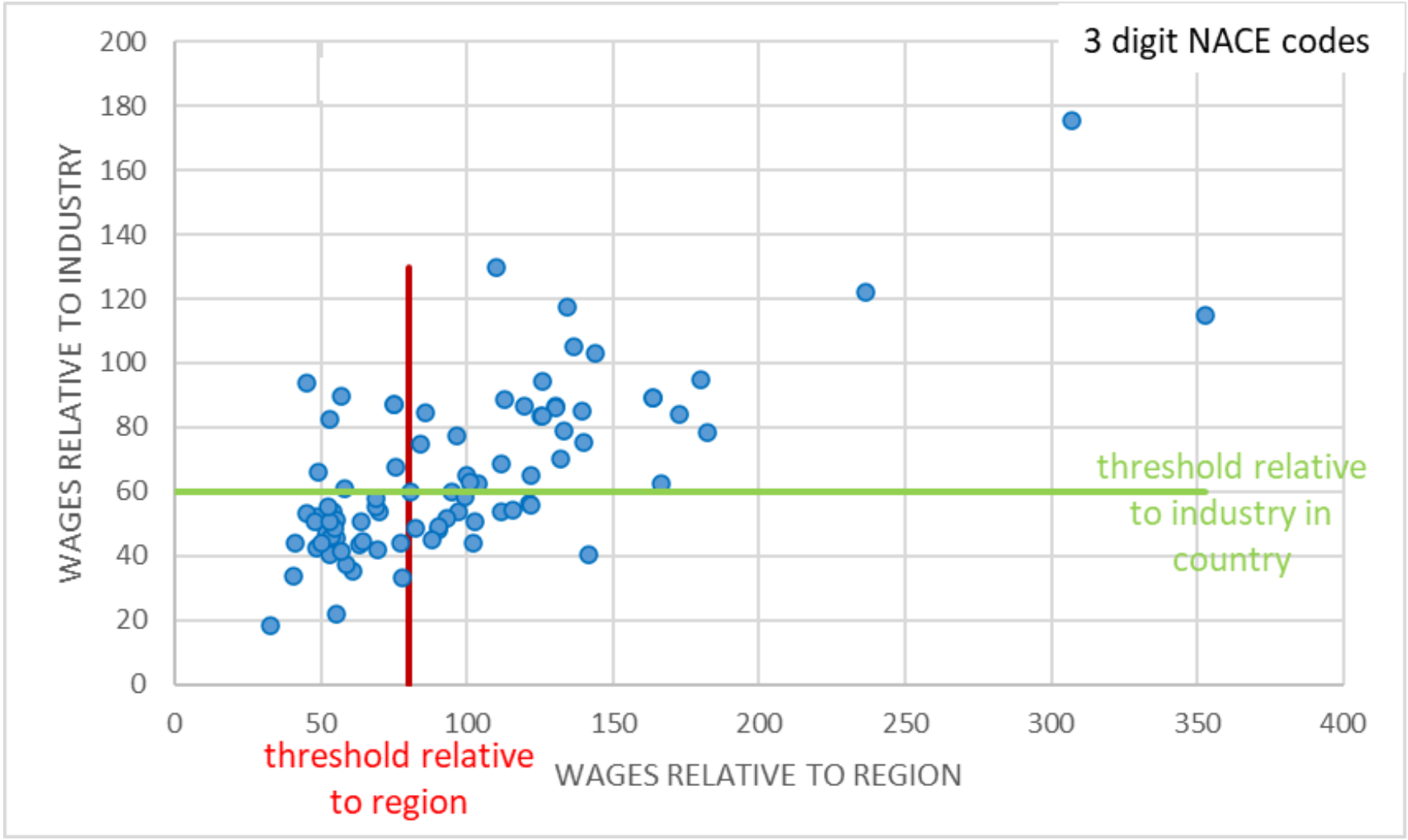
Example: Identifying specialized industries (3)

Size of the bubble measures the relative size of the industry in the economy

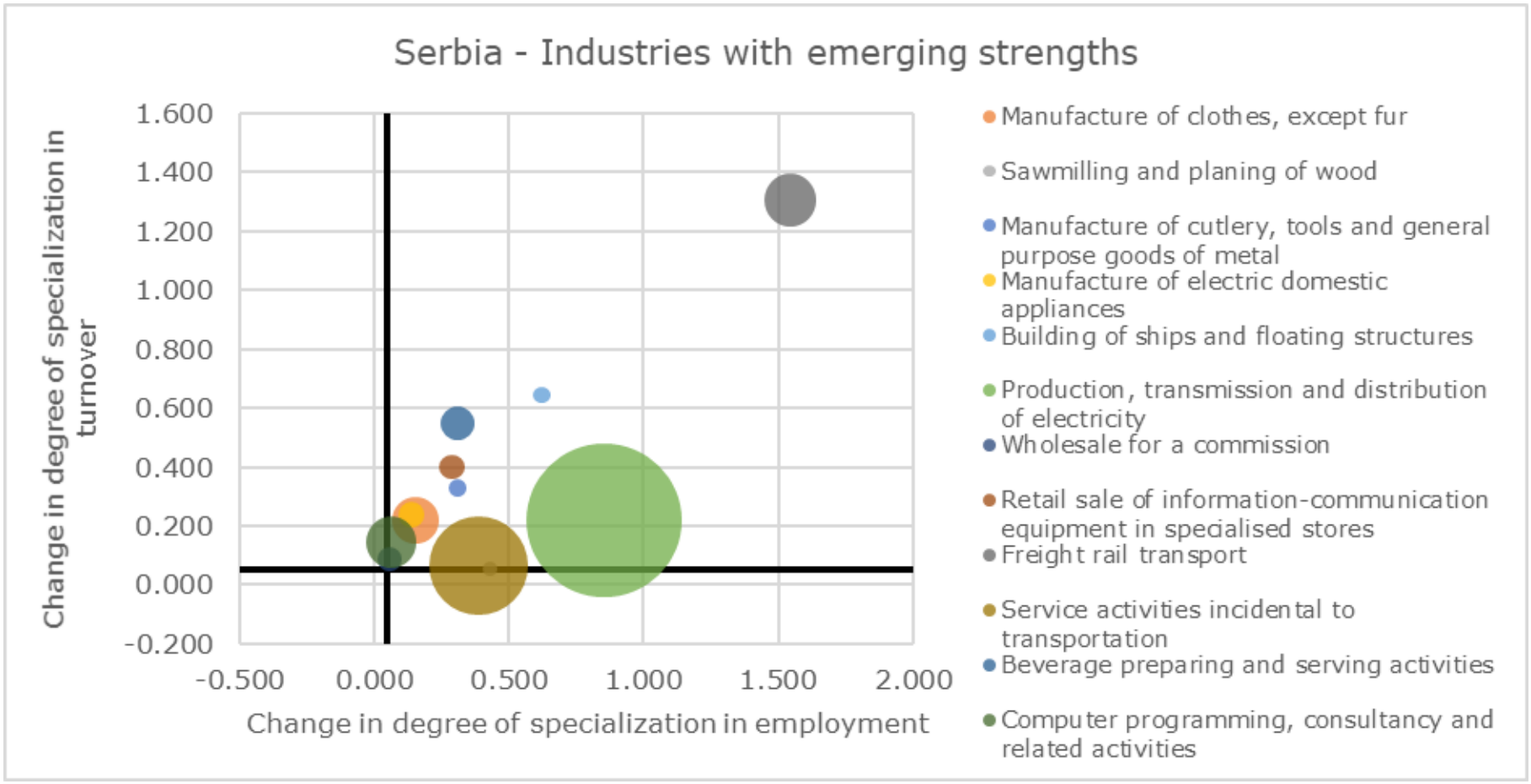
Visualisation selection criteria employees



Visualisation selection criteria average wages



Dynamic analysis: change in specialisation



Example: Moldova (2017)

North

Industries
- Agriculture and Food processing
- Cement, lime and plaster
- Electrical equipment
- Wiring and wiring devices
- Electricity, gas, steam and air conditioning supply

Centre

Industries
- Agriculture and Food processing
- Forestry and logging
- Textiles
- Basic pharmaceutical products and pharmaceutical preparations
- Other non-metallic mineral products
- Cement, lime and plaster

South

Industries
- Agriculture and Food processing
- Gas; distribution of gaseous fuels

Gagauzia

Industries
- Agriculture and Food processing
- Coke and refined petroleum products
- Refined petroleum products
- Glass and glass products
- Gas; distribution of gaseous fuels

Chisinau

Industries
- ICT
- Paper and paper products
- Chemicals and chemical products
- Machinery and equipment
- Furniture

Montenegro (2018)

Specialized industry / NACE Rev. 2 3-digit	Priority sector
012 Growing of perennial plants	Agriculture and food
052 Mining of lignite	--
101 Processing and preserving of meat and meat products	Agriculture and food; Manufacturing
110 Manufacture of drinks	Agriculture and food; Manufacturing
161 Sawmilling and planing of wood	Manufacturing
162 Manufacture of wood products, manufacture of articles of cork, straw and plaiting materials	Manufacturing
212 Manufacture of pharmaceutical preparations	Manufacturing; Medicine and health of people
241 Manufacture of basic iron and steel and ferro alloys	Manufacturing
244 Precious metal production and other ferrous metal production	Manufacturing
351 Production, transmission and distribution of electricity	Energy
360 Water collection, treatment and supply	--
390 Remediation activities and other waste management services	--
412 Construction of residential and non-residential buildings	Construction
421 Construction of roads and railways	Transport Construction
432 Construction installation	Construction
433 Building completion works	Construction
461 Wholesale for a commission	--

Kharkiv (Ukraine) 2019

- Five industries passed both criteria for the static/current and the dynamic analysis, representing 24.7% of total employment in the region:
  - 23.9 Manufacture of abrasive products and non-metallic mineral products n.e.c.
  - 28.2 Manufacture of other general-purpose machinery
  - 28.9 Manufacture of other special-purpose machinery
  - 30.4 Manufacture of military fighting vehicles
  - 62 Computer programming, consultancy and related activities

Imereti (Georgia) (2020)

NACE Rev 1.1		Type of economic potential
Code	Industry name	
01	Agriculture, hunting and related service activities	Dynamic
01.1	Growing of crops; market gardening; horticulture	Dynamic
13.2	Mining of non-ferrous metal ores, except uranium and thorium ores	Static
14	Other mining and quarrying	Static
14.2	Quarrying of sand and clay	Static
15.1	Production, processing and preserving of meat and meat products	Static
18.2	Manufacture of other wearing apparel and accessories	Dynamic
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	Static
20.1	Sawmilling and planing of wood; impregnation of wood	Static
26.6	Manufacture of articles of concrete, plaster, and cement	Dynamic
27.1	Manufacture of basic iron and steel and of ferro-alloys	Static
27.5	Casting of metals	Static
29	Manufacture of machinery and equipment n.e.c.	Static
31	Manufacture of electrical machinery and apparatus n.e.c.	Static
45	Construction	Dynamic
50	Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	Dynamic
51.5	Wholesale of non-agricultural intermediate products, waste, and scrap	Dynamic
55.1	Hotels	Dynamic
80	Education	Dynamic
85.1	Human health activities	Static
92.6	Sporting activities	Static

Mapping the …

Key indicators mapping innovation potential

Indicator	Disaggregation	Data source
Innovation Survey: • Share of innovative companies • Types of innovation • Business R&D spending (R&D survey)	• Industrial classification (NACE): at least 3 digit • Up to 10 years • Regionalised ('NUTS2')	Preferred source: • Official statistics (e.g. National Statistics Office)

Innovation survey data

- For mapping the innovation potential, ideally **innovation survey data** should be used, as these provide the required data on number of enterprises that innovate and different types of innovations

- Innovation surveys usually cover the entire business sector, including non-financial corporations (thus excluding the agricultural and public sector)

Four types of innovation

- **Product innovation**: A good or service that is new or significantly improved. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics

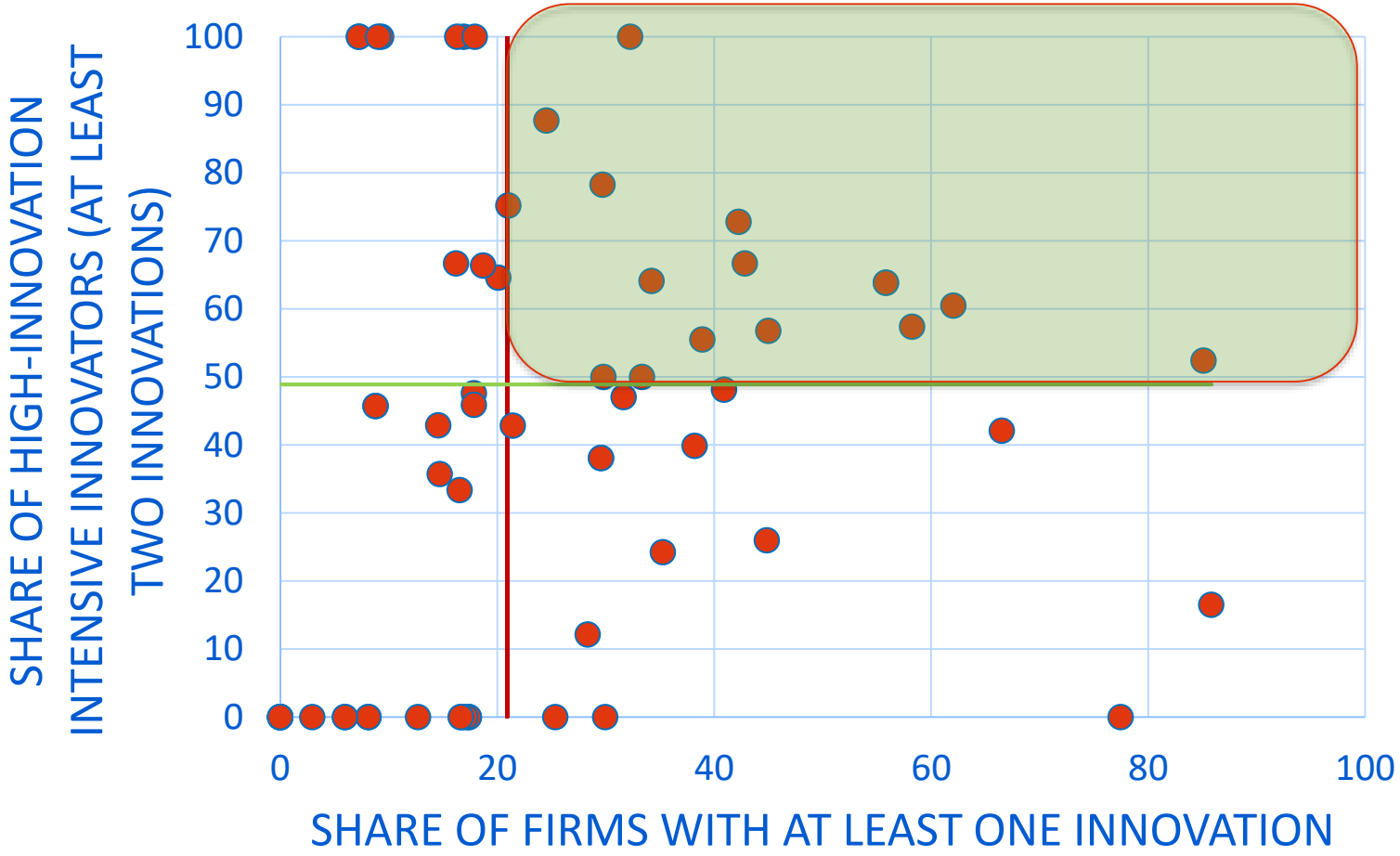
- **Process innovation**: A new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software

Four types of innovation

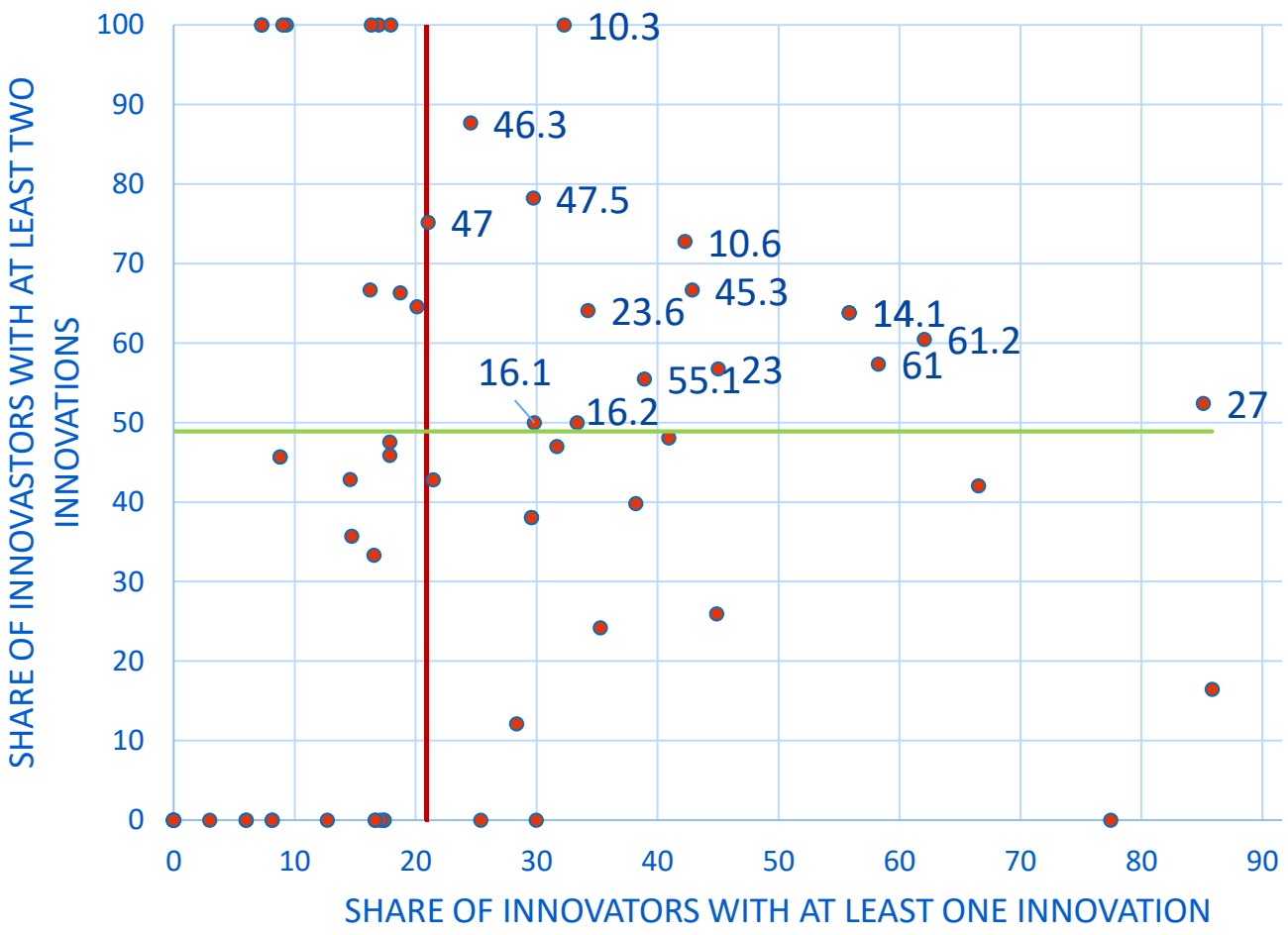
- **Marketing innovation**: A new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing

- **Organisational innovation**: A new organisational method in business practices, workplace organisation or external relations

Example for identifying industries with innovation potential



Imereti (Georgia) (2020)



10.3 Processing and preserving of fruit and vegetables
10.6 Manufacture of grain mill products, starches, and starch products
14.1 Manufacture of wearing apparel, except fur apparel
16.1 Sawmilling and planing of wood
16.2 Manufacture of products of wood, cork, straw, and plaiting materials
23 Manufacture of other non-metallic mineral products
23.6 Manufacture of articles of concrete, cement, and plaster
27 Manufacture of electrical equipment
45.3 Sale of motor vehicle parts and accessories
46.3 Wholesale of food, beverages, and tobacco
47 Retail trade, except of motor vehicles and motorcycles
47.5 Retail sale of other household equipment in specialised stores
55.1 Hotels and similar accommodation
61 Telecommunications
61.2 Wireless telecommunications activities

Combining the results

NACE	Industry	Economic - Static	Economic - Dynamic	Innovation	Econo-mic & Innovation
10.3	Processing and preserving of fruit and vegetables			X	
10.5	Manufacture of dairy products			X	
10.6	Manufacture of grain mill products, starches and starch products			X	
10.8	Manufacture of other food products		X	X	X
18.1	Printing and service activities related to printing	X		X	X
20.1	Manufacture of basic chemicals, fertilisers and nitrogen compounds, plastics and synthetic rubber in primary forms		X	X	X
20.3	Manufacture of paints, varnishes and similar coatings, printing ink and mastics		X		
20.4	Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations		X	X	X
20.5	Manufacture of other chemical products		X		
23.3	Manufacture of clay building materials	X			
23.9	Manufacture of abrasive products and non-metallic mineral products n.e.c.	X	X		
24.3	Manufacture of other products of first processing of steel		X		
24.4	Manufacture of basic precious and other non-ferrous metals			X	
25.2	Manufacture of tanks, reservoirs and containers of metal		X	X	X

Questions for the audience

- Do you think statistical data are a reliable source for identifying regional economic strengths?
- Is an analysis based on data from the past appropriate for identifying priority areas for future economic development?
- If the mapping analysis is done for the country, should the comparison be made with neighbouring countries, the EU or other countries?

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