

Quantitative analyses for smart specialisation – identifying the economic and innovation potential

Hugo Hollanders
Maastricht University



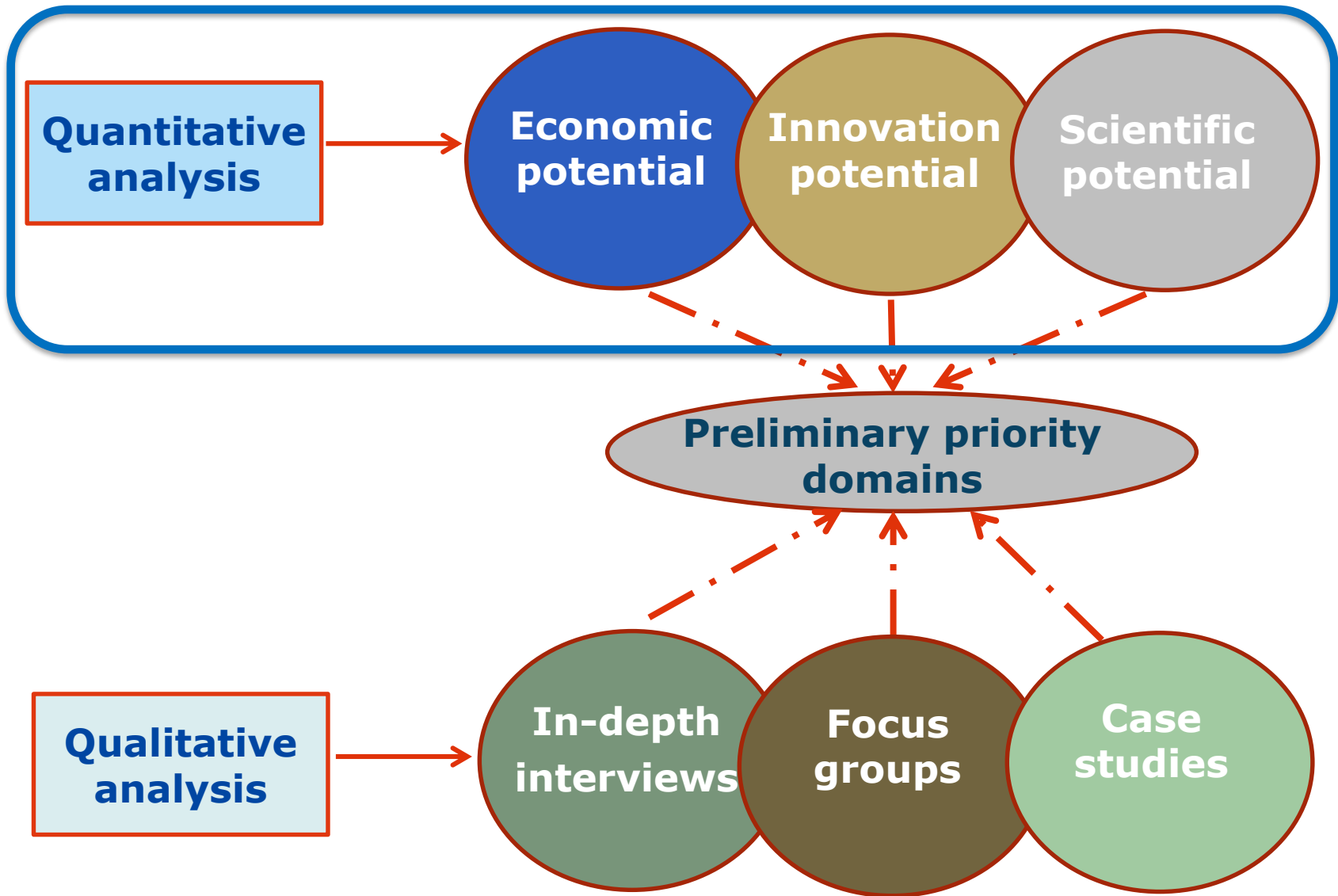
Maastricht University

S3 Peer-exchange workshop for EU
Enlargement and Neighbourhood Regio
March 29-30, 2022

Why Smart Specialisation?

- 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
- The analysis 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

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** (International Standard Industrial Classification of All Economic Activities (ISIC) or Statistical Classification of Economic Activities in the European Community (NACE))

Objectives 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

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

- 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

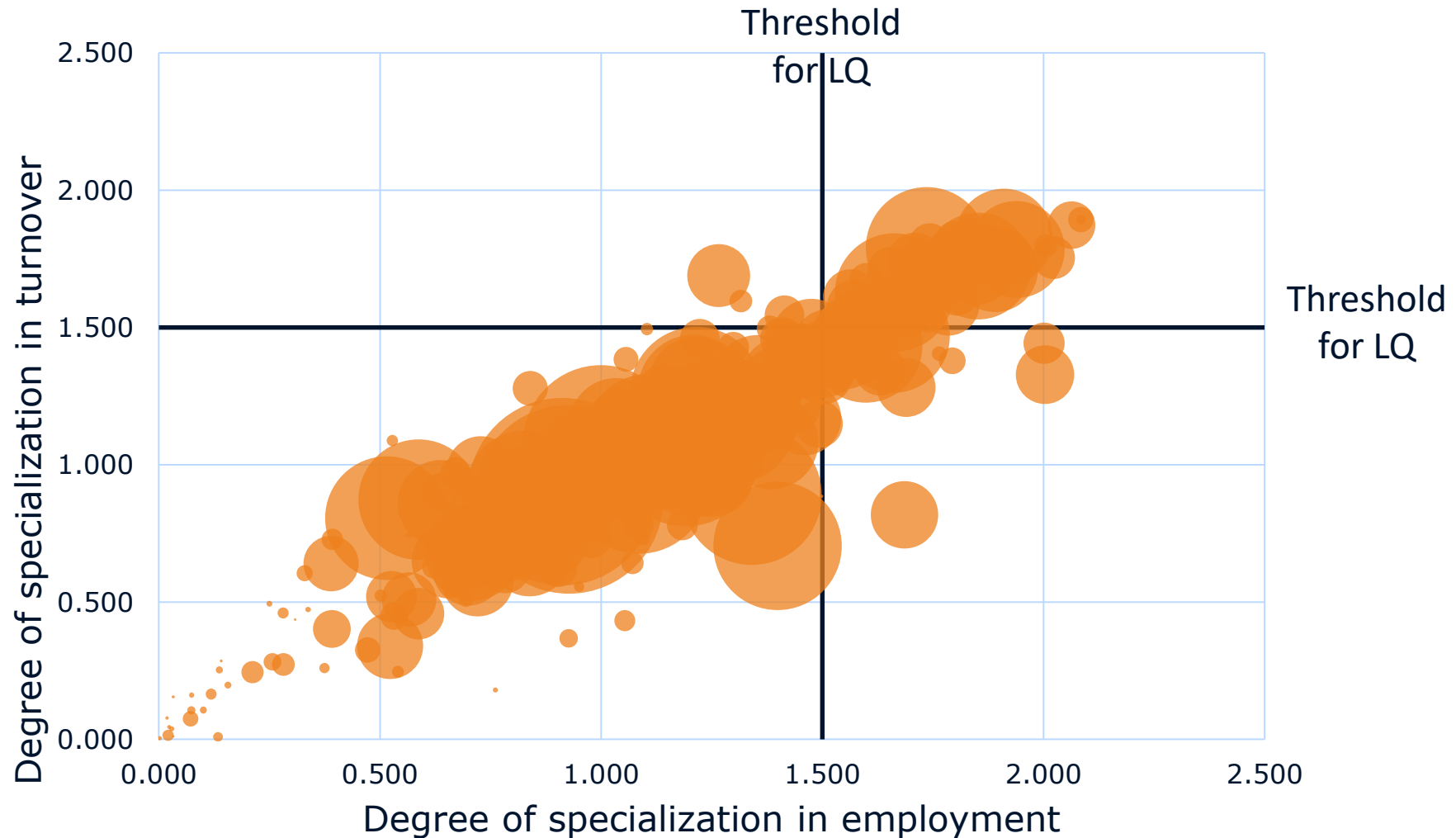
Key indicators mapping economic potential

Indicator	Disaggregation	Data source
<p>Specialisation, growth dynamics and relative importance of industrial subsectors (Structural Business Statistics):</p> <ul style="list-style-type: none">• Number of enterprises• Employment• Value added/Turnover• Wages	<ul style="list-style-type: none">• Industrial classification (NACE): at least 3 digit• Up to 10 years• Regionalised ('NUTS2')	<p>Preferred source:</p> <ul style="list-style-type: none">• Official statistics (National Statistics Office)

Methodology: 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
- **Average 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)



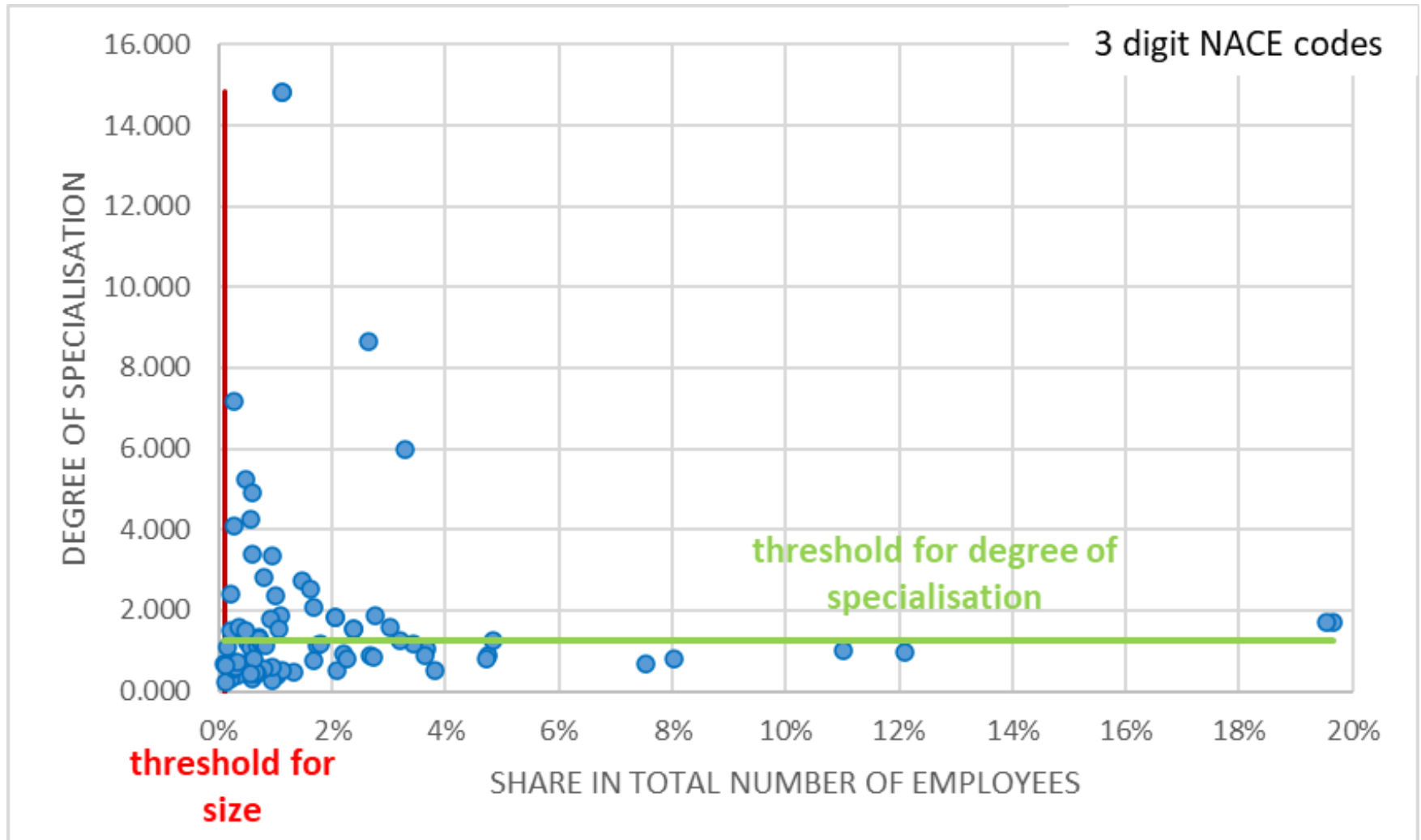
Size of the bubble measures the relative size of the industry in the economy

Example: Identifying specialized industries (3)

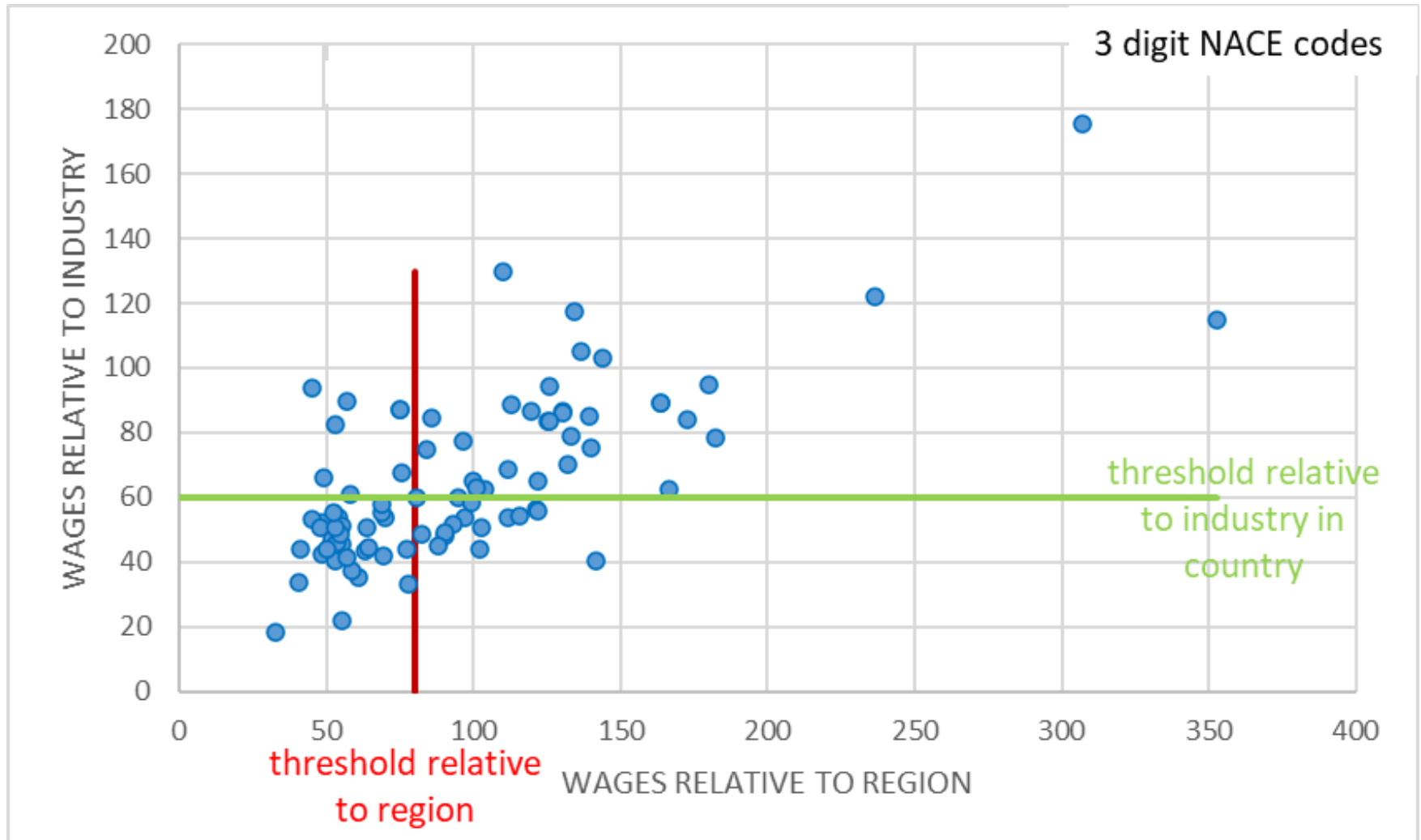


Size of the bubble measures the relative size of the industry in the economy

Visualisation selection criteria employees



Visualisation selection criteria average wages



Objectives of mapping innovation potential

- The objective is to identify industries with above average innovation activities

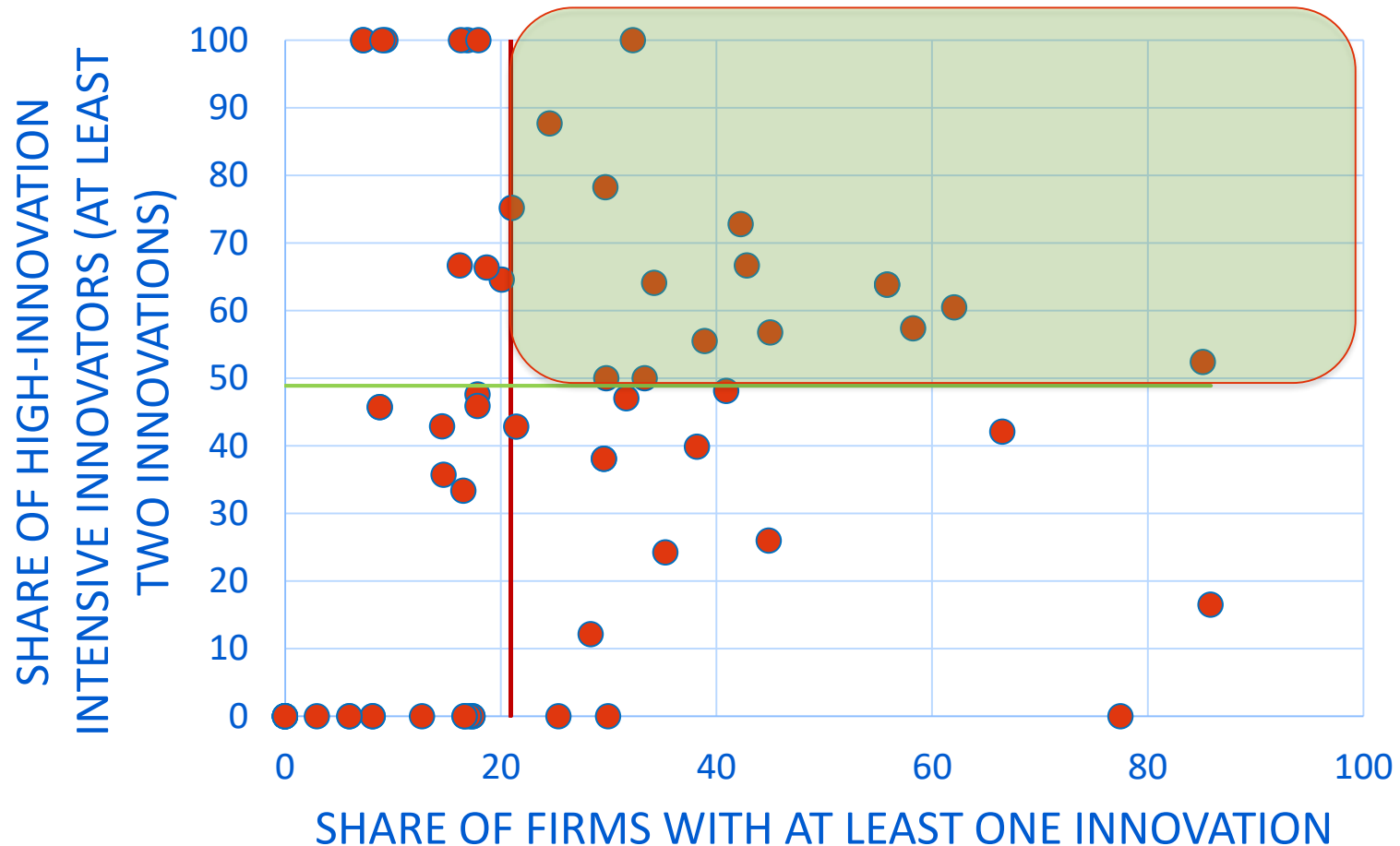
Key indicators mapping innovation potential

Indicator	Disaggregation	Data source
<p>Innovation Survey:</p> <ul style="list-style-type: none">• Share of innovative companies• Types of innovation <ul style="list-style-type: none">• Business R&D spending (R&D survey)	<ul style="list-style-type: none">• Industrial classification (NACE): at least 3 digit• Up to 10 years• Regionalised ('NUTS2')	<p>Preferred source:</p> <ul style="list-style-type: none">• 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 (product innovations, business process innovations)
- Innovation surveys usually cover the entire business sector, including non-financial corporations (thus excluding the agricultural and public sector)

Example for identifying industries with innovation potential



Issues Selection of time period

- If we have data for X years, when is an industry above the specialisation threshold:
 - For all X years individually
 - For a minimum of Y years
 - For the whole time period

Issue: Selection of benchmark (countries)

- For regions within countries: country
- For countries:
 - European Union
 - Neighbouring countries
 - Other ???

Issue: Availability of innovation survey data

- Not all countries have implemented an innovation survey
- Innovation surveys usually do not cover all industries
- National sample size might be too small to calculate data at NACE 3-digit level for countries
- National sample size might be too small to calculate data at regional level (in particular for more detailed NACE levels)
- Possible alternative data:
 - Exports: products, services
 - Patents
 - Trademarks

Thank You!



- Hugo Hollanders (Maastricht University)
- Email: h.hollanders@maastrichtuniversity.nl