

Border effect and market potential in the European Union

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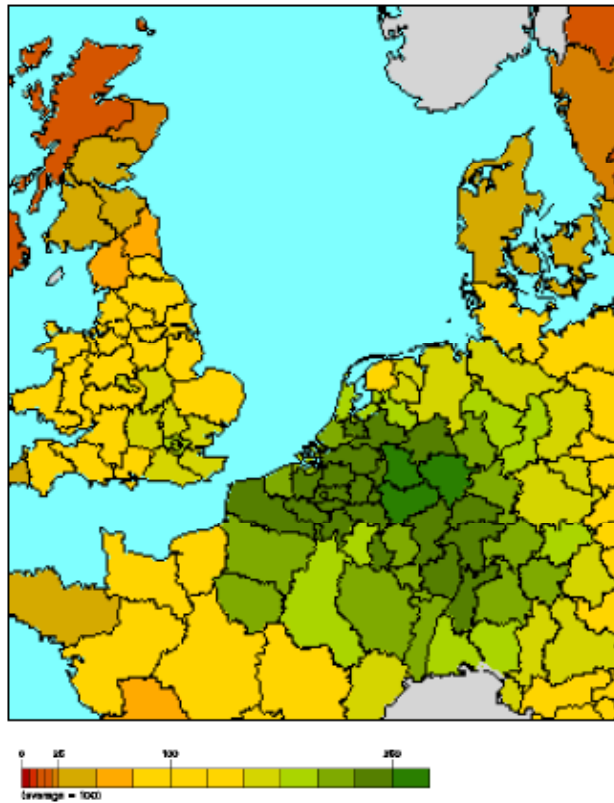
Outline

- **Introduction:** “accessibility” and “border effect”
- **Our objective:** improving accessibility measures
- **Background:** market potential and border effect
- **Methodology:** market potential with border effect
- **Results:** the effect of borders on market potential
- **Conclusions:** relevance for EU policies
- **Further research:** disaggregating the border effect



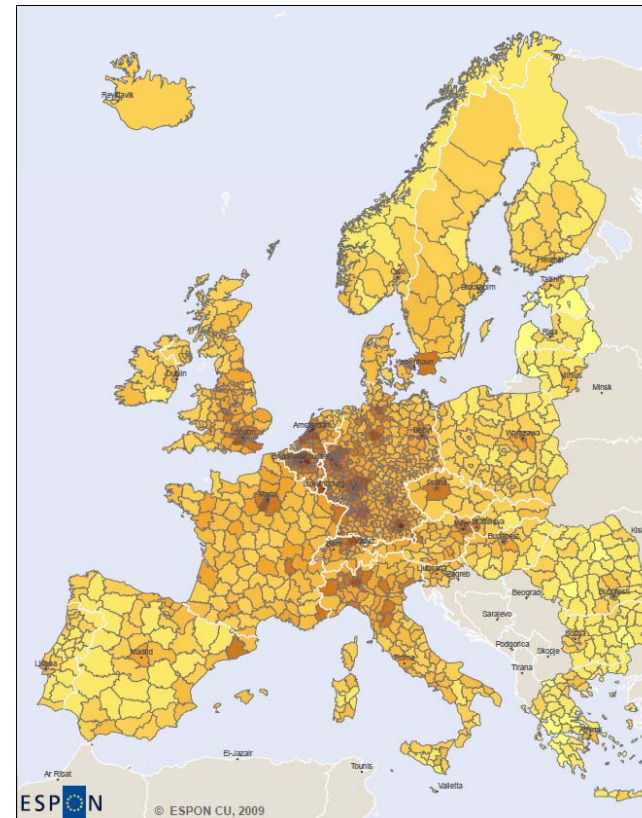
Introduction

Access to GDP by car



Schürmann & Talaat, 2002.

Potential accessibility to markets



ESPON, 2009



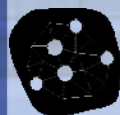
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Introduction

Border effect

			Other things being equal...
1995	McCallum	US-Canadian border	22 times
1996	Wei	Europe	1.7 times
2000	Nitsch	European countries	7 to 10 times
2004	Chen	EU countries	6 times on average

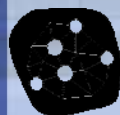


Our objective

- To improve current measures of accessibility to markets in an international framework

HOW?

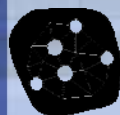
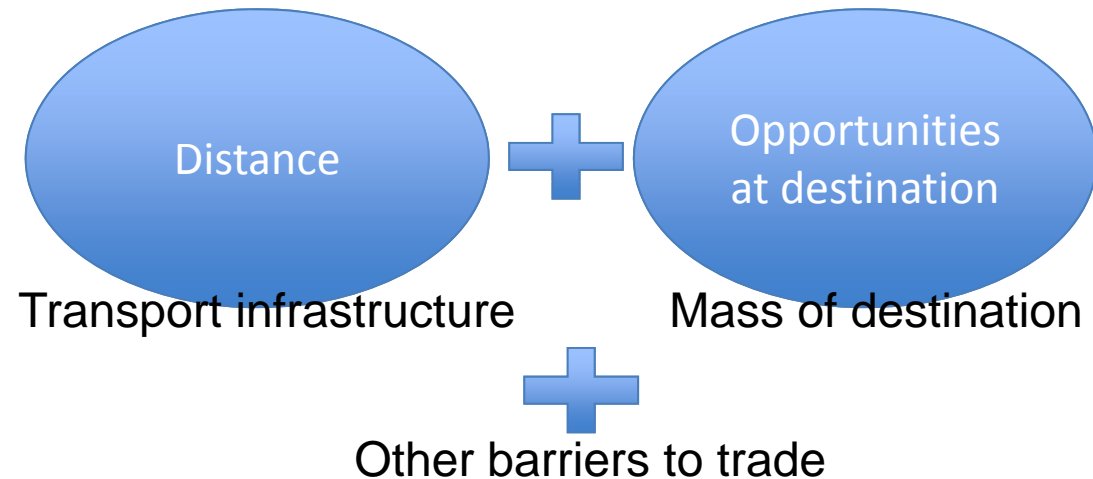
- Accounting for borders as trade barriers



Background

Defining accessibility

The potential for interaction

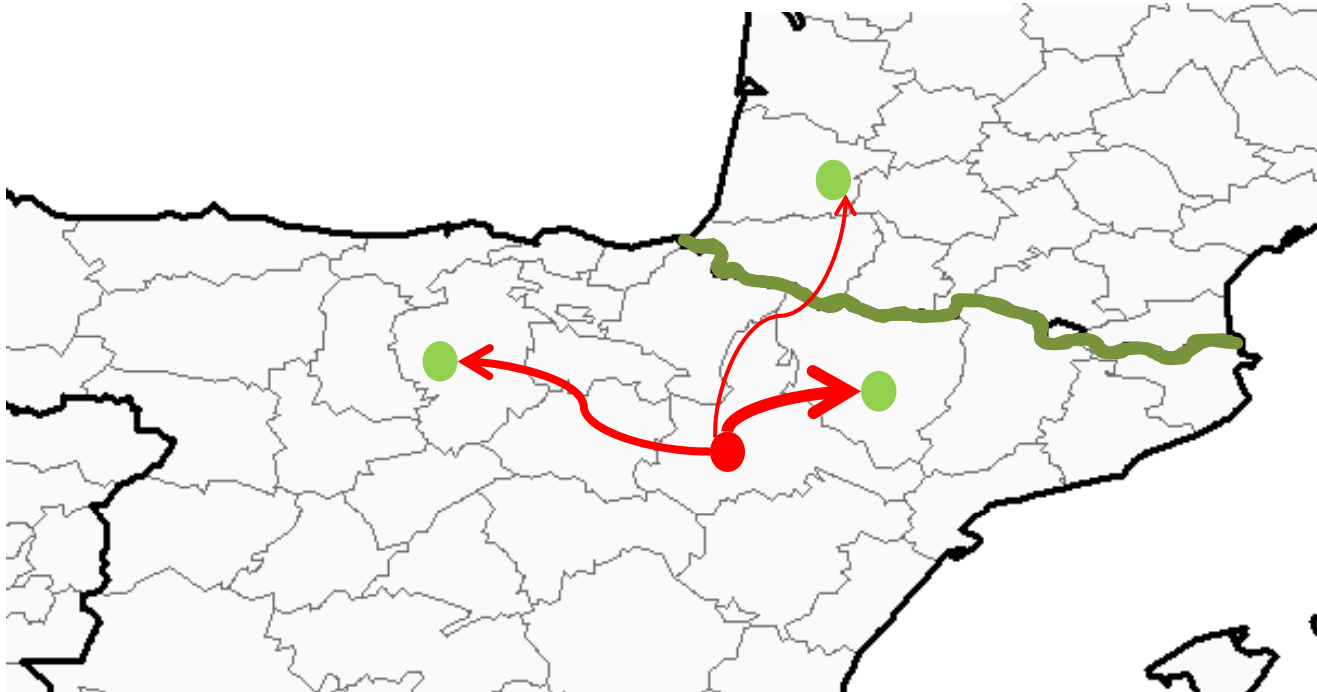


Background

Defining other barriers to trade

The border effect

Trade decreases with **distance**

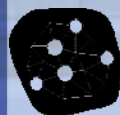
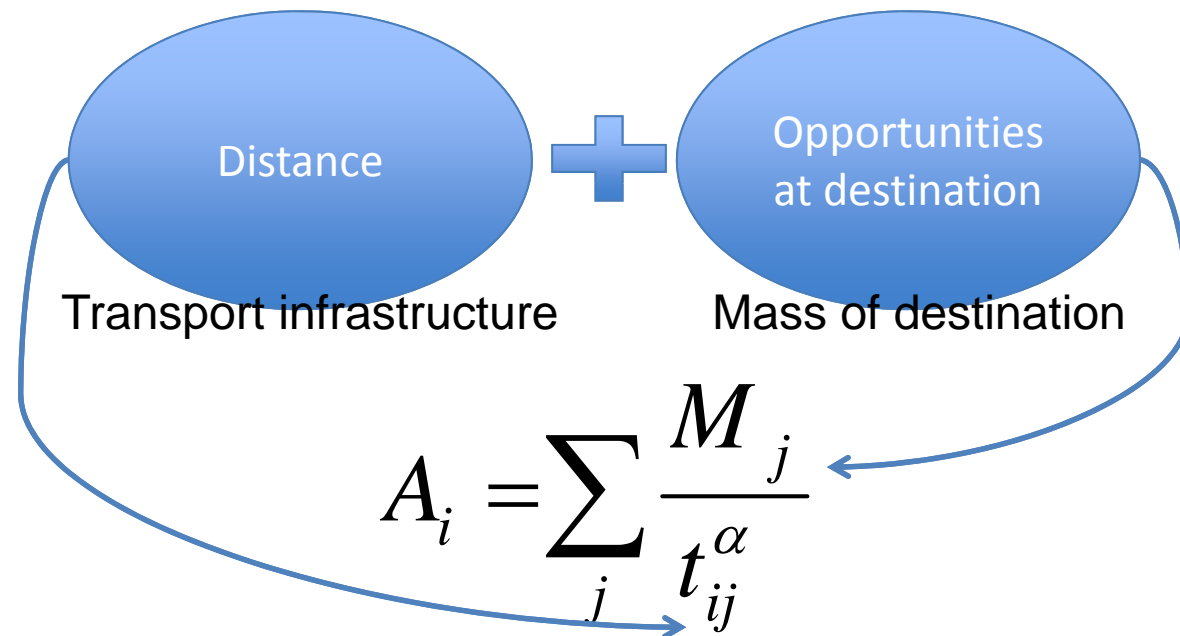


Borders
exaggerate this
trend

Methodology

Measuring accessibility

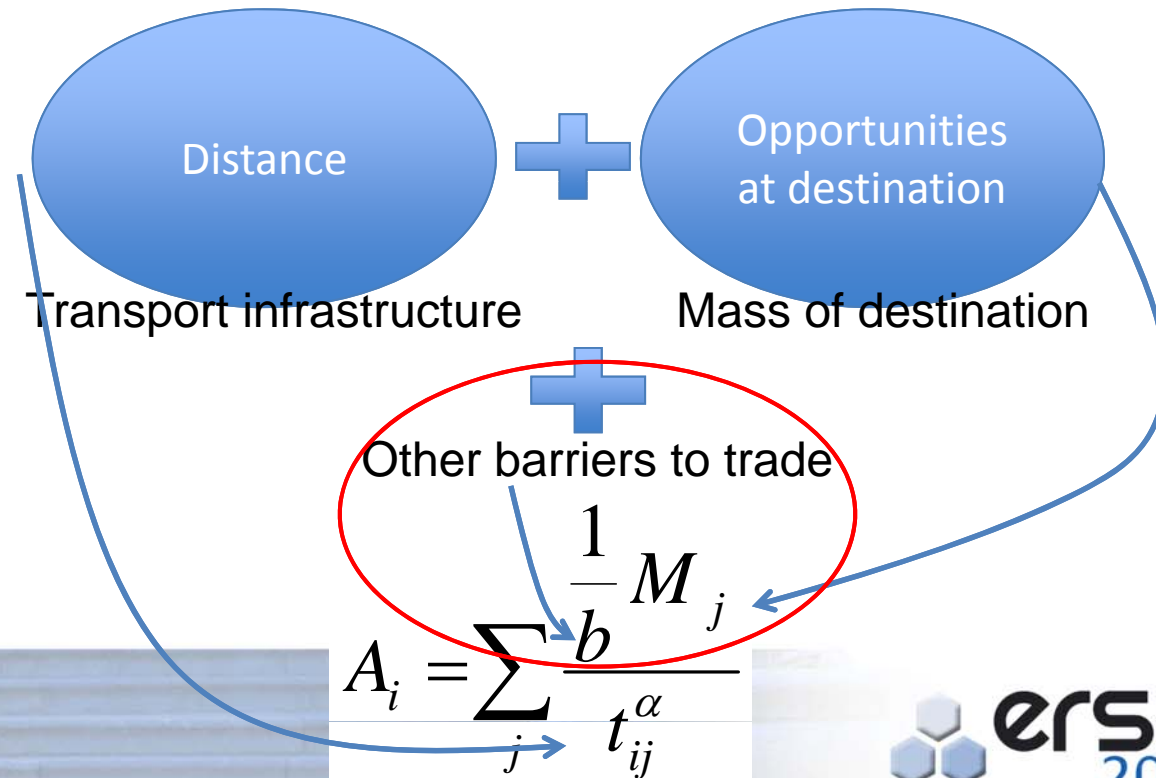
The market potential indicator



Methodology

Measuring accessibility with border effect

The market potential indicator



Methodology

Measuring the border effect

Our choice of a gravity model

Chen, 2004

$$\ln X_{ij} = \beta_0 + \beta_1 \text{home} + \beta_2 \ln Y_i + \beta_3 \ln Y_j + \beta_4 \text{adj}_{ij} + \beta_5 \ln D_{ij} + \varepsilon_{ij}$$

Export
flow

Border

Production
at origin

GDP at
destination

Adjacency

Distance

- Mass at origin (*National production*)
- Mass at destination (*GDP*)
- Distance (*Euclidean, Network, Travel time, Cost*)
- Existence (or not) of an international border: *home*
- Adjacency (or not) between countries

Methodology

Estimating the border effect

Data sources - Country

- Export flows: *Manufactured goods, 2009 (COMEXT, EUROSTAT)*
- Mass at origin: *National production, 2009 (SBS & COMEXT, EUROSTAT)*
- Mass at destination: *GDP, 2009 (RGA, EUROSTAT)*
- Distance (Ferry and road network, travel time and GTC, *TRANSTOOLS*)

Methodology

Estimating the market potential

Data sources – NUTs 2 & 3

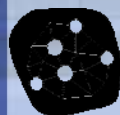
- Mass at destination: *GDP, 2010 (EUROSTAT)*
- Distance and travel time (Ferry and road network, *ETISPlus*)

Results

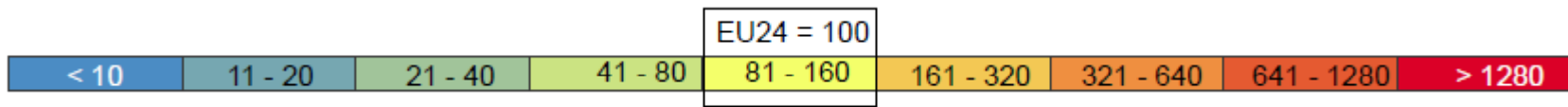
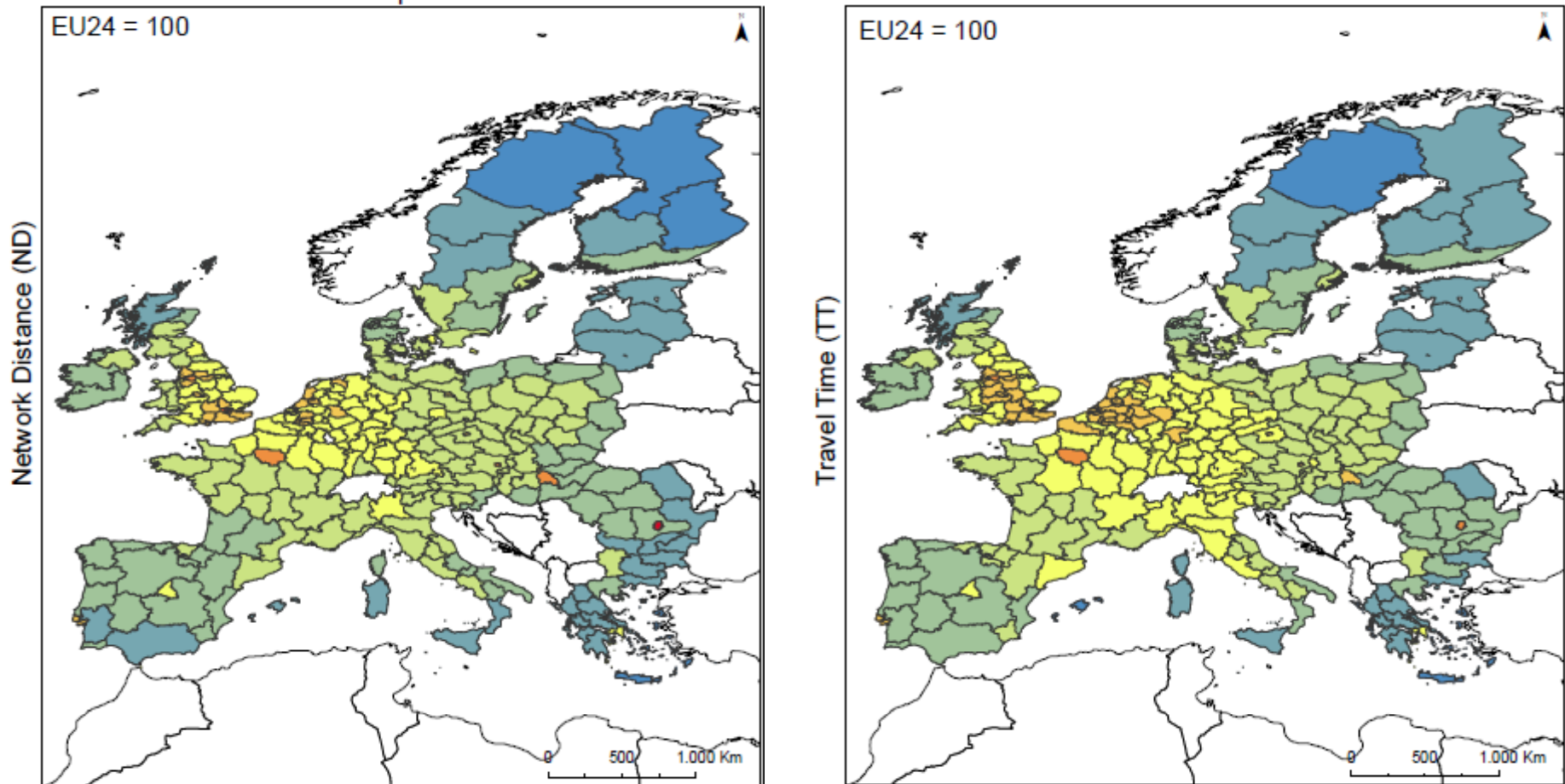
Border effect

	EU24 (exc. CY LU MT)			
	Euclidean	Network	Travel time	GTC
Home	0.795*	1.238*	1.746*	1.484*
Ln Distance ij	-1.520*	-1.567*	-1.325*	-1.650*
Ln Production i	0.860*	0.855*	0.818*	0.879*
Ln GDP j	0.792*	0.790*	0.753*	0.814*
Adj ij	0.214**	0.199	0.419**	0.310**
Observation	24 x 24	24 x 24	24 x 24	24 x 24
S.E.R.	0.726	0.717	0.796	0.722
R ²	0.893	0.896	0.872	0.895
Adjusted R ²	0.892	0.895	0.871	0.894
Border effect [exp.home]	2.215	3.450	5.729	4.411

*, ** denote significance value of t-statistics at 0.01 and 0.05, respectively.



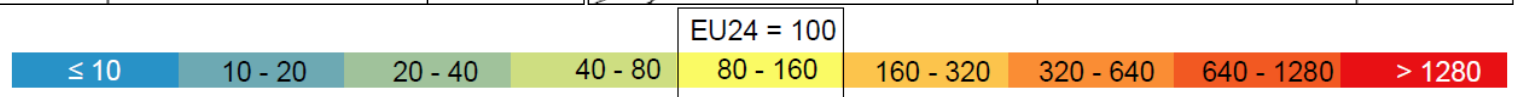
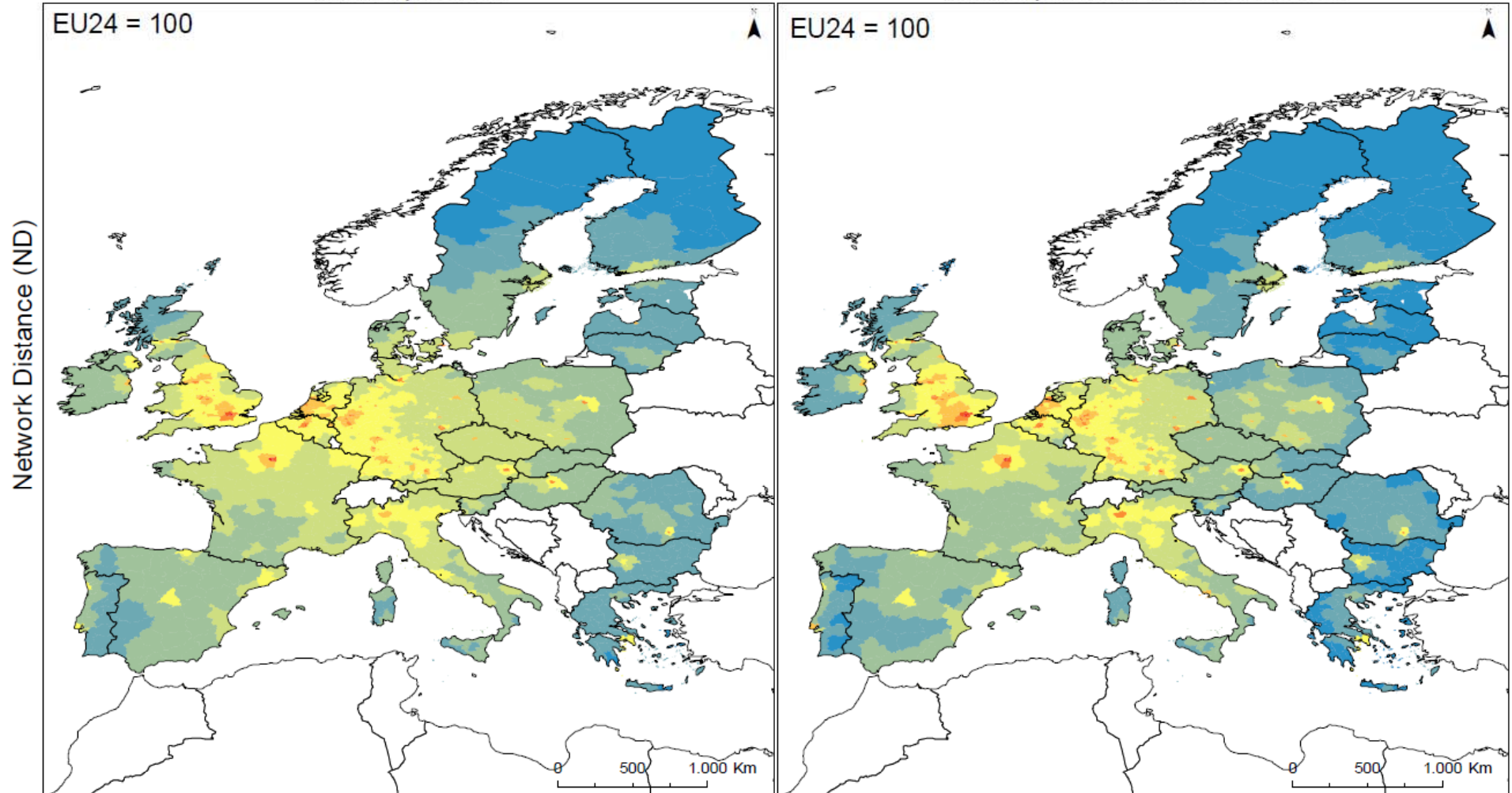
Results. Market potential NUTs 2



Results. Market potential NUTs 3

Market potential

Market potential with border effect

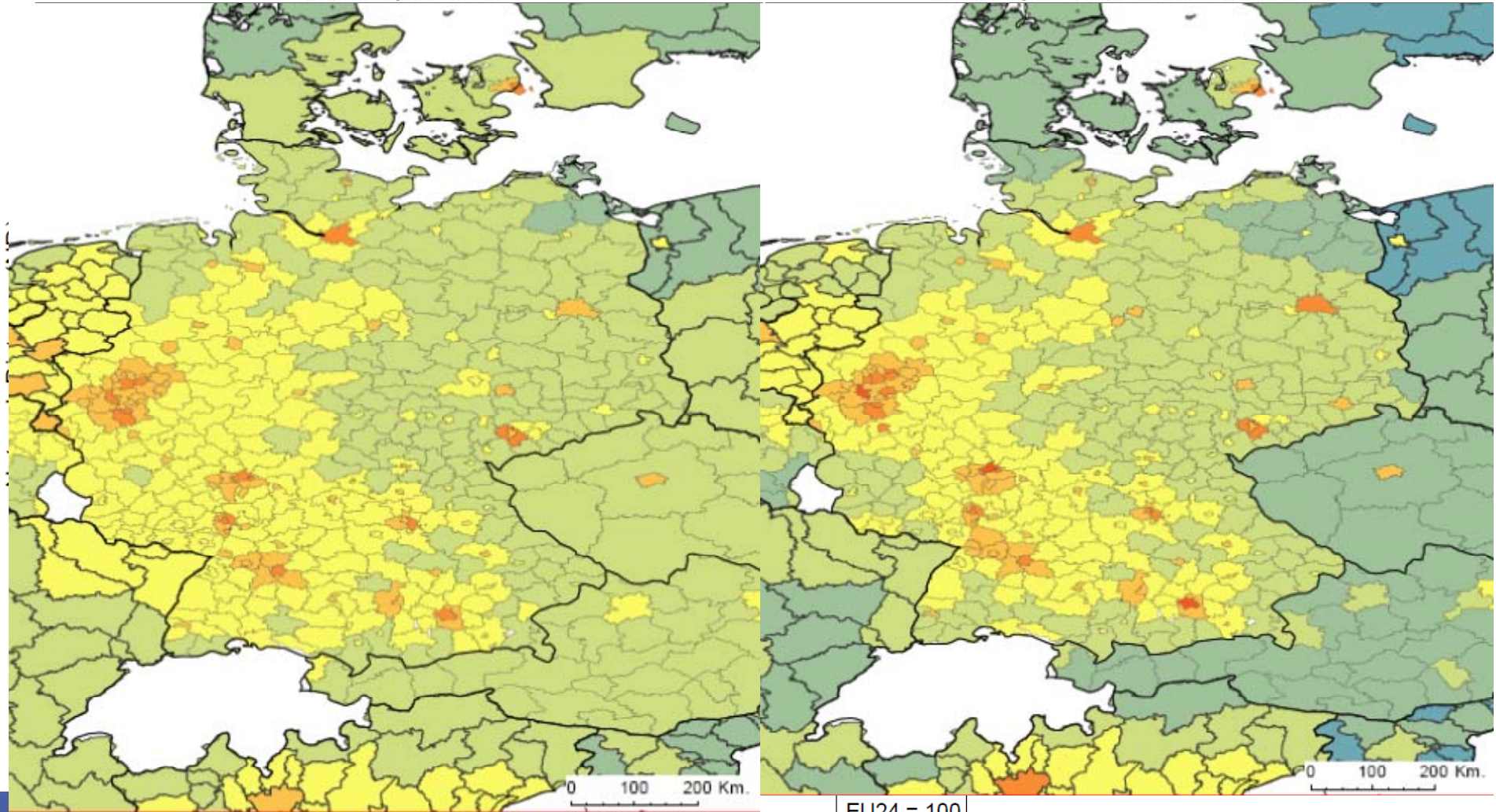


Source: Own work from ETISPlus and EUROSTAT.

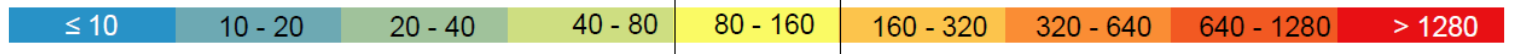
Results. Market potential NUTs 3

Market potential

Market potential with border effect



EU24 = 100

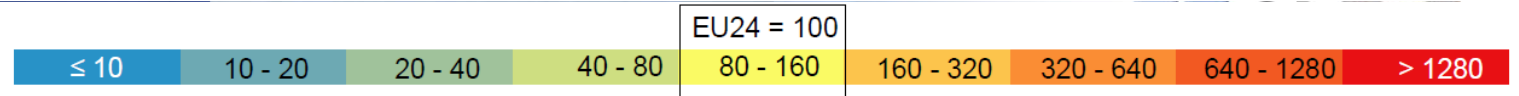
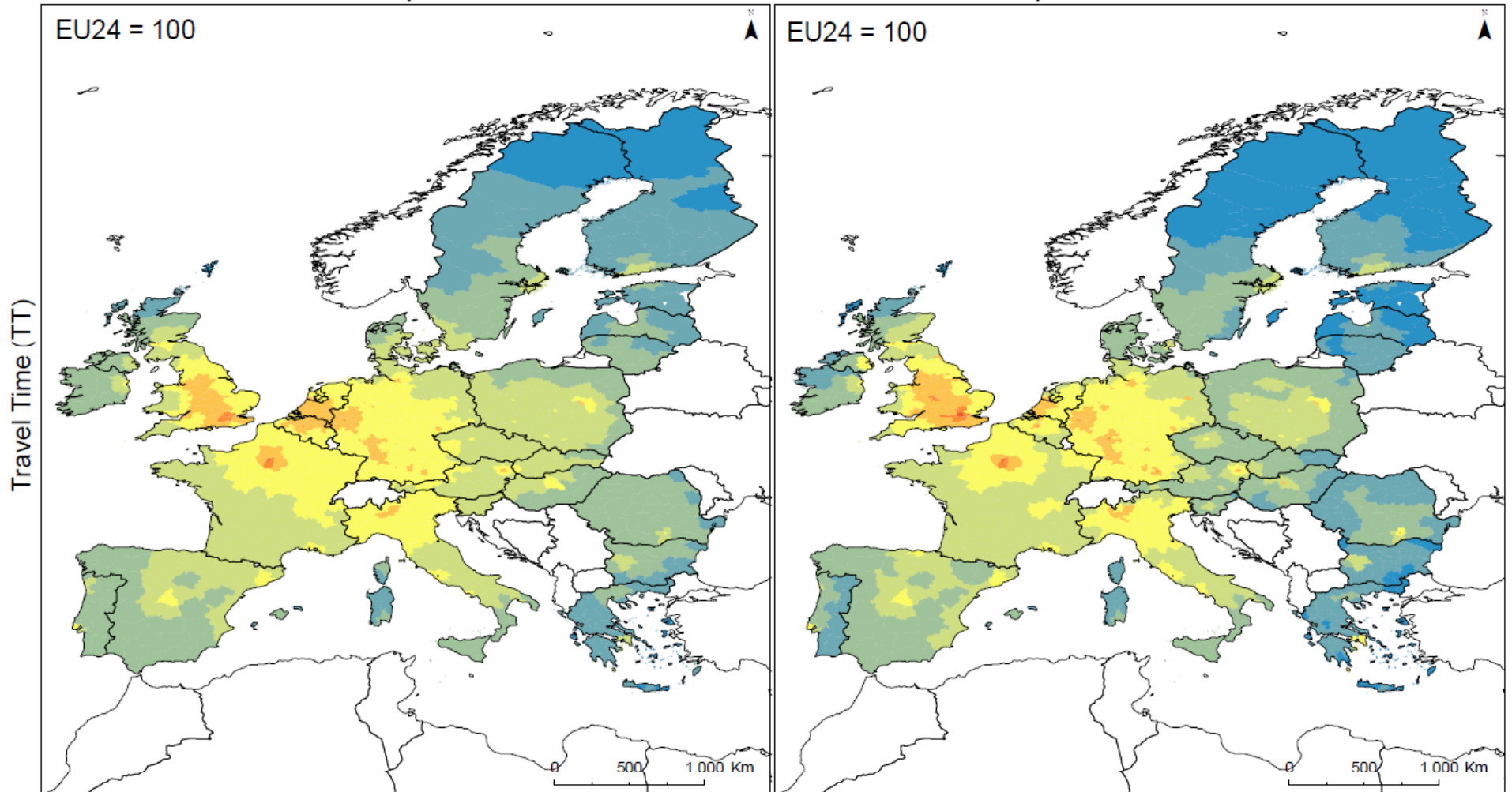


Source: Own work from ETISPlus and EUROSTAT.

Results. Market potential NUTs 3

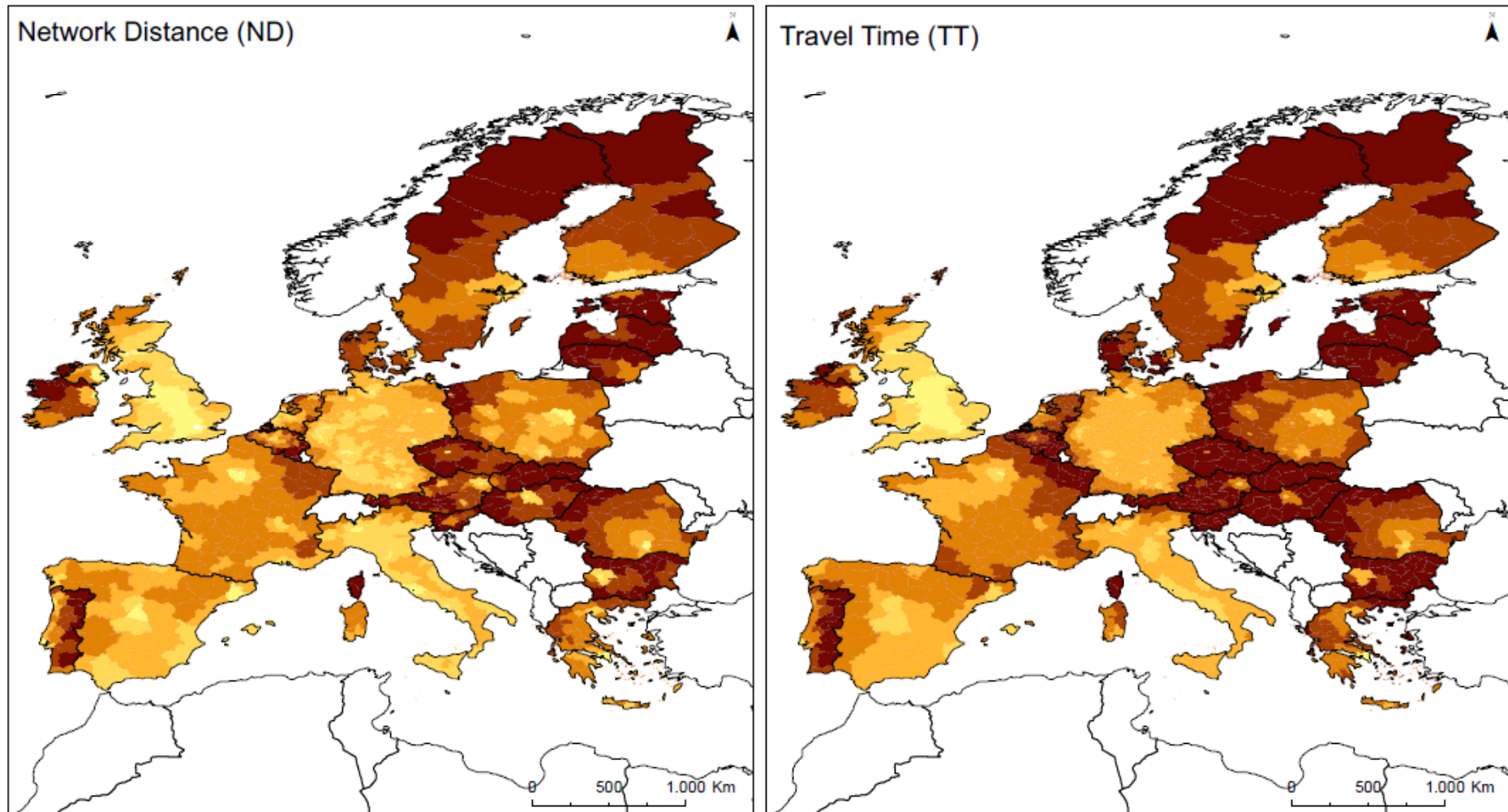
Market potential

Market potential with border effect



Source: Own work from ETISPlus and EUROSTAT.

Results. Loss of market potential



Percentage



Conclusions

- International borders still affect intra-European trade
- International accessibility needs to be calibrated with border effect estimations to avoid overestimation
- The border effect also needs to be integrated in distance decay estimations



Conclusions

- Some regions and countries are more influenced by the border effect than others:
 - Low internal potential
 - Small size
 - Close to large economies



Further research

- What is the role of the MAUP in estimating the border effect and the market potential?
- Estimating and integrating per country and bilateral country-to-country border effect



Questions?

Thank you for your attention

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