

Erasmus  
School of  
Economics

# Regional Economic Diversification and Resilience

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29-1-2021

# This presentation wants to show that:

- Formal and informal **institutions** are related to regional diversification processes and resilience in Europe;
- Smart specialization strategies should include **network**-based impacts and policies next to place-based ones;
- Shocks like Brexit and the corona pandemic have **complex** impacts on regional due to value-chain relations;
- Detailed scientific insight in economic consequences of shocks are increasingly weighted against **institutional and political** arguments;
- Economic shocks and fast (re)development lead to increased urban and regional **inequality**, often magnifying pre-shock trends.

# These arguments are based on:

- “Quality of government and social capital as drivers of regional diversification in Europe”. Cortinovis, Xiao, Boschma & Van Oort, *Journal of Economic Geography* (2017).
- “The implications of Brexit for UK and EU regional competitiveness”. Thissen, Van Oort, McCann, Ortega-Argiles & Husby, *Economic Geography* (2020).
- First outcomes of research for the Dutch Science Council on “Regional economic impact mitigation of Corona-related (de)escalation policies” (9/2020-9/2022).

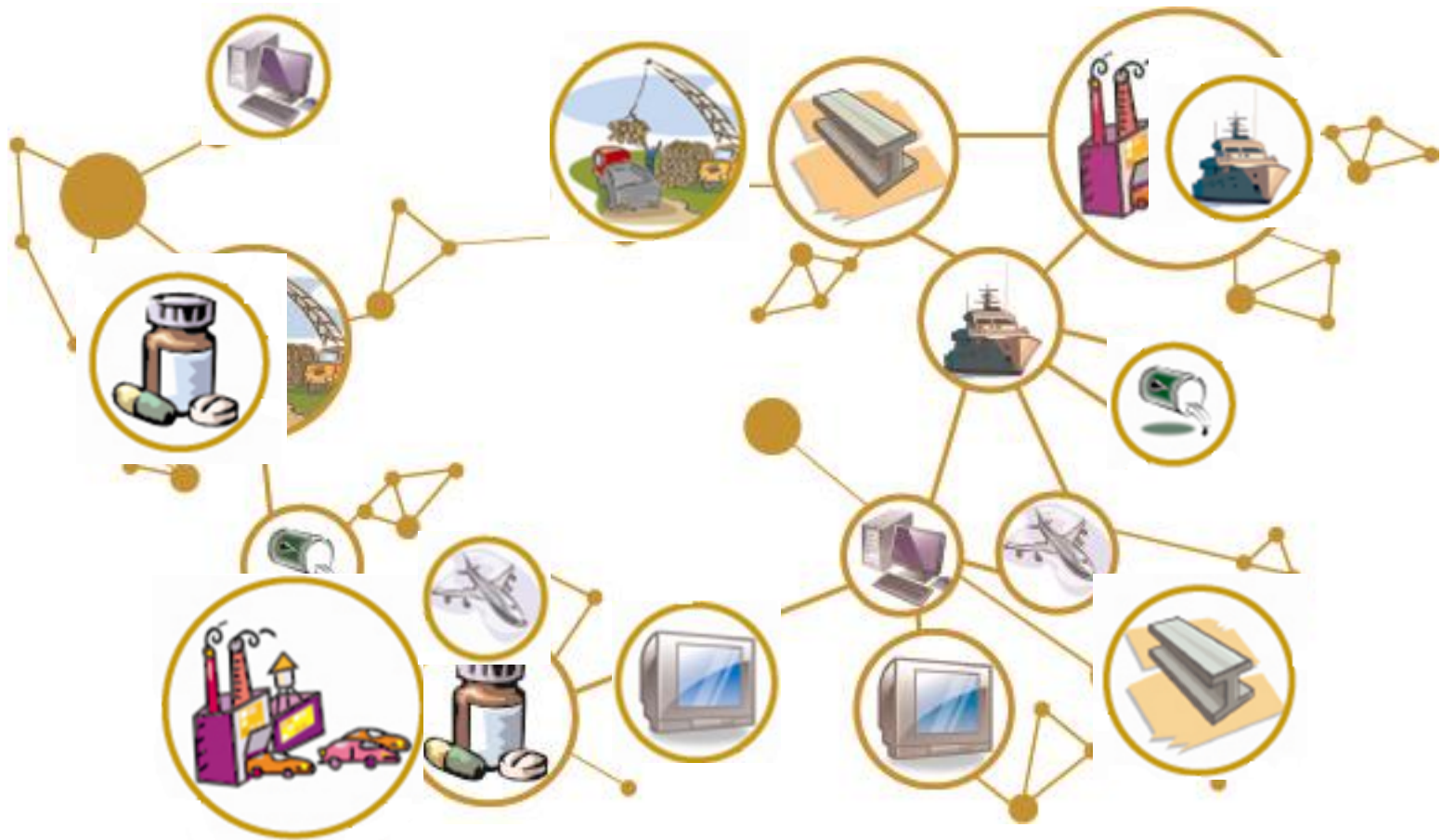
The logo for Erasmus University, featuring a stylized, cursive script of the word "Erasmus" in black.

# Institutions and regional diversification

- Diversification and regional development are tightly linked
- Diversification as a path-dependent process based on sectoral or product relatedness (Frenken et al. 2007, Hidalgo et al. 2007, Neffke et al. 2011)
- Important policy implications in terms of smart specialization and regional resilience
- Skill-relatedness a mechanism of knowledge transfer and innovation
- Discovery process into related and proximate industries and technologies (Boschma 2005, Frenken et al. 2007).

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# Skill-relatedness – job density and mobility





# Institutions and regional diversification

- Institutions: facilitating incentive structures
- Important for regional economic growth (Rodriguez-Pose, 2013)
- Formal institutions: rules and laws
- Informal institutions: social norms and conventions
- With respect to diversification, formal and informal institutions make regional economies efficiently adaptive
- Both types of institutions provide incentives for actors to cooperate, learn and innovate through various channels
- Well-developed formal institutions are likely to allow for and foster diversification.

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# Informal institutions

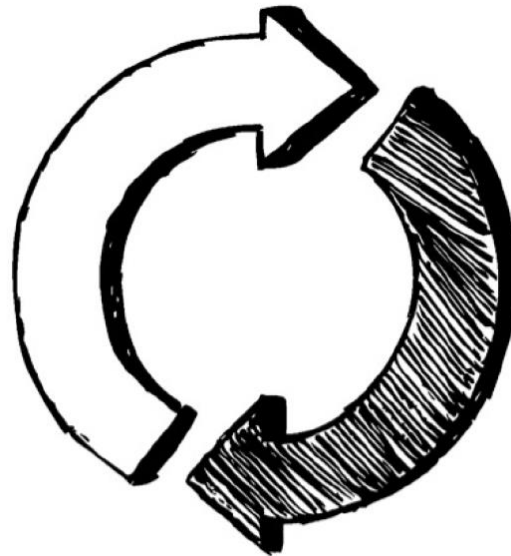
- Social capital (SK) refers to characteristics of a society, like trust, values, social norms and networks of relations
- Two main configurations of SK (Putnam, 2001):
- Bridging SK: broad and encompassing identity and interest (across socio-economic divides);
- Bonding SK: specific identity and narrow stakes (within socio-economic homogeneous groups).
- Trust and bridging SK help knowledge recombination and diversification, while bonding SK reduces the chances for innovation and change.





# Substitution effect

- FI and II play a similar role, as they both stir individual actions and reduce uncertainty and transaction costs.
- If formal rules do not work, informal mechanisms become important: SK matters most when FI are of poor quality (Ahlerup et al. 2009)



*Ahlerup*

# Hypotheses

**Hypothesis 1** The probability that a region becomes specialized in a new industry is positively related to the density of the current sector structure.

**Hypothesis 2a** The probability that a region specializes in a new industry is positively related to the quality of its FI;

**Hypothesis 2b** The probability that a region specializes in a new industry is positively related to its levels of trust and bridging SK;

**Hypothesis 2c** The probability that a region specializes in a new industry is unrelated or negatively related to the level of bonding SK.

**Hypothesis 4a** : Bridging SK has a stronger positive effect on the probability that a region specializes in a new industry when quality of FI is low;

**Hypothesis 4b** Bonding SK has a stronger negative effect on the probability that a region specializes in a new industry when quality of FI is low.

A stylized, handwritten-style logo for Erasmus, featuring a large, flowing 'E' followed by the word 'Erasmus' in a cursive script.

# Measurement

- **EQI**: quality of government indicator by the University of Gothenburg (observed in 2010).
- Social capital computed on survey data from the European Value Study:
  - ① **Trust**: share of respondents affirming that most people can be trusted (observed in 1999);
  - ② **Brid. SK**: the share of respondents volunteering in bridging type of associations (observed in 1999);
  - ③ **Bond. SK**: the share of respondents volunteering in bonding type of associations (observed in 1999).

# Informal institutions

Table: Bonding and bridging SK

<i>Associations–Organizations</i>	<i>Type</i>
Social welfare organizations	—
Religious organizations	<b>Bridging</b>
Cultural activities	<b>Bridging</b>
Trade unions	<b>Bonding</b>
Political parties/groups	<b>Bonding</b>
Local community action	—
Third World development/Human rights	—
Environment, ecology, animal rights	—
Professional associations	<b>Bonding</b>
Youth work	<b>Bridging</b>
Sports/Recreation	—
Women's groups	—
Peace movements	—
Voluntary health organizations	—
Others	—

# Measurement

We resort to the following datasources for our analysis:

- ORBIS database by Bureau Van Dijk (2004–2012);
- European Values Study (1999);
- Regional quality of government database (2010);
- Cambridge econometrics and Eurostat. (2004-2012)

Our dataset contains information on 323 tradable sectors, for 118 NUTS1-NUTS2 regions in 13 European countries for the four 5-year periods.

# Hypothesis 1: density and diversification

VARIABLES	Model (a)	Model (a)	Model (a)
density	0.0208***	0.0208***	0.0219***
	0.00127	0.00128	0.00137
growth rate		0.0770***	
		0.0226	
Pop. density		0.000808**	
		0.000352	
GDP		-0.000976***	
		0.000368	
Capital formation		0.000908	
		0.000591	
Constant	0.0126***	0.0156***	0.00667
	0.000418	0.00156	0.00723
Observations	99,037	99,037	99,037
R-squared	0.025	0.025	0.033
Industry_year FE	YES	YES	YES
Region_year FE	NO	NO	YES

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



# Hypothesis 2: institutions and diversification

VARIABLES	Model (b) EQI	Model (b) Trust	Model (b) SK	Model (b) EQI – Trust	Model (b) EQI – SK
density	0.0208*** 0.00129	0.0205*** 0.00129	0.0203*** 0.00129	0.0206*** 0.00129	0.0204*** 0.00130
EQI	9.72E-06 0.000428			-0.00057 0.000442	-0.000341 0.000444
Trust		0.00136*** 0.000444		0.00156*** 0.000458	
Brid. SK			0.00223*** 0.000669		0.00233*** 0.000681
Bond. SK			-0.000332 0.000456		-0.000415 0.000474
Observations	99,037	97,768	97,768	97,768	97,768
R-squared	0.025	0.025	0.026	0.025	0.026
Industry_year FE	YES	YES	YES	YES	YES
Region_year FE	NO	NO	NO	NO	NO
Control Vars.	YES	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

# Hypothesis 4: substitution effect

VARIABLES	Model (b) Low EQI – Trust	Model (b) Low EQI SK	Model (b) High EQI – Trust	Model (b) High EQI SK
density	0.0212*** 0.00257	0.0207*** 0.00257	0.0270*** 0.00386	0.0269*** 0.00387
EQI	-0.000503 0.00104	-0.000109 0.00101	0.00049 0.00607	-0.00571 0.00671
Trust	0.00137 0.00096		0.000669 0.00135	
Brid. SK		0.00469*** 0.00136		0.00224* 0.00121
Bond. SK		-0.00188** 0.000835		0.00317 0.00194
Observations	28,419	28,419	15,954	15,954
R-squared	0.067	0.068	0.088	0.089
Industry_year FE	YES	YES	YES	YES
Region_year FE	NO	NO	NO	NO
Control Vars.	YES	YES	YES	YES

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



# This presentation wants to show that:

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# International network impacts on regional resilience



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# How does Brexit impact on regional competitiveness?

- Exposure, impact, competitiveness (hard/soft Brexit)
- Direct & indirect (value chain) effects
- Regional analysis of resiliance

# Methodology in short:

Shock: **(non)tariff impact** on trade

- 1) Affects costs
- 2) via trade relations
- 3) having regionally different impacts



IO price model

Regionally different costs lead to:

- 1) Spatial different *relative* costs
- 2) that are region specific due to their
- 3) **revealed competitive** position



Revealed competition

# Direct Brexit-related costs:



Sales price increase firm

Tariff

Export share region

$$\pi_{n,r} = \sum_{r'} \tau_{n,r,r'} \gamma_{n,r,r'}$$

Region

Sector

The diagram shows the equation  $\pi_{n,r} = \sum_{r'} \tau_{n,r,r'} \gamma_{n,r,r'}$ . Arrows point from 'Sales price increase firm' to  $\pi_{n,r}$  and from 'Region' to  $\pi_{n,r}$ . Arrows point from 'Tariff' to  $\tau_{n,r,r'}$  and from 'Sector' to  $\tau_{n,r,r'}$ . An arrow points from 'Export share region' to  $\gamma_{n,r,r'}$ .

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# Indirect Brexit-related costs:

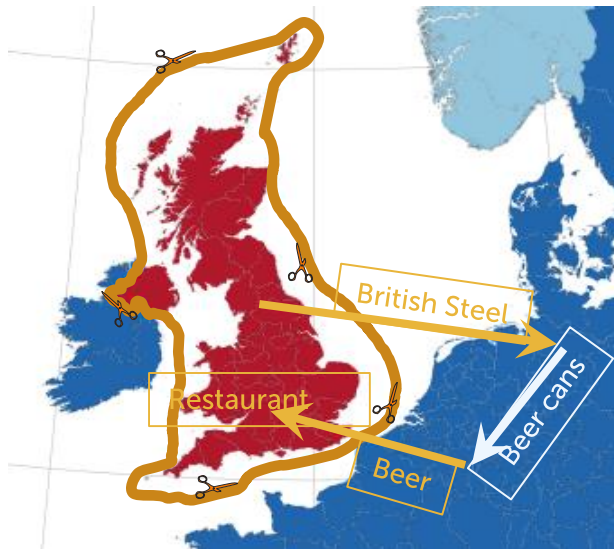


BBC Radio Foyle @BBCRadioFoyle · Feb 28  
Coming up on The Breakfast Show:

The owner of Kinnegar Brewery in Letterkenny has been speaking to @BurtonWill about #Brexit. Rick Lavert says a no-deal Brexit could affect every part of his business, even down to the beer bottles.



1 2 5



Illustrative example of the Brexit-related impact on the price of beer in the United Kingdom:

1. A tariff is imposed on British steel
2. The German company that uses British steel to produce beer cans has to pay more – their production costs increase
3. The more expensive German cans are bought by a brewery in Belgium – their beer becomes more expensive
4. The beer from Belgium is exported to the United Kingdom. A tariff is imposed on the beer imported into the UK – the price of the beer increases even further.

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# Value chain effects:

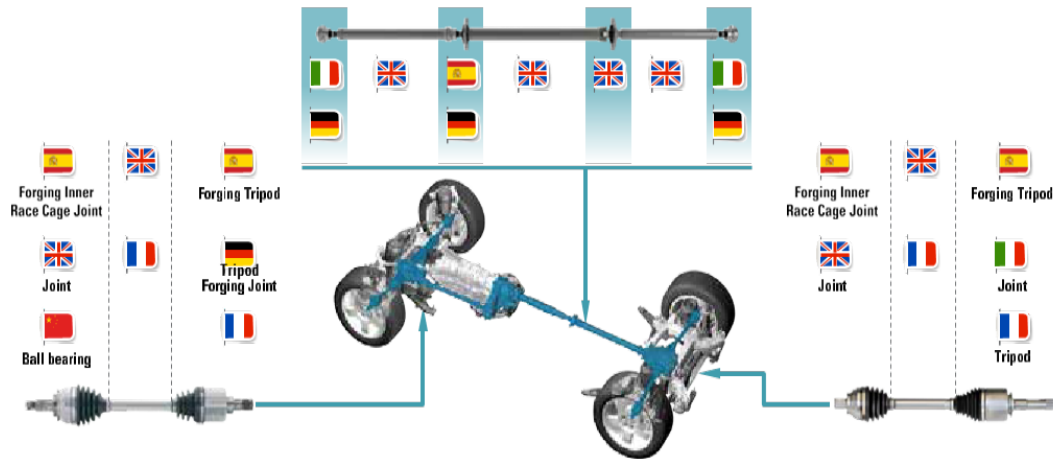
## Impact of tariffs on integrated supply chain - Tier 1

Case study

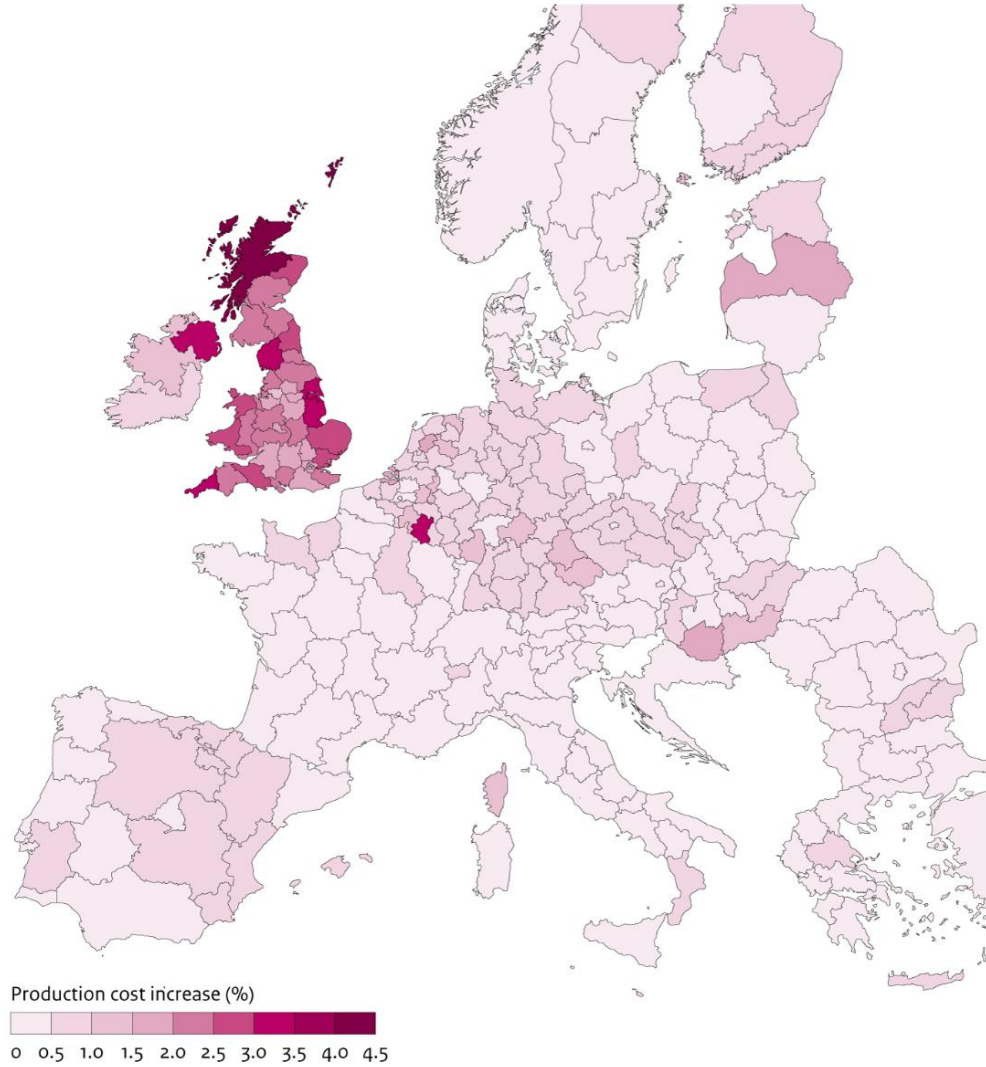
### GKN Driveline – Illustration of an integrated supply chain

**A typical driveline system produced by GKN incorporates specialist parts largely from the rest of the EU.**

GKN sources specialist forged parts from Spain, Italy, France and Germany which are then assembled at GKN Driveline's factory in the UK and supplied to UK and EU OEMs.



### Total production cost increase in hard-Brexit scenario in EU regions



Source: PBL





Vote to Leave

**BETTER FOR FAMILY BUDGETS. MEANING  
LOWER BILLS FOR HARD-PRESSED FAMILIES.**

[CLICK HERE](#)



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**This is an analysis “before policy changes”.**  
**These may be:**

- Structural change policies
- Fiscal and interest rate policies
- Policies on input factors (labour, capital, FDI)
- Agricultural production policies
- Competitiveness policies (place and industry specific)

But... Brexit is killing investment

**UK Auto investment**  
**£2.6bn in 2015;**  
**£1.1Bn in 2017**



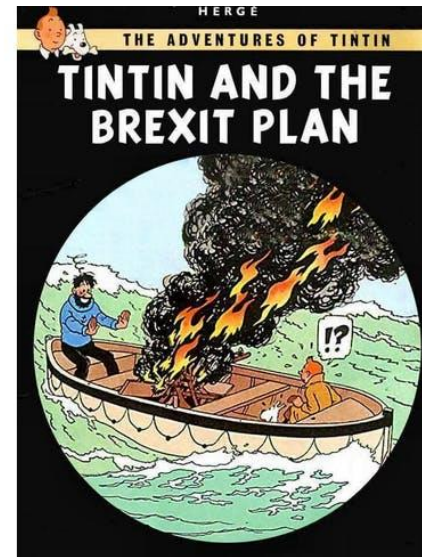
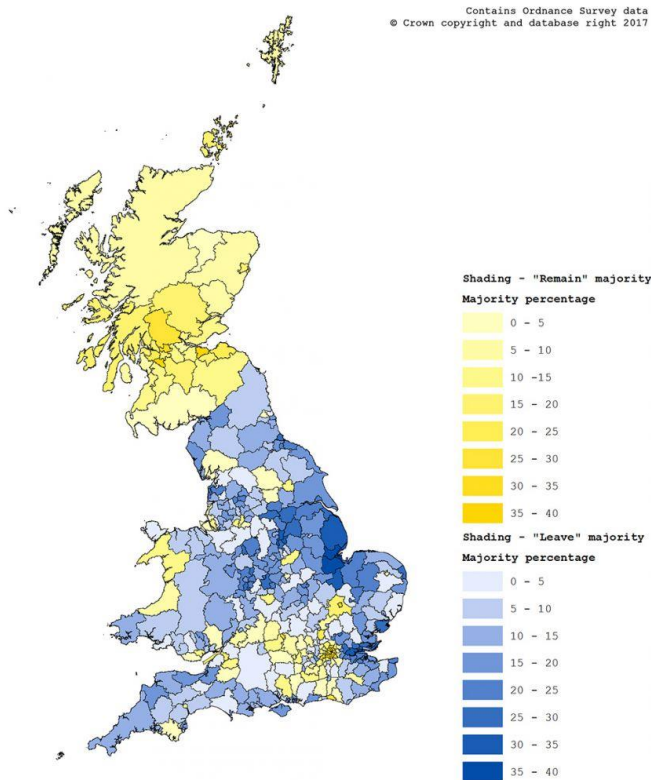
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# The "geography of discontent"



2:41 PM - 16 Jan 2018

5,778 Retweets 11,491 Likes



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Yes Minister (1980)

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# Findings Brexit studies:

- The effects of a hard and soft Brexit scenario on regional production costs and competitiveness are much higher for sectors and regions in the UK than in the EU as a whole.
- There are strong regional distributional effects via changes in competitiveness with winners and losers (also within the UK). However, winners in the UK do this at the cost of other UK regions.
- Both the impact on UK regions and the possible gains from a good deal for stronger UK regions will cause regional differences in the UK to increase (inequality).
- The competitiveness implications for the EU are on average a smaller mirror-image of the UK effects.

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# The corona pandemic is a much more complicated shock:

- Supply, demand and intermediate deliveries are affected **simultaneously** on a global interregional scale.
- E.g. demand for beer by Heineken
- E.g. supply of beer by Heineken
- E.g. intermediate deliveries from and to Heineken









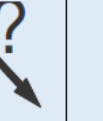


# The corona pandemic is a much more complex shock:

- The example shows that the complexity of product markets is increasing rapidly in case of a pandemic with varying demand and supply restrictions, with input output and direct and indirect value chain effects in various international regions and industries occurring simultaneously, with varying competitiveness effects.
- An analysis for 'corona impacts' as encompassing as the analysis of the Brexit impacts is therefore at this moment less feasible,
- An analysis on individual region- and industry-specific policy measures introduced by national or regional policy related to the (un)certainty of impact may be more useful to explore, (Conte et al. 2020, Guan et al. 2020, Van Oort et al. 2020).



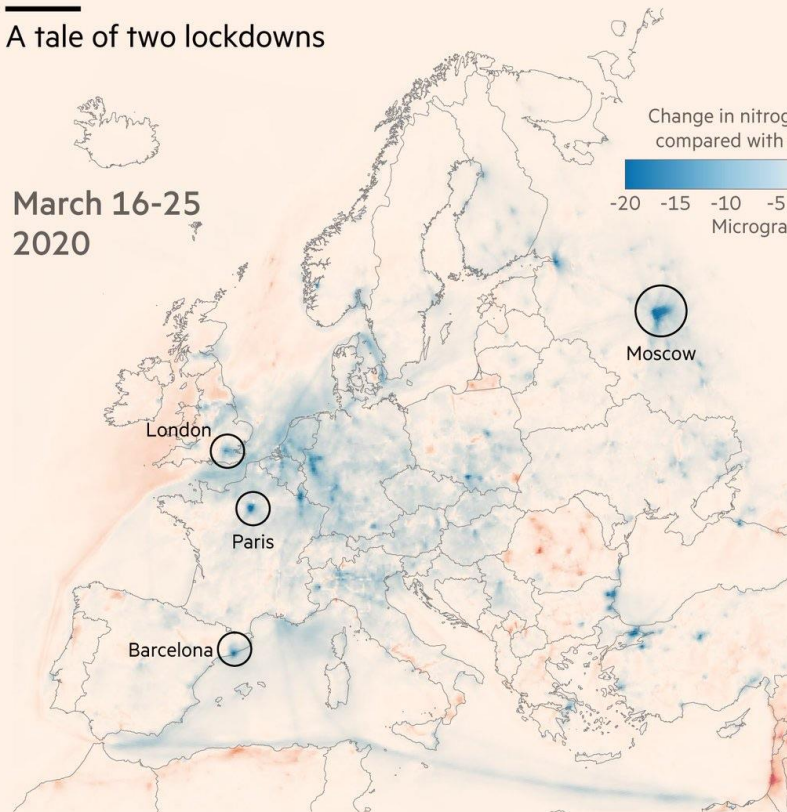


# Scenario's

	Generic measures					Industry specific measures			Behavioral changes		
	 Keep distance at work	 Working from home	 Closure of schools	 Contact professions closure	 Public transport closure	 Hospitality closure	 Museums and sports closure	 Firms closure (non/crucial)	 Less expenditure due to uncertainty	 Changing consumption patterns	 Changing consumption patterns of elderly
Basic measures	100%					5%					25%
Light Measures	100%	25%				10%					50%
Strong measures	100%	50%			100%	25%			50%	50%	100%
Partial lockdown	100%	100%	50%	50%	100%	50%	50%		100%	100%	100%
Severe lockdown	100%	100%	75%	100%	100%	90%	90%		125%	125%	100%
Full lockdown	100%	100%	100%	100%	100%	90%	90%	90%	150%	150%	100%

## A tale of two lockdowns

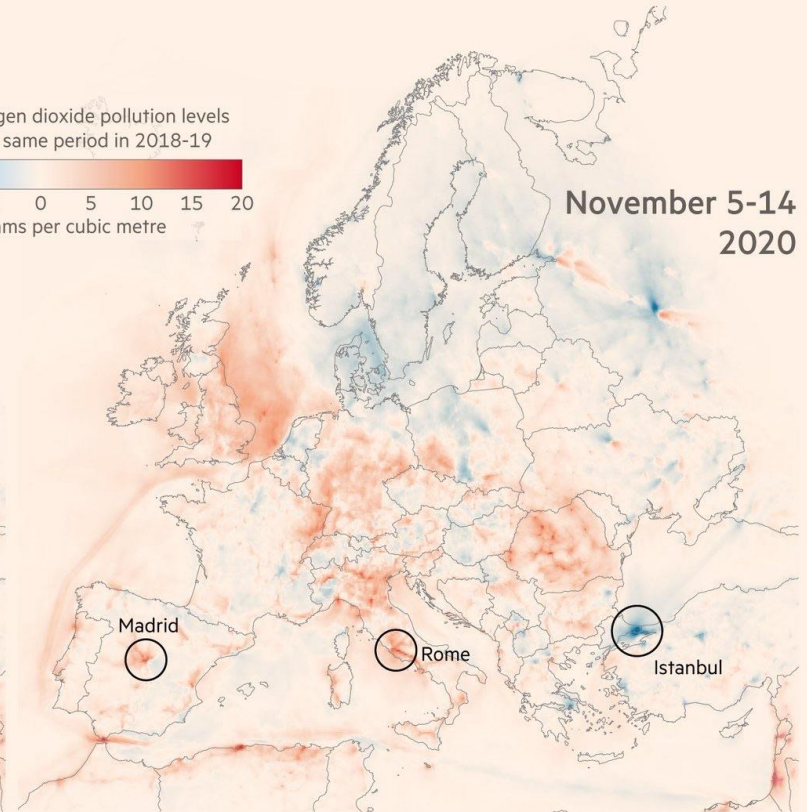
March 16-25  
2020



The restrictions imposed across Europe in March had a significant impact on the amount of NO<sub>2</sub> pollution recorded. Major cities were the beneficiaries of fewer vehicles on the roads resulting in much cleaner air

Source: Copernicus Atmosphere Monitoring Service information 2020  
© FT

November 5-14  
2020



The most recent lockdowns imposed by governments, have been far less restrictive in terms of curbing travel. This can be seen in the emissions data, which in many places are actually higher than previous years

Cartography: Steven Bernard

# Corona economic mitigation project:

- Inventory of regional and/or sectoral specific policies (roadmap)
- Short-term impacts on GDP, employment and competitiveness of firms (in sectors), directly and indirectly via value chains, with degrees of (un)certainty
- Long-term impacts on structural change (transitions), reshoring, labour mobility, skill-relatedness: interregional complementarities and resilience
- Interactive learning trajectory with policymakers

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**Thank you for your attention**

**Erasmus University Rotterdam**

