Urban-rural interactions

More important than ever!

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Overview

- Theoretical background urban-rural interactions
- Study I: Economic performance EU level
- Study II: Employment growth NL level
- Places or people?

Main message

- Several descriptive studies show that intermediate and accessible rural areas performed better than large cities and remote rural areas. (Dijkstra etal., 2015; van Leeuwen 2017)
- Urban and rural areas need each other:
    - They **benefit** from each other
    - They **depend** on each other

- Even more so in the post-2020 Cohesion policy period!

Urban-rural interactions

Theoretical background

- What distinguishes urban from rural?
    - DENSITY
- Agglomeration advantages: economies of scale/network effects
    - Transport costs
    - Consumer market
    - Labour market
    - Knowledge spill-overs

And rural areas?

- Capacity advantages
    - Economies of Space
    - Economies of Scale of Ecosystem services

Urban-Rural interactions?

- Labour market
- Consumer market
- Industry linkages (e.g. Food, energy)
- Recreation variety
- Cultural linkages (shared history, cultural heritage)
- Ecosystem linkages (flood prevention, air purification)

How to measure the extent of interaction?

- Labour market flows
    - Exchange of workers and job opportunities
- Migration flows
    - Exchange of ideas
- Consumption flows
- Transport flows
- Nutrient flows

Or simply proximity

EU-level

Urban-rural proximity and economic performance

The impact of interregional patterns

Relationship between urban-rural interactions and economic performance.

- Effect of proximity to regions that differ in level of urbanity
- Control for spatial configuration within the region
- EU-Nuts3: 1075 regions, 2000-2007

Joint work with Daniel Arribas-Bel, University of Liverpool

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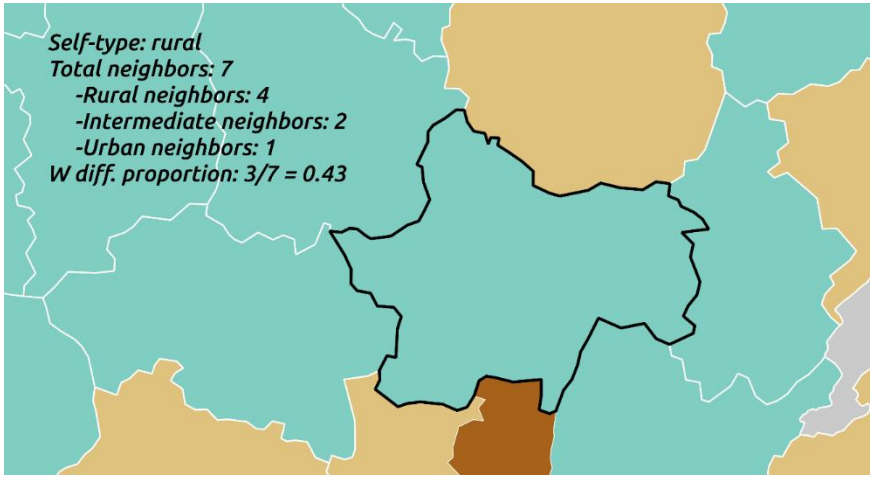
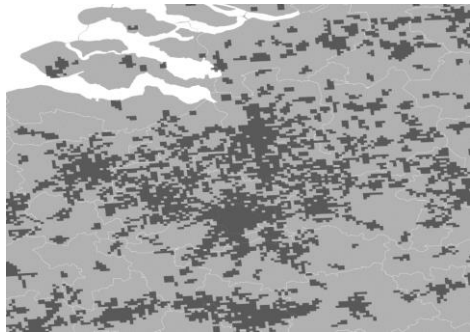
Interregional interactions

- Share of different neighbours
    - Contiguity spatial weights matrix



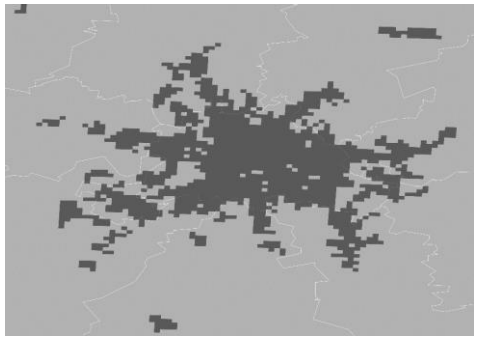
Intra-regional patterns

- The number of urban clusters within the region
  - Normalised by population
  - Larger value, more scattered pattern



Brussels

- Shape (or compactness) of the urban clusters
  - Compares the shape with a square
  - Higher values, less compact (more complex)



Berlin

Empirical Strategy

$$\Delta y_i = \alpha + \rho \sum_j^N w_{ij} \Delta y_j + UR_i\gamma + X_i\beta + u_i$$

Spatial lag model

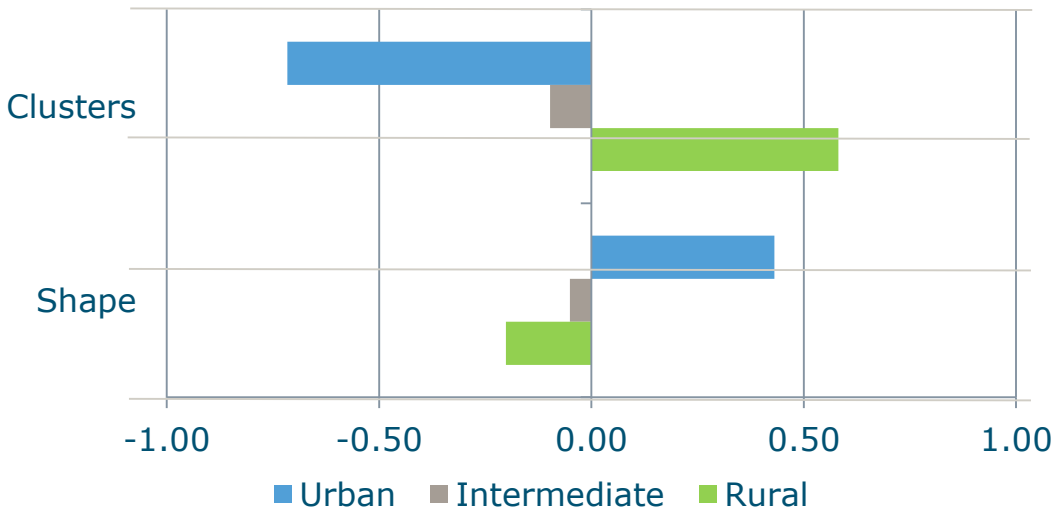
y_i =employment; GDP; Population

UR_i = intra regional characteristics (cluster and shape); distance to large city; share of different neighbors

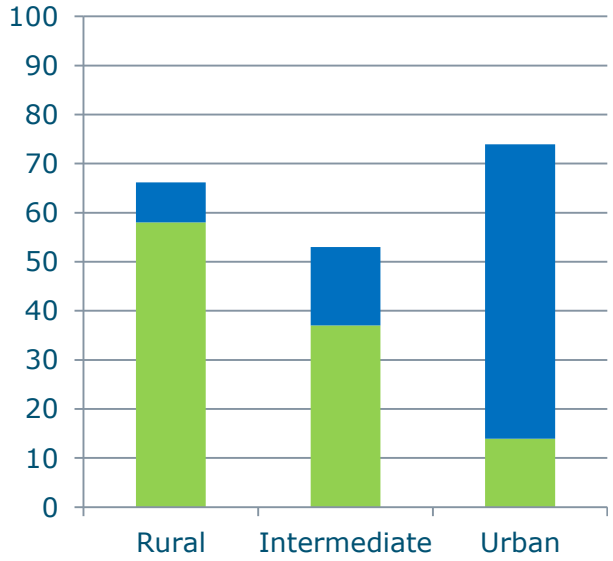
X_i = 2000 levels; LQ; period entering EU

Descriptives spatial variables

Intra-regional



Inter-regional



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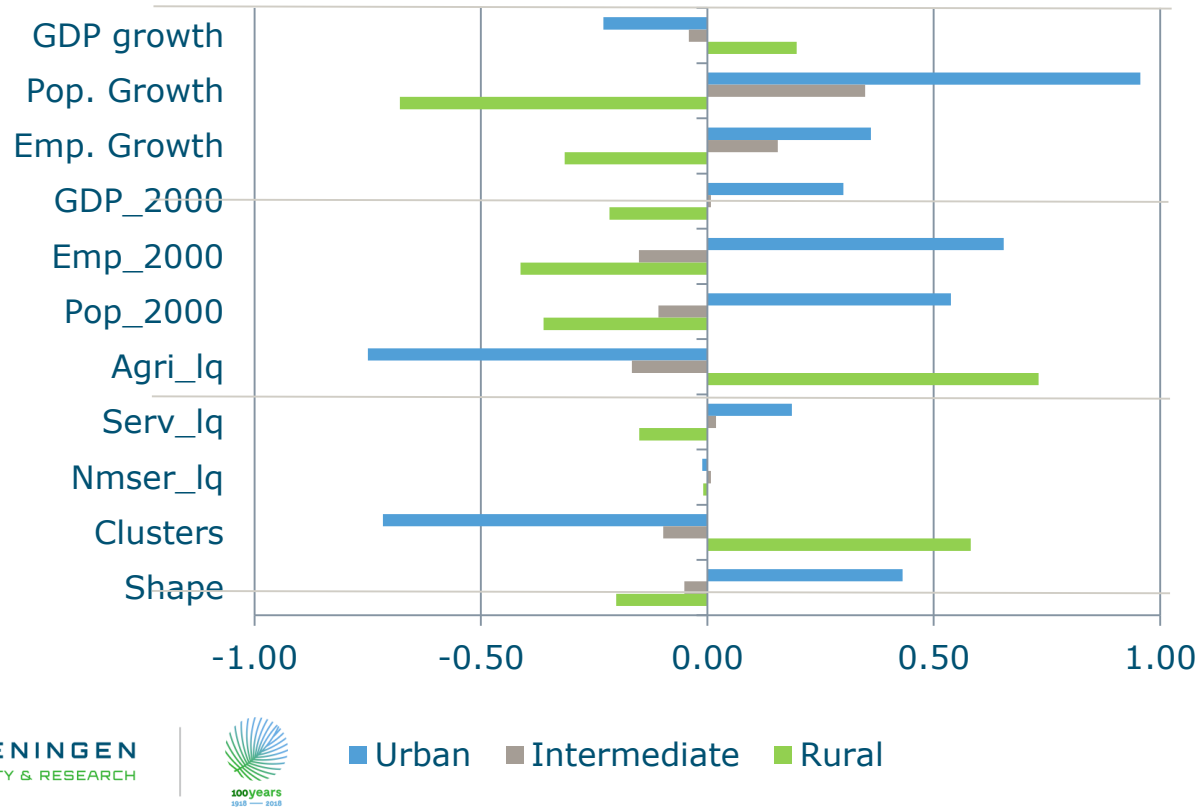
Descriptives all variables



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Results

	Employment								GDP		Population	
	1		2		3		**4**					
CONSTANT	-9.224	*	-6.144		-3.056		**-5.408**					
Emp_00	-0.056	***	-0.051	***	-0.043	***	**-0.049**	***				
GDP_00	0.000		0.000		0.000		**0.000**					
Pop_00	0.027	***	0.024	***	0.019	***	**0.023**	***				
W_dep			0.283	***	0.139		**0.367**	***				
EU_b	10.111	***	7.665	***			**6.756**	***				
EU_c	5.097	***	4.502	**			**4.388**	**				
lq_agr00	-2.110	***	-2.124	***	-2.874	***	**-2.263**	***				
lq_nms00	1.138		-0.742		-1.846		**-1.604**					
lq_serv00	11.212	***	9.394	***	6.312	***	**8.972**	***				
dist500k	7.090	**	5.853	**	1.471		**5.838**	**				
clusters	0.000		0.001		0.002		**0.001**					
shape	-0.266		-0.167		-0.203		**-0.113**					
Diff_NB	0.042	***	0.038	***	0.038	***						
wrXi							**0.032**	*				
wrXr							**0.012**					
wrXu							**0.070**	**				
wuXi							**0.042**					
wuXr							**0.116**	**				
wuXu							**-0.008**					
F.E.	no		no		yes		**no**					
N	1075		1075		1075		**1075**					
R^2	0.25		0.27		0.33		**0.28**					

So: positive effects of urban-rural interactions

- Effects go both directions!

  Empl: Intermediate and urban regions benefit from rural neighbours
  Rural regions benefit from urban neighbours

  GDP: Rural regions benefit from urban and intermediate neighbours

  >>Not the other way around

  Population: Intermediate and urban regions benefit from rural regions
  Intermediate and rural regions benefit from urban regions

- But this says nothing about the mechanisms
    - What causes these effects?

Dutch labour markets

Employment effects in the Netherlands

Sector diversity and its effect on employment dynamics in urban and rural municipalities in the Netherlands.

Sierdjan Koster, Aleid Brouwer, Eveline van Leeuwen

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Diversity

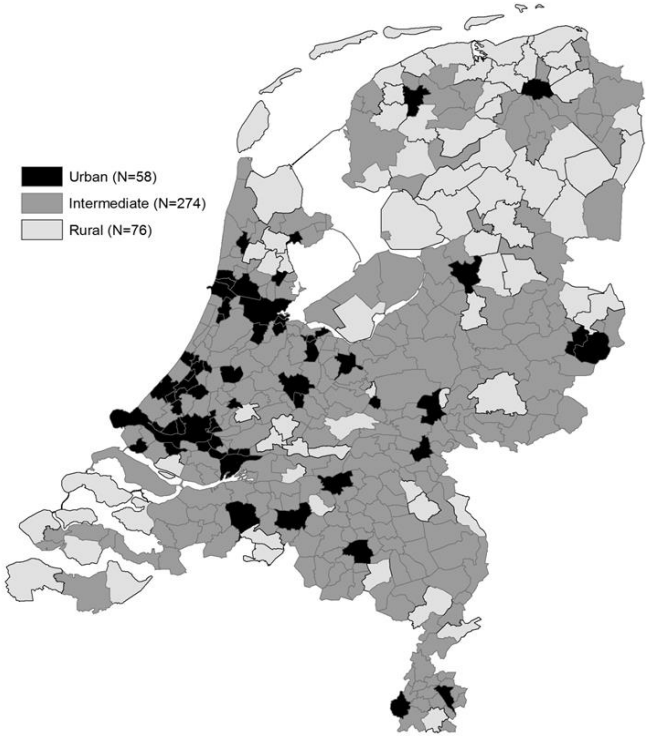
Rural development policies often focus on diversifying the rural economy:

- Portfolio effect
- Resilient Economy
- Spill-over effects

But, is diversity a key to success?

- Negative effect of LQ in agriculture on employment
- Positive effect of LQ in market services on employment

Spatial Scale



Rural: density < 150 km2; > 50% lowest urban level;
Urban: density >1000 km2; > 50% two highest urban
Intermediate: rest

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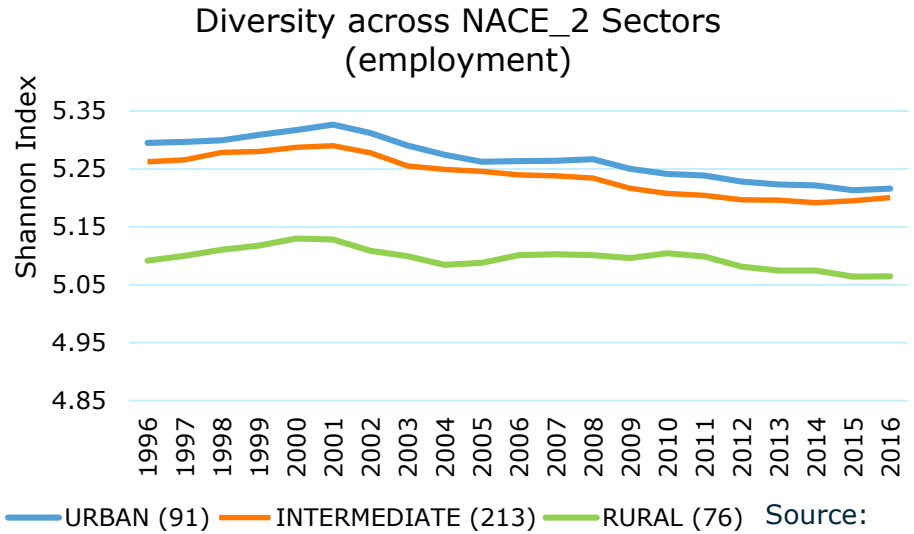
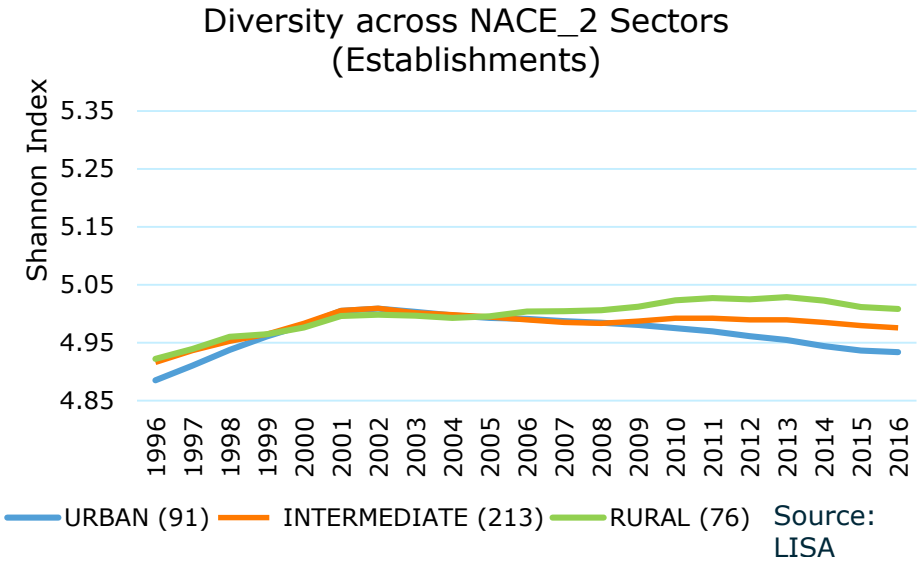
Diversity trends





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Model

Dependent:

- Employment level (Log jobs per municipality)
  - Period 1996-2012
  - Fixed effects models >> growth

Independent:

- Diversity of the local economy
  - Shannon index of diversity
  - Jobs (*P*).
  - European Classification of Economic Activities (NACE)
- Specialization
  - Crowley index
  - Squared location quotients >2

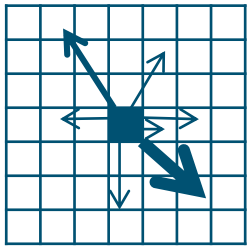
$$(1)\ Sh = \sum_{i=1}^{n} P_i * log_2\left(\frac{1}{P_i}\right)$$

$$(2)\ Cr = \sum_{i=1}^{n} \delta_{i,r} * q_{i,r}^2$$

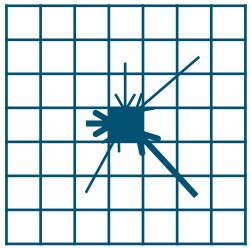
Spatial interaction

- Taking into account relationships with other municipalities
  - Spatial lagged independent variables

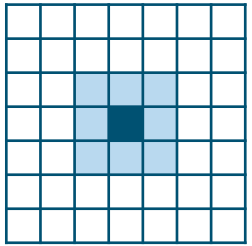
- Weight matrix:
  - WO: job location of residents > consumption effects of wage earned elsewhere
  - WI: residential location of employees > additional access to labour markets
  - WQ: queen continuity assumption



WO



WI



WQ

Results general

VARIABLES	Model 1	Model 2	Model 3	Model 4
Population density	0.022**	0.019**	0.017**	0.021**
Population 25-45	-1.712***	-1.180***	-1.132***	-1.370***
Share manu_jobs	0.008	0.088	0.154	0.106
Share agr_jobs	-1.848***	-1.743***	-1.832***	-1.723***
Specialisation	0.003	0.002	0.002	0.003
Diversity	-0.068	-0.102**	-0.095*	-0.087*
WO_population density		0.049***		
WO_specialisation		-0.007		
WO_diversity		0.909***		
WI_population density			0.079***	
WI_specialisation			-0.011	
WI_ diversity			1.203***	
WQ_population density				0.017**
WQ_Specialisation				0.003
WQ_Diversity				0.477***
Constant	9.876***	6.734***	6.619***	7.398***
Observations	6,935	6,935	6,935	6,935
R-squared	0.58	0.62	0.63	0.61

1. Own diversity has a negative effect, specialisation has no effect.

2. Nearby diversity has a significant positive effect.

3. The three weigh matrices show quite similar results.

Biggest effect of nearby diversity when using residential location of employees (additional access to labour markets)

Results urbanity

VARIABLES	Rural	Intermediate	Urban
Population density	0.531***	0.018	0.015*
Population 25-45	-0.716***	-1.294***	-0.587
Share manu_jobs	0.491***	0.164	-0.394
Share agr_jobs	-1.603***	-1.801***	-3.244*
Specialisation	0.001	0.004	0.006
Diversity	-0.010	**-0.114***	0.001
WI_pop. density	0.125***	0.083***	0.047**
WI_specialisation	**-0.071****	-0.006	0.072
WI_ diversity	**0.850*****	**1.170*****	**1.529*****
Constant	6.227***	6.696***	5.464***
Observations	1,291	4,658	986
R-squared	0.78	0.61	0.55

1. Own diversity only has a negative effect on intermediate areas.

2. Population density of neighbours has a positive effect on all areas, with the largest effects for rural areas

3. Diversity of neighbours has a positive effect on all areas, with the largest effects for cities

Conclusions

- It is all about the region
    - Functional labour market areas

- Importance of cooperation between municipalities
- Good connections are important

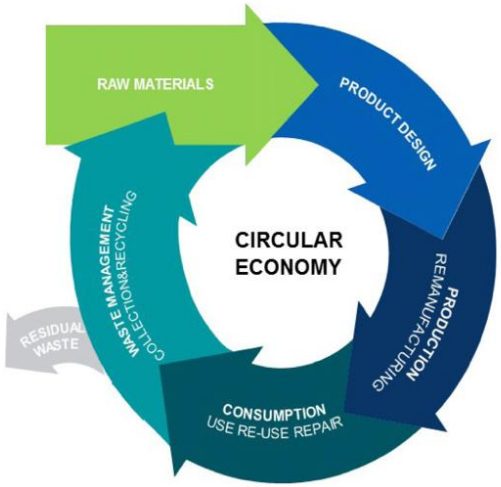
Places or people?

Cohesion Policy post-2020

Future challenges

- Circular Economy
  - Waste management
  - Bio-based products
- Low carbon economy
  - Renewable energy sources
  - Bio-based energy
- Climate change adaptation

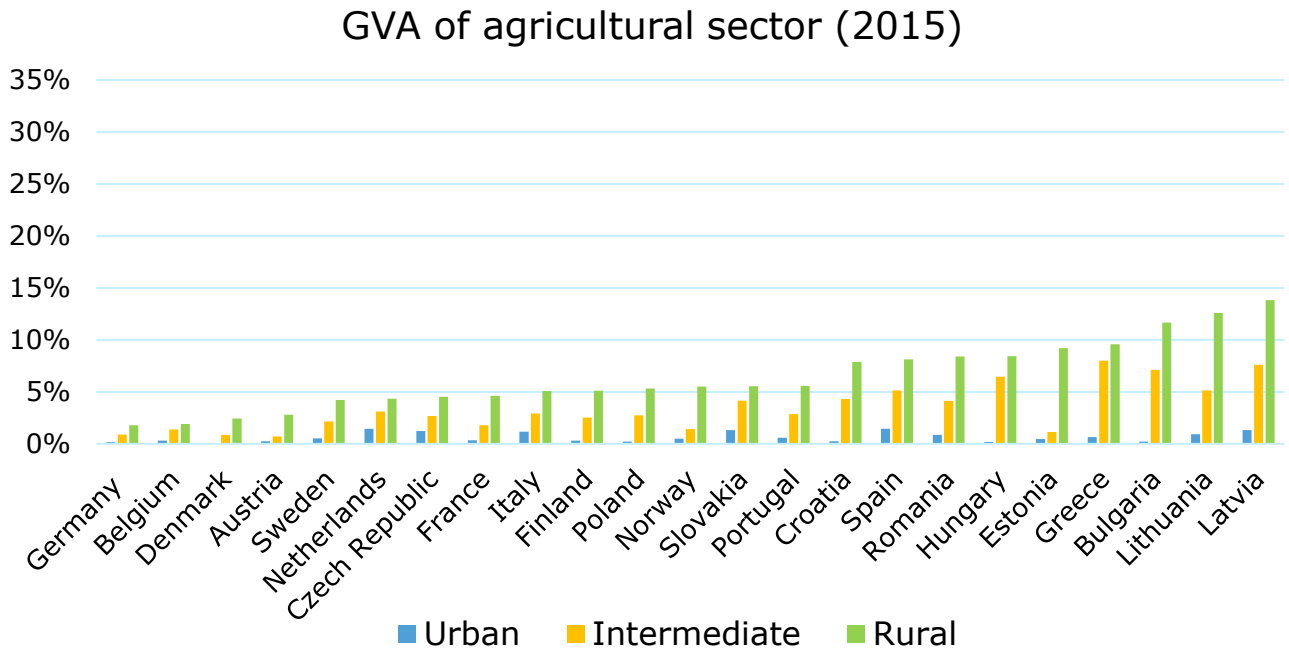
Capacity advantages



Bio-based production

- The urban-rural fringe locates the most productive farms.
  - In line with Von Thünen: lower transport costs, higher land rents near cities
  - Concentration of high yielding products (van Leeuwen et al., 2010)

Gross Value Added in agriculture and forestry as part of total GVA



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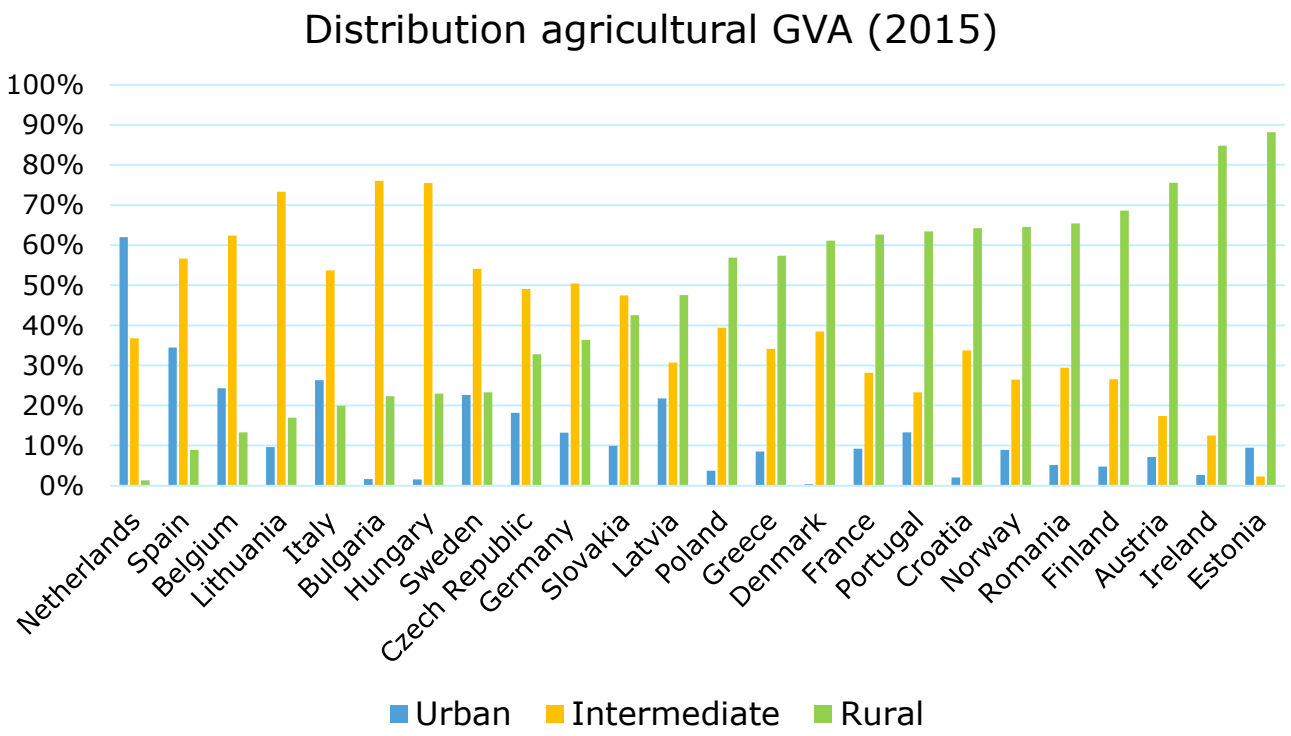
But…



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Perception of interaction?

- Less knowledge about origin of food
    - Also due to globalisation
- No knowledge about destination of waste
- Political divide, not feeling heard
- Difference in attitudes and behaviour (e.g. towards climate change)

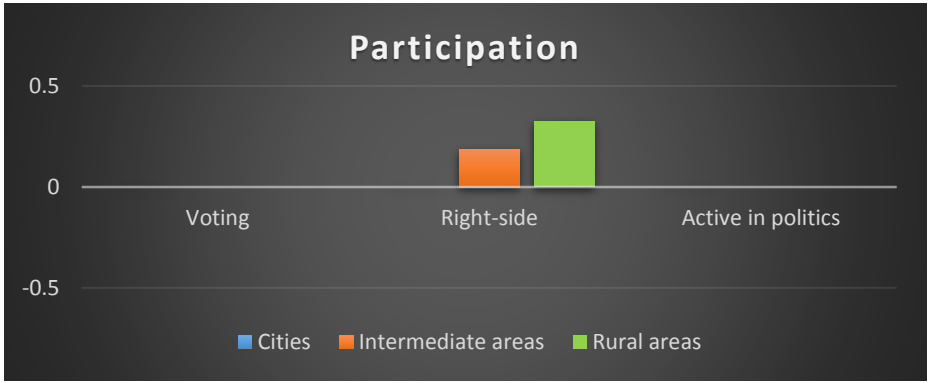
Cooperation between urban and rural areas?

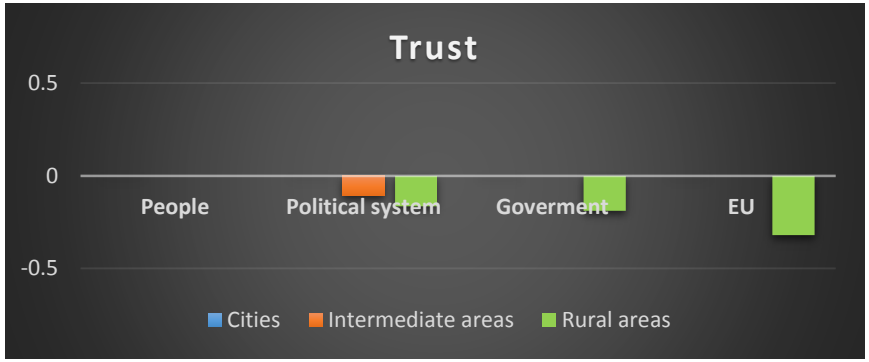
- Trust
    - Urban rural divide in protest-votes
- Activities and Initiatives
    - Urban residents more pro-environment attitude
    - Rural residents more pro-environment behaviour
- Common language?

European Social Survey

- Satisfaction, Trust, Concerns of EU residents
  - 20,000 observations
  - Type of (perceived) place of residence:
    - Large Cities
    - Intermediate areas: suburbs and towns or small cities
    - Rural areas: country village or home/farm in countryside
  - Country fixed effects and Urbanity of NUST2 region
  - Controlling for personal characteristics:
    - Income, years of education, paid job, gender, age, health, in a relationship, migrant

Urban-Rural differences?





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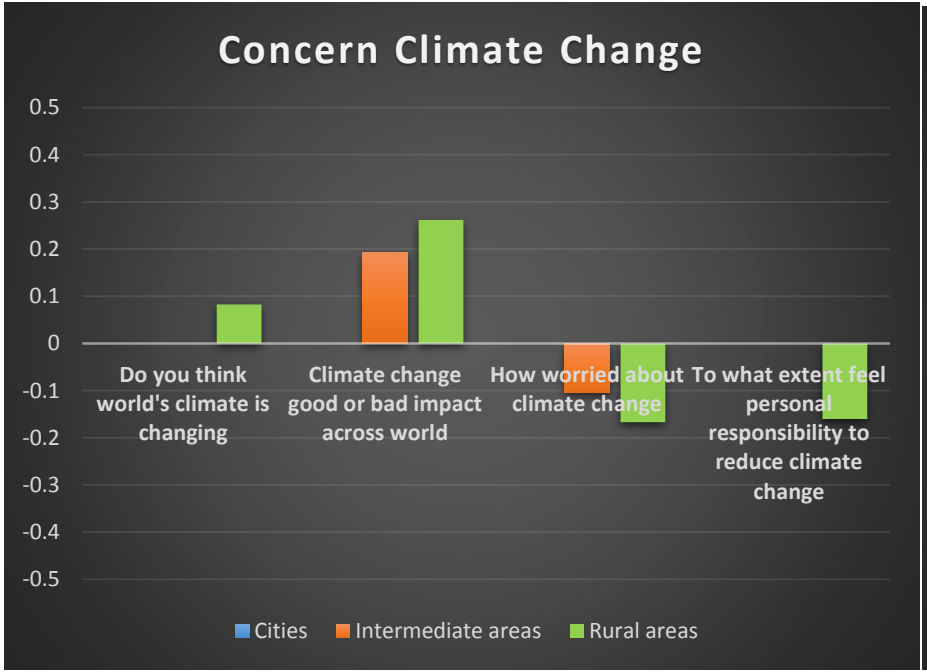
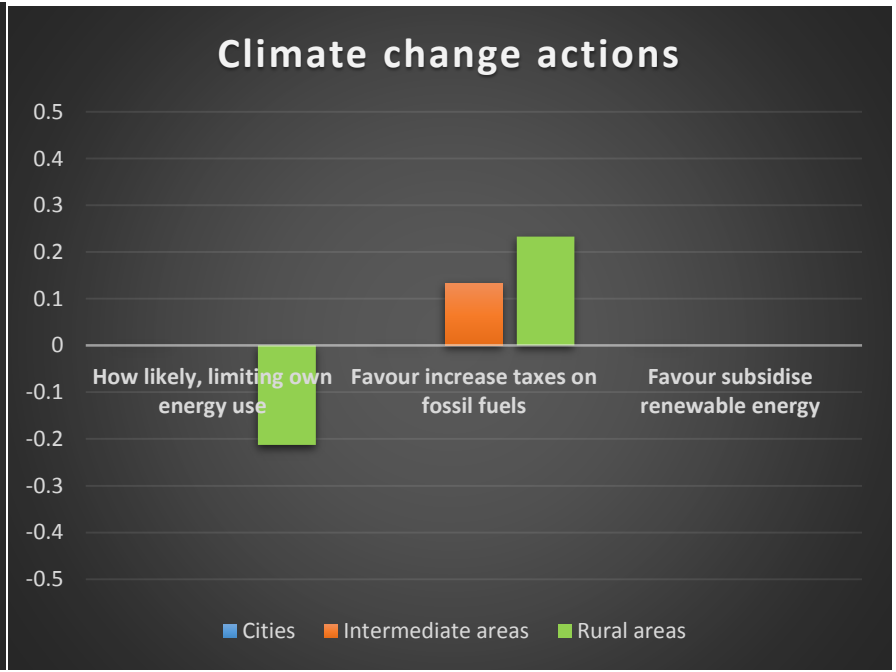
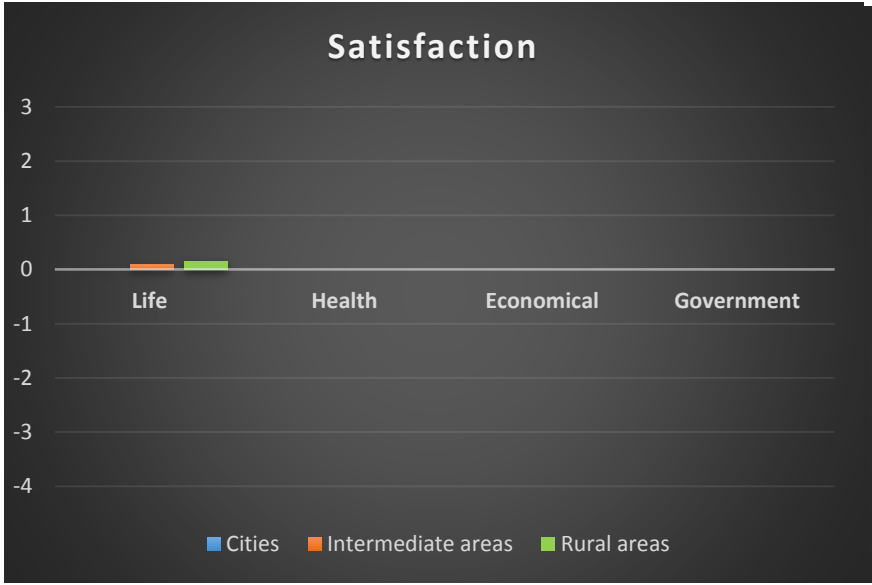
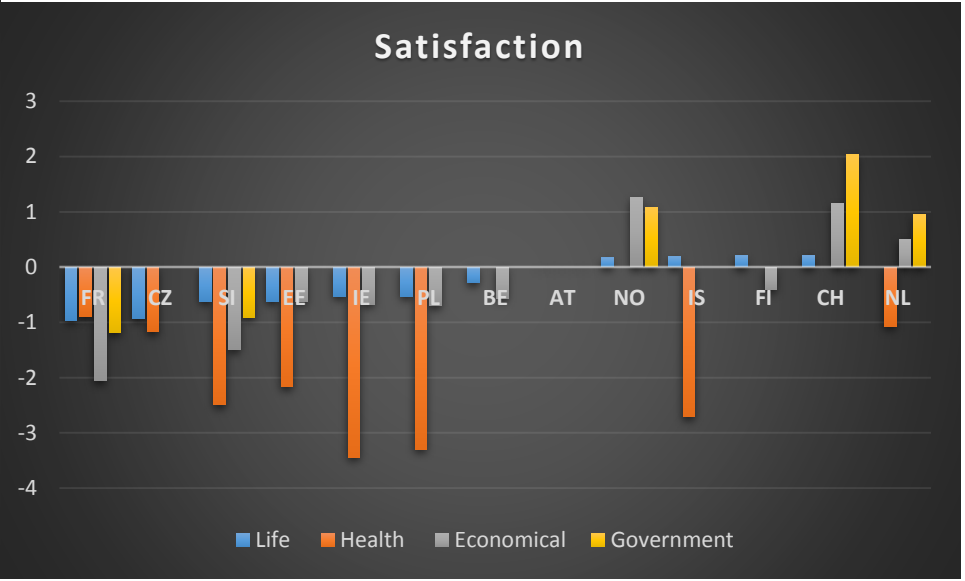
Climate Change

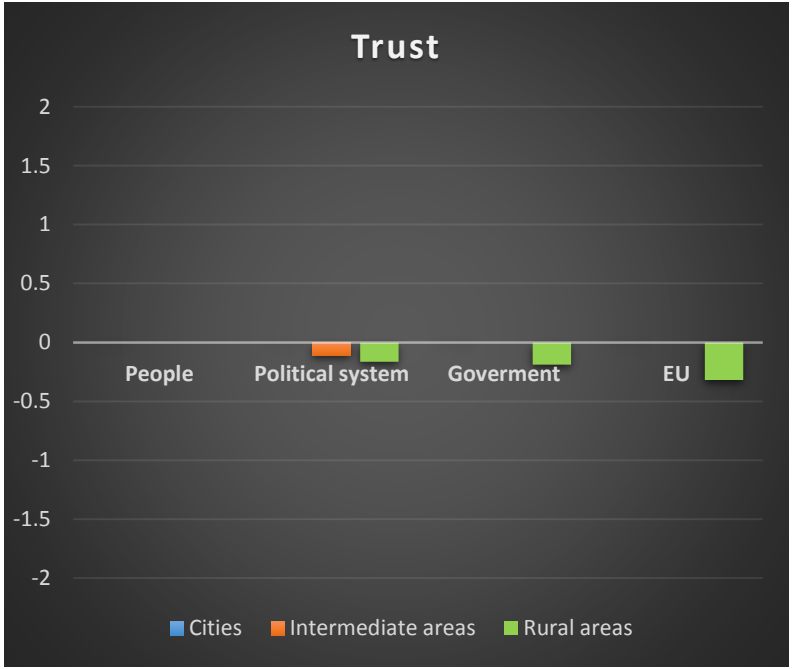




Or member-state differences?






Trust
2
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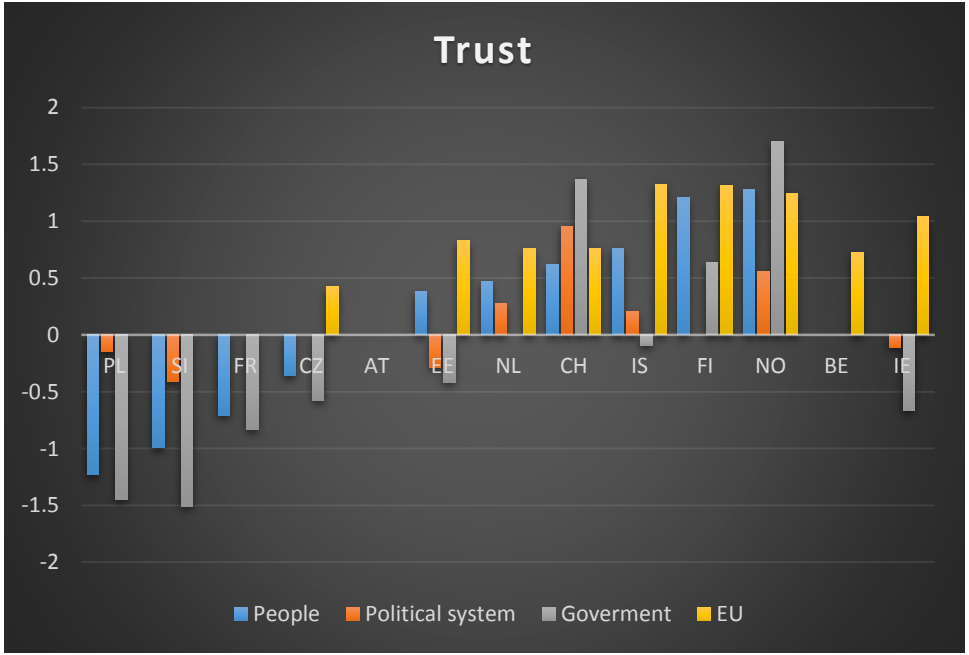
People
Political system
Goverment
EU
Cities
Intermediate areas
Rural areas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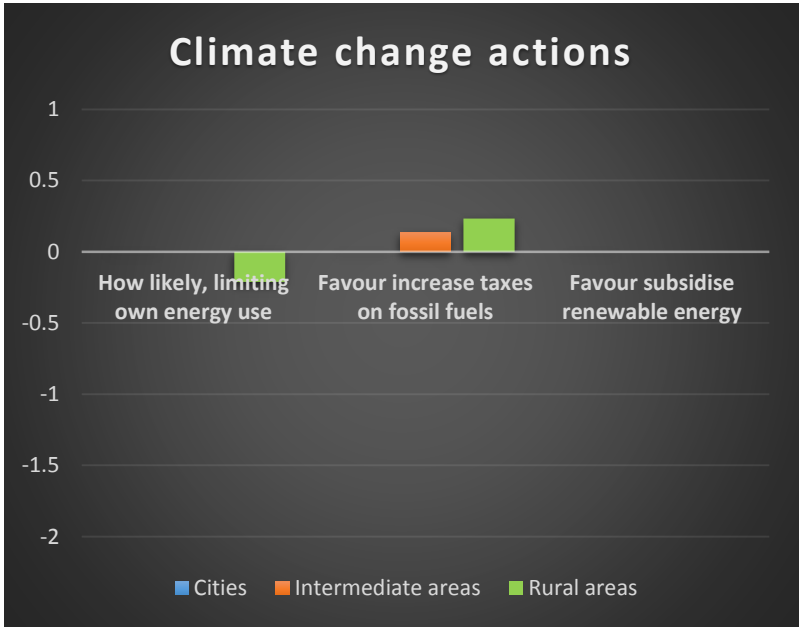
Climate change actions
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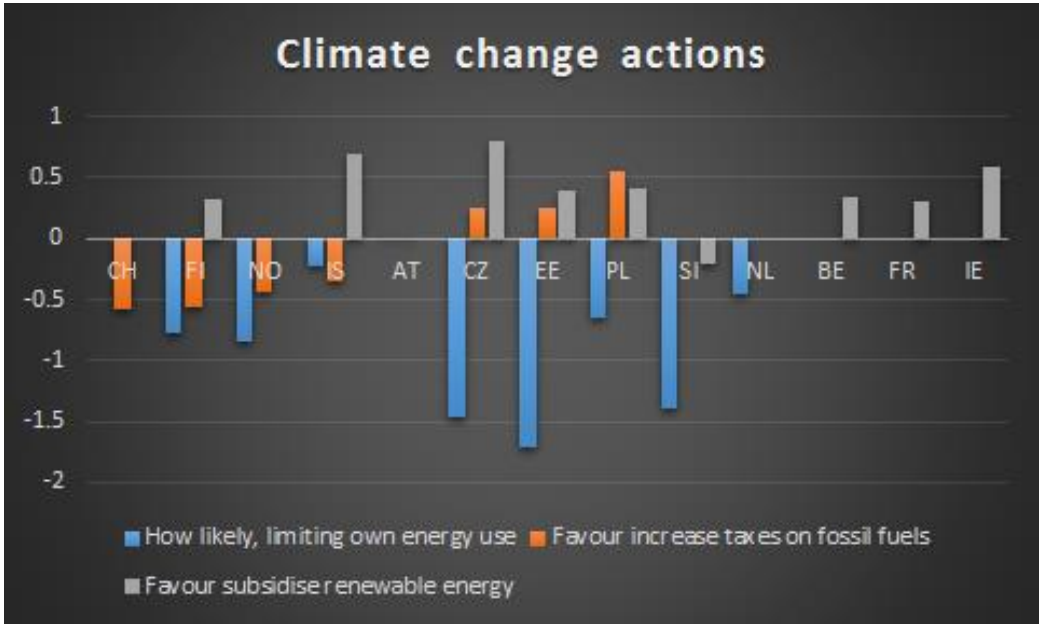
How likely, limiting own energy use
Favour increase taxes on fossil fuels
Favour subsidise renewable energy
Cities
Intermediate areas
Rural areas


Climate change actions
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How likely, limiting own energy use
Favour increase taxes on fossil fuels
Favour subsidise renewable energy

Policy reccomendations I

- Lower trust in national and EU policymakers in rural areas
- More social cooperation and initiatives last longer (Haartsen et al
    - More bottum-up approach

- Higher trust in policymakers
- Stronger pro-environmental attitudes
    - More top-down interventions in daily living space

Policy reccomendations II

- Invest in regional strategies
  - Urban and rural areas can benefit from each other
- Invest in good connections
  - For transport
  - For eco-system services (?)
- Acknowledge the importance of bio-based economy
  - Stimulate high value added bio-based activites in rural regions;
  - Allow rural regions to benefit from the competition for space resulting from bio-based production.

Future research

- Look at broader welfare measures
    - Health
    - Life-satisfaction
    - Environmental quality
- Take objective & subjective interaction variables into acount
- Urban-rural linkages in an input-output framework

Thank you!

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