

Spatial Inequality and Health

Objectives

- Are there spatial effects on subjective health concerning income, education and unemployment?
- Are the spatial effects due to composition or context?

Theoretical Background & Hypotheses

Compositional Effects

- The composition of people in an area affects the poorer spatial health outcomes regarding...
 - vertical differentiation: income (+), education (+), employment status (unemployment -)
 - horizontal differentiation: age (-), gender (female +), migrational status (German -)
 - health behavior: tobacco (-) and alcohol consumption (-), BMI (-)
 - resources: marital status (married +), person of trust (+), living space (+)
 - strains: insecure job situation (-), > 5 long hours (-), dissatisfaction with housing (-) and family (-)

Context Effects

- The regional context affects subjective health outcomes even if individual attributes are controlled for:
 - spatial income: average income (+) and income inequality (-)
 - spatial education: average education (+) and educational inequality (-)
 - unemployment rate (-)

Cross-level Effects

- Interaction of personal attributes and living environment:
 - High spatial income and income inequality should reduce the individual income effect.
 - A high spatial educational level and inequality should reduce the individual education effect.
 - A high unemployment rate should reduce the individual effect of unemployment on health.

Data & Methods

- Level 1: individual data of the German SOEP, wave 2006
- Level 2: regional clusters of the German Mikrozensus, wave 2005
- Limitation to 25–65-aged persons
- Hierarchical nested random coefficient logit models
- Population average models with robust standard errors

Summary

- The lions share of spatial health inequality can be explained by the resident's composition.
- Most of the hypotheses on level 1 are confirmed.
- On level 2 only the average years of education tend to be beneficial for good health.
- High educational inequality increases the individual education effect on health.
- Compositional effects outperform context and cross-level effects.

Results

Random-Effects Logit Models

(DV: subjective health: 1=very good/good, population-average models, robust standard errors)

Model	RIO Coeff. (T-ratio)	M1 Coeff. (T-ratio)	M2 Coeff. (T-ratio)
fixed effects			
INTERCEPT	0.10 (3.76)***	0.10 (4.35)***	0.11 (4.39)***
<i>level 1:</i>			
<u>vertical differentiation:</u>			
net income (ln)		0.02 (2.30)*	0.02 (2.41)*
unemployed		-0.23 (-3.53)**	-0.23 (-3.47)**
control: house wife/-husband		0.02 (0.41)	0.01 (0.22)
years of education		0.06 (7.59)***	0.05 (7.46)***
<u>horizontal differentiation:</u>			
age		-0.04 (-21.34)***	-0.04 (-21.16)***
gender (1=female)		-0.17 (-5.83)***	-0.17 (-5.79)***
nationality (1=German)		-0.21 (-2.63)*	-0.21 (-2.36)*
<u>health behavior:</u>			
smoker		-0.25 (-7.89)***	-0.25 (-7.92)***
regular alcohol drinker		0.07 (1.54)	0.07 (1.44)
BMI (metric)		-0.06 (-16.68)***	-0.06 (-16.69)***
<u>resources:</u>			
marital status (1=married)		-0.03 (-0.78)	-0.03 (-0.77)
person of trust		0.07 (1.24)	0.07 (1.20)
living space (m ² /person, ln)		0.02 (0.48)	0.02 (0.41)
<u>strains:</u>			
insecure job situation		-0.38 (-8.69)***	-0.38 (-8.71)***
> 5 long hours		-0.10 (-2.57)*	-0.11 (-2.62)*
dissatisfaction with housing situation		-0.53 (-10.52)***	-0.53 (-10.49)***
dissatisfaction with family		-0.73 (-14.88)***	-0.73 (-14.82)***
<i>level 2 (regional clusters):</i>			
gini index income		0.01 (0.59)	0.01 (0.55)
household income Ø in 1000€		0.21 (1.10)	0.22 (1.10)
gini index years of education		-0.02 (-0.56)	-0.01 (-0.24)
years of education Ø		0.14 (1.91) [†]	0.13 (1.68) [†]
unemployment rate		1.34 (1.45)	1.51 (1.61)
<u>cross-level effects:</u>			
gini income * HH income			-0.00 (-0.27)
HH income Ø * HH income			-0.00 (-0.20)
gini years of educ. * years of educ.			0.02 (3.07)**
years of educ. Ø * years of educ.			-0.02 (-1.31)
unemployment rate * unemployed			-1.14 (-1.47)
N ₁ / N ₂	15020 / 97	15020 / 97	15020 / 97

Source: SOEP 2006 (level 1), pooled regional clusters ("Raumordnungsregionen") Mikrozensus 2005 (level 2),
[†] p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001

Outlook

- Cross-cultural designs are needed to explain ambiguous results in different countries.
- Further research is necessary to uncover the underlying social mechanisms.
- Theoretical explanations concerning the contextual effect and cross-level effects of educational inequality should be improved.
- Which regional clusters are suitable for the case of Germany?
- More research on the spatial effects of educational rather than income inequality should be conducted.