

Decomposing income-related health inequalities in East and West Germany: convergence after reunification?

Martin Siegel
Verena Vogt
Leonie Sundmacher

Berlin Centre of Health Economics Research (BerlinHECOR)
Technische Universität Berlin

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Background

- German reunification in 1990 brought considerable changes
- social, economic and political contexts changed particularly in the East
 - social welfare system adapted to the Western model
 - health system adapted to the Western model
 - political systems were joined
- reports show stronger growth in the Eastern part
- 2012/13 was the first year with non-negative net migration of qualified young people
- economic convergence at the macro level

Data and sample description

- Data: Socio-economic Panel (SOEP) 1992–2011
- individuals over 25 years old
- income converges in the first years
- some convergence in higher education (increase in the East)
- convergence for unemployment and non-working
- mean age slightly higher in Eastern Germany
- share of retired increased; more in Eastern Germany

Research questions

- ① How did income-related inequalities evolve in East and West Germany?
- ② Which socio-economic variables may explain the differences in health inequalities?
- ③ How do differences in the elasticities contribute to potential differences in health inequalities?
- ④ How do differences in the income-related distributions of the explanatory variables contribute to potential differences in health inequalities?
- ⑤ Do income-related health inequalities converge or diverge over time?

Unsatisfactory health: prevalence and inequality

- measure of inequality: concentration index $C = \frac{2}{n\mu} \sum_{i=1}^n y_i r_i - 1$
 - C is a relative measure of inequality
 - C is bounded in the $(-1; 1)$ -interval
 - the larger $|C|$, the more inequality
 - $C > 0$: concentration among the rich
 - $C < 0$: concentration among the poor
- prevalence increased somewhat in Eastern Germany
- less inequality in Eastern Germany in all years

Contributions of explanatory variables to inequalities

- Decomposition of C :

$$C = \sum_k \frac{\beta_k \bar{x}_k}{\mu} C_k + \frac{GC_\epsilon}{\mu}$$

- Probit-model: use partial effects
 $\tilde{\beta}_k = \frac{\partial G(y)}{\partial x_k} \Big|_{x_k = \bar{x}_k}$ in place of OLS coefficients β_k
- contributions show how C would differ if
 - 1 x_k was not associated with health
 $\tilde{\beta}_k = 0$
 - 2 x_k was equally distributed across income groups: $C_k = 0$
- income contributes to inequality (in Eastern Germany only after 2000)
- unemployment and retirement contribute more to inequality in Eastern Germany

Differences in contributions: East – West

- differences in contributions:

$$\left(\frac{\beta_k \bar{x}_k}{\mu} C_k \right)_{\text{East}} - \left(\frac{\beta_k \bar{x}_k}{\mu} C_k \right)_{\text{West}}$$
- lower inequalities in Eastern Germany in all years
- may be explained with differences in contributions of
 - income (not significant)
 - education (insignificant in some years)
 - age and sex (particularly age after 1997)
 - unemployment and retirement decrease difference between East and West

Oaxaca decomposition of differences in inequalities

- distribution effect explains large parts of the differences in almost all years
- elasticity effect smaller, decreases difference in some years
- elasticities do not differ for most variables in most years
- result requires closer look at concentration indices of explanatory variables

$$\Delta C = \sum_k \tilde{\eta}_{k\text{East}} \underbrace{(C_{k\text{East}} - C_{k,\text{West}})}_{\text{distribution effect}} + \sum_k C_{k,\text{West}} \underbrace{(\tilde{\eta}_{k\text{East}} - \tilde{\eta}_{k,\text{West}})}_{\text{elasticity effect}} + \Delta GC_\epsilon$$

Concentration indices of explanatory variables

- income inequality significantly lower in Eastern Germany
- concentration of education and non-working stronger in the beginning, then weaker
- weaker concentration of unemployment among the poor until 2004 in Eastern Germany, then approximately equal
- retired less concentrated among the poor after 1998 in Eastern Germany

Answering the research questions I

- ① How did income-related health inequalities evolve in East and West Germany?
 - some strengthening in East and West
 - no convergence found
- ② Which socio-economic variables may explain potential differences in health inequalities?
 - age, to some extent income and education
 - employment status (particularly retirement) decrease East-West-differences
- ③ How do differences in the elasticities contribute to potential differences in health inequalities?
 - only elasticity of retirement contributes significantly to differences in health inequalities

Answering the research questions II

- ④ How do differences in the income-related distributions of the explanatory variables contribute to potential differences in health inequalities?
 - concentration of explanatory variables significantly different in East and West
 - these differences explain large parts of differences in health inequalities
- ⑤ Did income-related health inequalities converge or diverge over time?
 - similar developments of health inequalities over time

THANK YOU FOR YOUR ATTENTION!