Multigenerational educational mobility in Europe: Exploring the mechanism

Miroslava Federičová, CERGE-EI

Filip Pertold, CERGE-EI (filip.Pertold@cerge-ei.cz)

Intergenerational transmission in education

- the extent to which the family background (parental education) determines the children educational attainment
  - possible trigger of the inequality in educational opportunity
  - in a mobile society - those on the left tail are there because of their own choices and behavior
  - in a society with low mobility – those on the left tail have a very low chance to change their situation

- Literature – differences across countries
  - the intergenerational correlation ranges from around 0.3 in Nordic countries to 0.46 in the US

- BUT, the focus on only two generations (correlation between parents and children) may not provide us with a complete picture
  - Not only the size, but also its persistence – persistence over multiple generation may speek to how it is difficult to fight with inequality.

- Multigenerational transmission in education (between three and more generations)
  - Existing literature shows some differences across countries

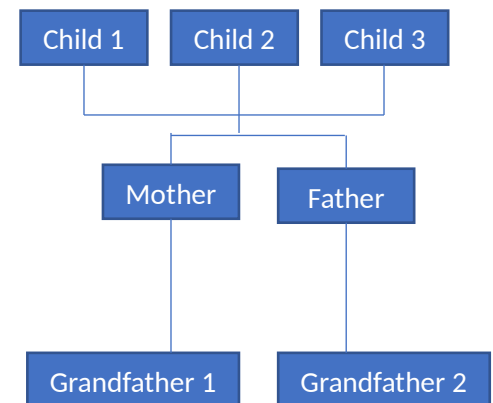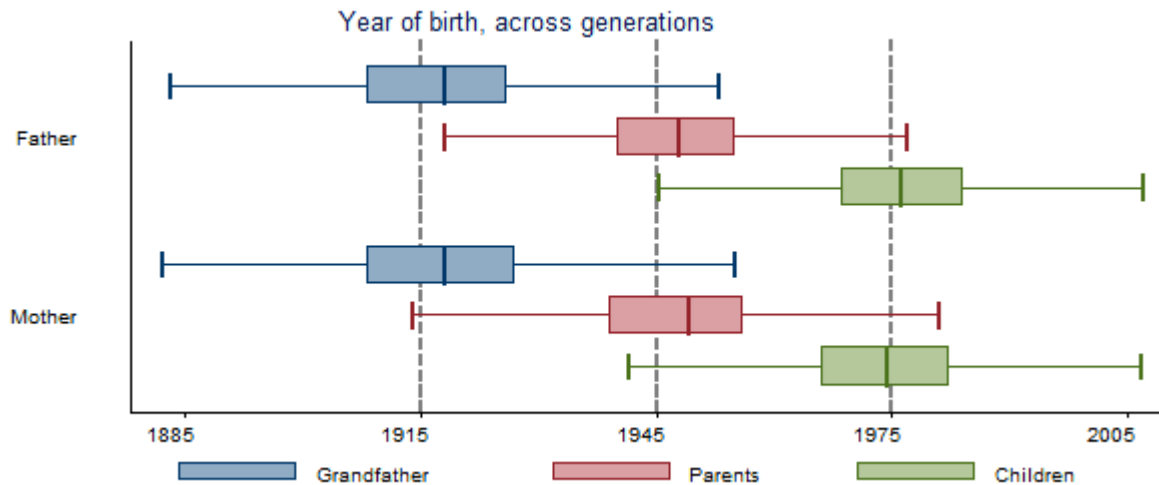# Multigenerational transmission in education

- The underlying consensus in the previous literature (Becker and Tomes, 1986)
    - children's outcomes are only affected by their parents
    - intergenerational mobility follows first order autoregression process

- Last two decades: evidence of positive association between grandparents and grandchildren outcome (Mare, 2011)
    - the personal presence of grandparents during childhood and adolescence of their grandchildren
    - Through capital accumulation, networks etc.

- Less is known about indirect effects of grandparents on the youngest generation via parental characteristics versus direct effect of grandparents

Value added of this paper

- Opening a black box in the persistence of multigenerational mobility across different countries
    - disentangle the existing positive correlation between grandparents and grandchildren education into different mediating factors
    - Focus specifically to the role of economic situation of grandfathers and parents in transmission of education across generations

- We are first to use the **mediation analysis** in this context
    - We consider life cycle theory of human capital with direct and indirect inputs into the human capital production of the youngest generation
    - We consider that education of grand-parents affect grand-children via accumulation of family wealth.
    - Our estimation allows us to show how omitting different factors changes cross-country differences in MGE.

- The size of mulitigenerational mobility is substantially different across countries, the structure seems to be relatively similar.

Data

- Survey of Health, Ageing and retirement (SHARE)
  - cross-national panel data – survey organized every 2 years, starting in 2005
  - detailed information of respondents age 50 and up
  - representative sample of about 140,000 individuals from 27 European countries and Israel
  - Our sample: 16 European countries (60 thd households)
  - we further restrict our sample only to those respondents whose partner is also questioned in the survey (45 thd. lineages)
- educational attainment of three generations – respondents, their parents and their children
- Other information: occupation and wealth of parents, household situation of grandparents (household features).

Completed years of education across the three generations, by region

	G1 father of father	G1 father of mother	G1 mother of father	G1 mother of mother	G2 father	G2 mother	G3 child
German speaking	11.2	11.2	9.0	9.0	12.8	11.6	13.1
	(3.1)	(3.0)	(2.9)	(2.8)	(2.4)	(2.7)	(2.7)
North	7.4	7.5	5.9	6.2	12.0	12.4	13.3
	(5.0)	(4.9)	(4.0)	(4.1)	(3.8)	(3.5)	(2.8)
Benelux +France	6.6	6.3	5.5	5.4	11.3	10.7	13.3
	(5.1)	(5.1)	(4.4)	(4.5)	(4.5)	(4.7)	(3.7)
South	3.4	3.5	2.7	2.8	7.7	7.6	11.1
	(3.7)	(3.7)	(3.1)	(3.2)	(4.3)	(4.3)	(4.4)
Former socialist	11.2	11.4	9.6	10.0	12.8	12.5	12.9
	(2.9)	(2.9)	(3.0)	(3.0)	(2.1)	(2.3)	(2.5)
Yugoslavia	6.8	7.0	4.9	5.2	11.4	10.7	13.0
	(4.8)	(4.8)	(4.3)	(4.3)	(3.2)	(3.3)	(2.4)
Total	**7.0**	**7.1**	**5.7**	**5.9**	**10.5**	**10.1**	**12.5**
	(5.1)	**(5.1)**	**(4.4)**	**(4.5)**	**(4.4)**	**(4.3)**	**(3.7)**

Methodology I

- Follow the intergenerational transmission literature
  - First, simple two generation model (G1-G2, G2-G3) , G1 – grandfathers, G2 – parents, G3 – children
  - Second, multigenerational transmission
    - Estimate G1-G3: Is the coefficient higher than the multiplication of the two previous coefficients?

- We do international comparison across regions

Results: intergenerational transmission

Regions	G1-G2	G2-G3	G1-G3
German speaking	0.298*** (0.019)	0.258*** (0.013)	**0.128*** (0.012)**
North	0.299*** (0.017)	0.196*** (0.011)	**0.088*** (0.010)**
Benelux + France	0.401*** (0.016)	0.257*** (0.010)	**0.137*** (0.009)**
South (Spain and Italy)	0.528*** (0.021)	0.320*** (0.014)	**0.251*** (0.016)**
Former socialist	0.227*** (0.015)	0.273*** (0.011)	**0.110*** (0.010)**
Former Yugoslavia	0.279*** (0.016)	0.199*** (0.014)	**0.079*** (0.009)**
TOTAL	**0.351*** (0.007)**	**0.263*** (0.005)**	**0.132*** (0.005)**

- the level of mobility changes across countries: the estimated transmission coefficients ranges from around 0.18 in the CR and to 0.6 in Spain
- the span of the transmission of inequality is decreasing over time
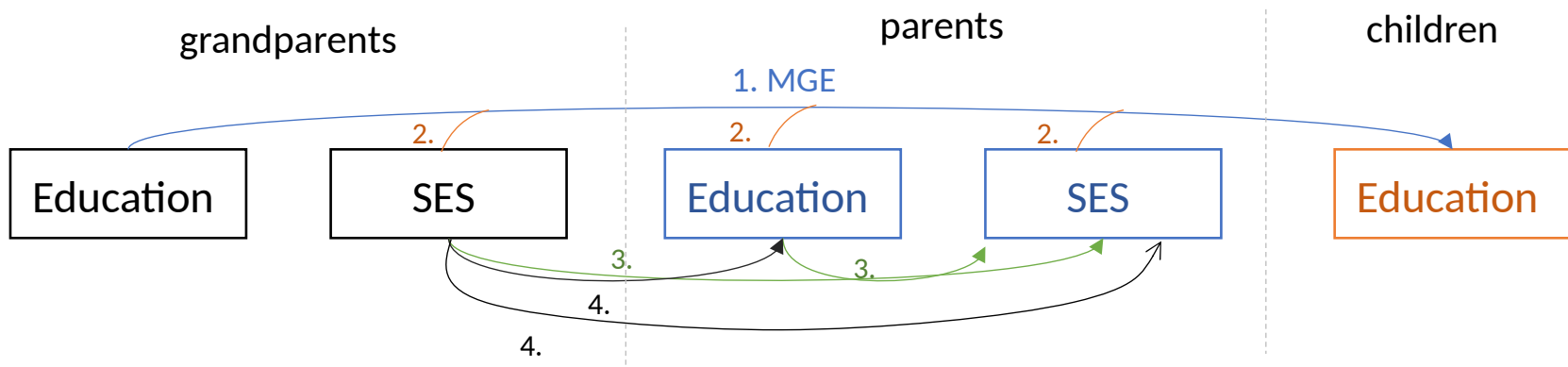- the iteration of intergenerational measures underestimates the multigenerational persistence

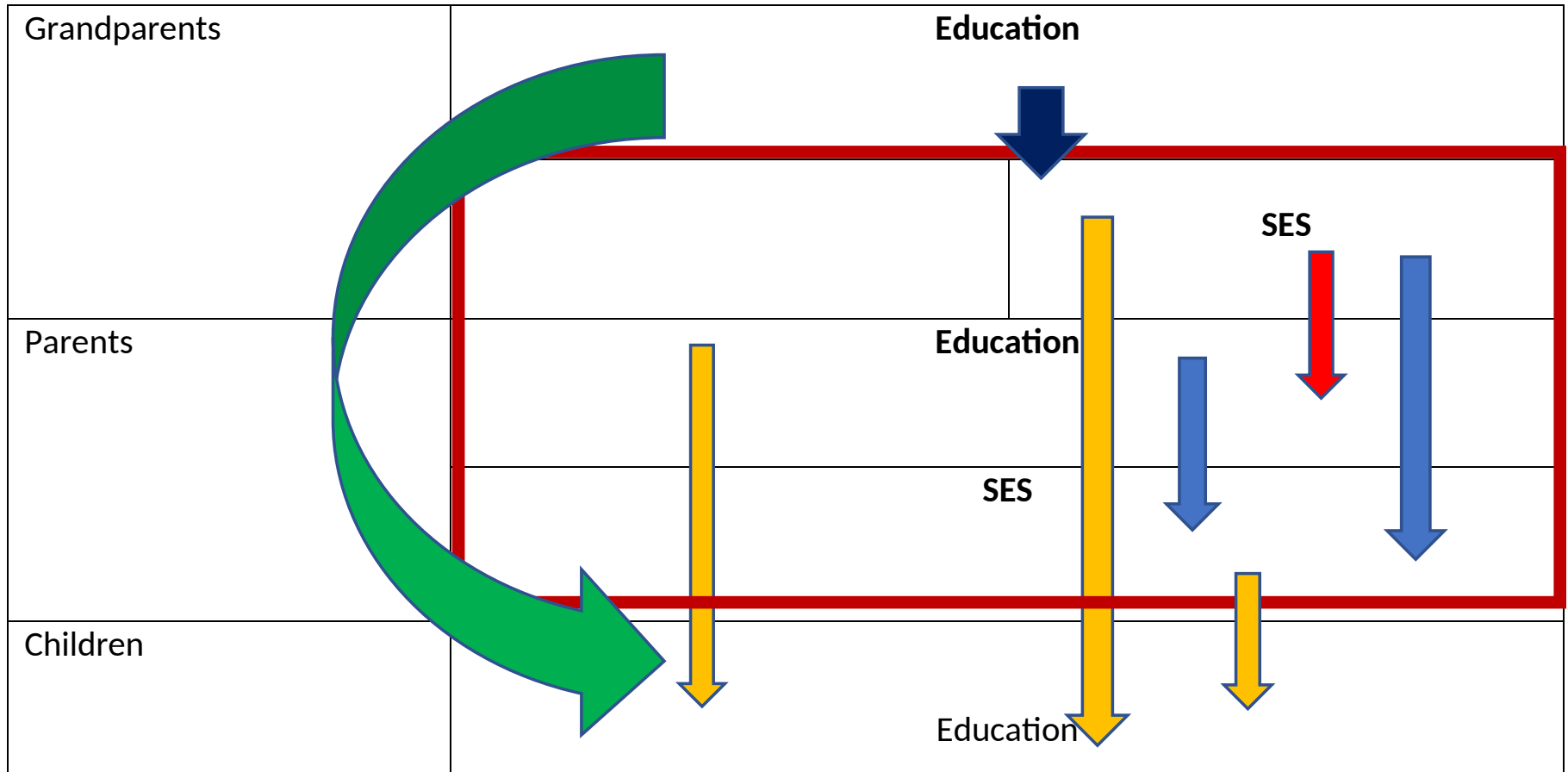# Methodology II: The mediation analysis

- Bolt, French, MacCuish, O´Dea (2021) – decompose intergenerational elasticity of earnings (two generations) into schooling, cognition, investment etc.

- Decompose the MGE of education into fractions explained by wealth of grandparents and education and wealth of parents
  - Factors determined later in life affected by factors determined earlier in life
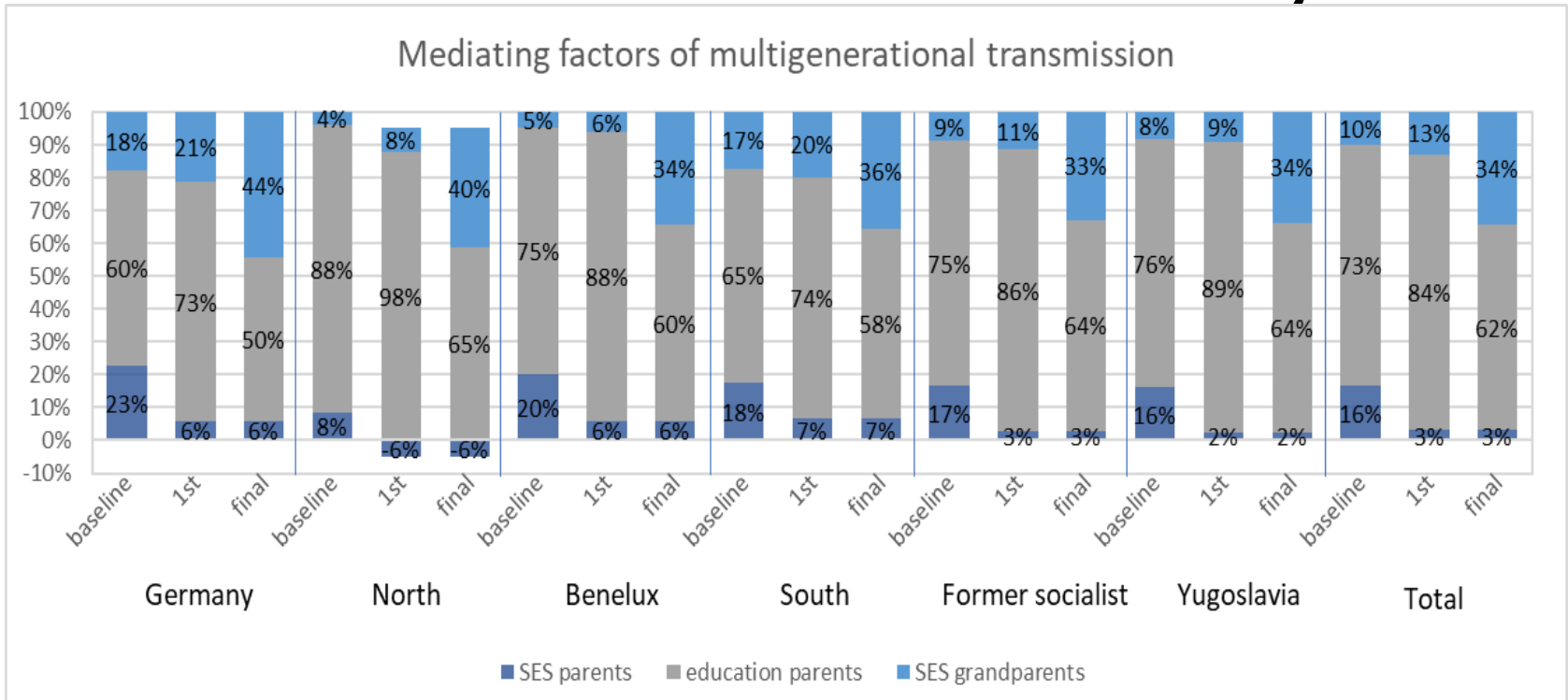
Our approach:

1. Estimate MGE:
2. Decompose the MGE into the fractions explained by the different mediating factors (SES, education)
3. allows for SES of grandparents and education of parents to affect the MGE directly, but also indirectly via an effect on wealth of parents
4. allows for SES of grandparents to affect the MGE directly and indirectly through both education and SES of parents

Illustration: Mediation analyses

Mechanism: mediation analysis

Baseline: Allowing only for the direct effect of mediating factors on the education of children. On average, 73% of the explained multigenerational correlation in education is attributed to the education of parents.

First stage: allowing for the direct effect of the SES of grandparents and the education of parents on MGE, and also for their indirect effect through the SES of parents

Final: Indirect effects of the SES of grandparents on MGE through the education of parents

Conclusion

- Although raw association of educatin between grandparents and children differ across countries, the cross-country differences are much smaller in the underlying mechanism in which we allow for more complex interactions between inputs into the education production function of the youngest generation.

- On average one third of the raw association of education between grandchildren and grandparents is explained by the socio-economic status of grandparents and two thirds by the education of parents

- Mediation analysis shows that potential effect of grandparents may be underestimated if indirect effects are ignored.

- Different results based on different theories.

- More research needed to understand the mechanism and data availability.