# Capturing the impact of demographic processes on social stratification in education in Germany

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#### Outline

#### Introduction

Preliminary analysis

Combining information using simulation

Conclusion and discussion

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# Inequality of Educational Opportunity versus Reproduction of Educational Categories

Inequality of Educational Opportunity use a sample of the offspring, while reproduction must use a sample parents

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- Reproduction includes indirect effects through demographic processes:
- ► Inequality of Educational Opportunity → How close is a country to the meritocratic model?

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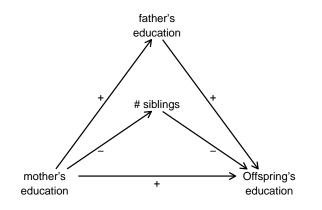
# Inequality of Educational Opportunity versus Reproduction of Educational Categories

- Inequality of Educational Opportunity use a sample of the offspring, while reproduction must use a sample parents
- Reproduction includes indirect effects through demographic processes:
- ► Inequality of Educational Opportunity → How close is a country to the meritocratic model?
- ► Reproduction of Educational categories → What are the long term processes that shape the structure of society?

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# Reproduction of educational categories and demographic processes



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- Alternative is to reconstruct such a dataset using simulation:

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- Alternative is to reconstruct such a dataset using simulation:
  - It is possible to use a wider range of datasources.
  - Extrapolation to more recent cohorts is natural within this framework.

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#### Introduction

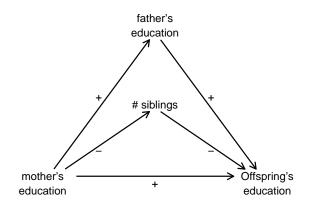
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#### Mother's education $\rightarrow$ Father's education



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#### Mother's education $\rightarrow$ Father's education

#### Data & Methods

- Collected as part of the program "Sociology and the Study of the Life Course".
- Cohorts born in 1920 1930 1940 1950 1955 1960 1964 1971
- 4,231 observations (350 850 observations per cohort)
- retrospective reconstruction of the life course.
- Ordered logit of Father's education on Mother's education, year of birth of the mother, and interaction between mother's education and year of birth.

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#### Mother's education $\rightarrow$ Father's education



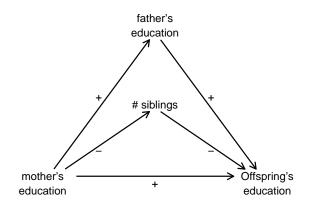
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#### Father's education $\rightarrow$ Offspring's education



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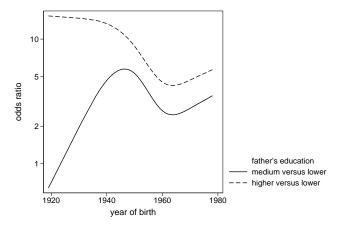
#### Father's education $\rightarrow$ Offspring's education

#### Data & Methods

- Life History Study and ALLBUS 2006 and 2008
- ALLBUS is a general survey, approx. 2,000 observations per survey
- Not a sample of mothers but a sample for offspring.
- Ordered logit of Offspring's education on Father's and Mother's education, number of siblings, offsrping's year of birth.
- Interactions of year of birth with Father's and mother's education and number of siblings.

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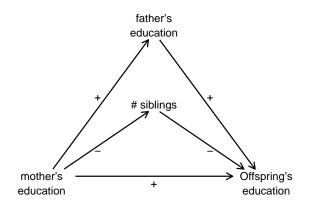
#### Father's education $\rightarrow$ Offspring's education



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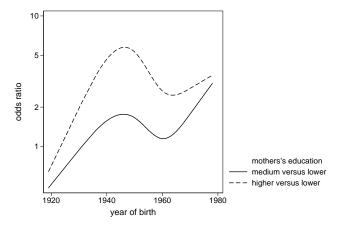
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#### Mother's education $\rightarrow$ Offspring's education



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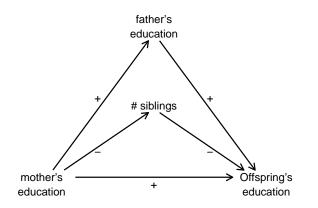
#### Mother's education $\rightarrow$ Offspring's education



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#### Mother's education $\rightarrow$ Fertility



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#### Mother's education $\rightarrow$ Fertility

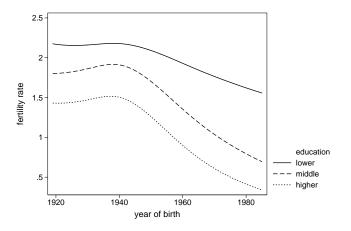
#### Data & Methods

- Life history Study
- Discrete time event history model
- predicted hazards are calibrated using register data

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#### Mother's education → Fertility

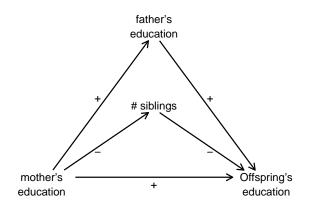


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#### Number of siblings $\rightarrow$ Offspring's education



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### Number of siblings $\rightarrow$ Offspring's education

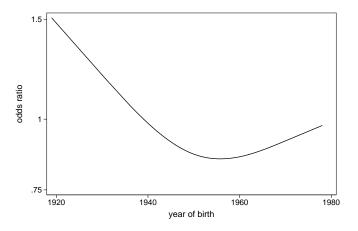
#### Data & Methods

- Life history study and ALLBUS
- number of siblings in ALLBUS are imputed

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#### Number of siblings $\rightarrow$ Offspring's education



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#### Simulation

 Start with 5,000 women each in cohorts 1920 1930 1940 1950 1955 1960.

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- Start with 5,000 women each in cohorts 1920 1930 1940 1950 1955 1960.
- Assign them an education

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- Start with 5,000 women each in cohorts 1920 1930 1940 1950 1955 1960.
- Assign them an education
- Assign them children given their cohort and education

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- Start with 5,000 women each in cohorts 1920 1930 1940 1950 1955 1960.
- Assign them an education
- Assign them children given their cohort and education
- Assign them a partner (or not) with a level of education

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- Start with 5,000 women each in cohorts 1920 1930 1940 1950 1955 1960.
- Assign them an education
- Assign them children given their cohort and education
- Assign them a partner (or not) with a level of education
- Assign an education to the offspring given Mother's and Father's education, year of birth, and number of siblings.

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- Start with 5,000 women each in cohorts 1920 1930 1940 1950 1955 1960.
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- Assign an education to the offspring given Mother's and Father's education, year of birth, and number of siblings.
- Analyze the simulated dataset

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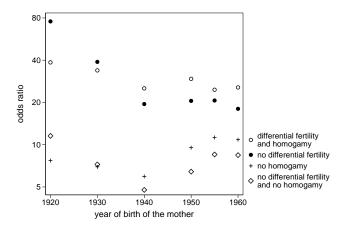
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- Start with 5,000 women each in cohorts 1920 1930 1940 1950 1955 1960.
- Assign them an education
- Assign them children given their cohort and education
- Assign them a partner (or not) with a level of education
- Assign an education to the offspring given Mother's and Father's education, year of birth, and number of siblings.
- Analyze the simulated dataset
- One can study the impact of differential fertility and homogamy by creating counterfactual scenarios where these don't exist.

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#### **Resutls**



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#### Conclusion

 Indication for a substantial indirect effect of mother's education on the offspring's education through the Father's education.

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#### Conclusion

- Indication for a substantial indirect effect of mother's education on the offspring's education through the Father's education.
- Evidence for an indirect effect through the number of siblings is mixed.

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#### What's next?

Confidence building in the simulation

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#### What's next?

Confidence building in the simulation

Comparison with empirically observed cohorts

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#### What's next?

Confidence building in the simulation

- Comparison with empirically observed cohorts
- Add more data

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#### What's next?

Confidence building in the simulation

- Comparison with empirically observed cohorts
- Add more data
- Quality control (certification and verification scripts)

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#### What's next?

- Confidence building in the simulation
  - Comparison with empirically observed cohorts
  - Add more data
  - Quality control (certification and verification scripts)
- historical trends rather than counterfactual scenarios

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#### What's next?

- Confidence building in the simulation
  - Comparison with empirically observed cohorts
  - Add more data
  - Quality control (certification and verification scripts)
- historical trends rather than counterfactual scenarios
- international comparison

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