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

Maarten L. Buis

Institut für Soziologie Eberhard Karls Universität Tübingen maarten.buis@ifsoz.uni-tuebingen.de

Maarten L. Buis Capturing the impact of demographic processes on social stratific

・ 同 ト ・ ヨ ト ・ ヨ ト

Outline

Introduction

Preliminary analysis

Combining information using simulation

Conclusion and discussion

ヘロト ヘワト ヘビト ヘビト

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

イロト イポト イヨト イヨト

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:

ヘロト ヘアト ヘビト ヘビト

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?

ヘロト 人間 とくほ とくほ とう

E DQC

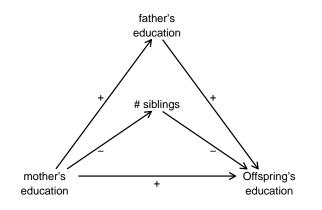
Inequality of Educational Opportunity versus Reproduction of Educational Categories

- 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?

ヘロト 人間 とくほ とくほ とう

E DQC

Reproduction of educational categories and demographic processes



イロト イポト イヨト イヨト

э



Estimation requires a sample of mothers who have children who finished their education.

イロト イポト イヨト イヨト



- Estimation requires a sample of mothers who have children who finished their education.
 - This is not a common design.

イロト イポト イヨト イヨト



- Estimation requires a sample of mothers who have children who finished their education.
 - This is not a common design.
 - The most recent cohort that can be studied was born approx. 60 years ago.

ヘロト 人間 ト ヘヨト ヘヨト



- Estimation requires a sample of mothers who have children who finished their education.
 - This is not a common design.
 - The most recent cohort that can be studied was born approx. 60 years ago.
- Alternative is to reconstruct such a dataset using simulation:

ヘロト 人間 ト ヘヨト ヘヨト

æ



- Estimation requires a sample of mothers who have children who finished their education.
 - This is not a common design.
 - The most recent cohort that can be studied was born approx. 60 years ago.
- Alternative is to reconstruct such a dataset using simulation:
 - It is possible to use a wider range of datasources.

イロト イポト イヨト イヨト

æ



- Estimation requires a sample of mothers who have children who finished their education.
 - This is not a common design.
 - The most recent cohort that can be studied was born approx. 60 years ago.
- 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.

ヘロト 人間 ト ヘヨト ヘヨト

Outline

Introduction

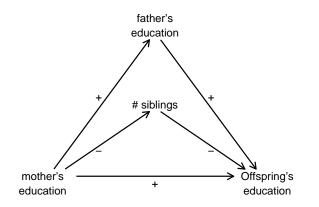
Preliminary analysis

Combining information using simulation

Conclusion and discussion

ヘロト ヘワト ヘビト ヘビト

Mother's education \rightarrow Father's education



イロン 不同 とくほ とくほ とう

Mother's education \rightarrow Father's education

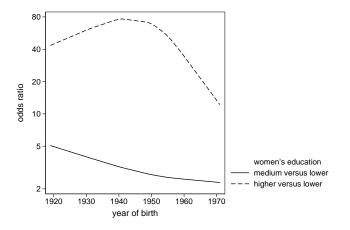
Data & Methods

- 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.

ヘロト 人間 とくほ とくほ とう

E DQC

Mother's education \rightarrow Father's education



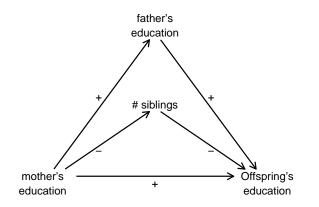
Maarten L. Buis Capturing the impact of demographic processes on social stratific

< 17 ▶

★ E > ★ E

э

Father's education \rightarrow Offspring's education



Maarten L. Buis Capturing the impact of demographic processes on social stratific

ヘロト 人間 ト ヘヨト ヘヨト

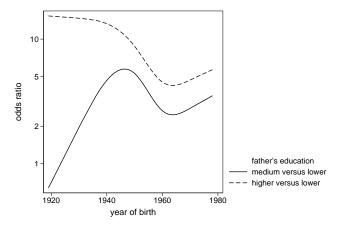
Father's education \rightarrow Offspring's education

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.

ヘロン 人間 とくほ とくほ とう

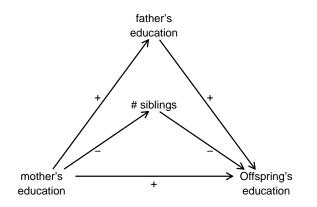
Father's education \rightarrow Offspring's education



Maarten L. Buis Capturing the impact of demographic processes on social stratific

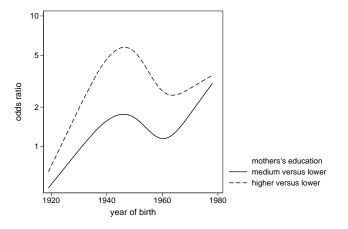
★ E → ★ E →

Mother's education \rightarrow Offspring's education



イロト イポト イヨト イヨト

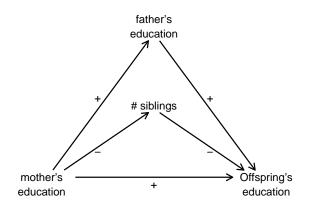
Mother's education \rightarrow Offspring's education



Maarten L. Buis Capturing the impact of demographic processes on social stratific

프 🖌 🖌 프

Mother's education \rightarrow Fertility



イロン 不同 とくほ とくほ とう

Mother's education \rightarrow Fertility

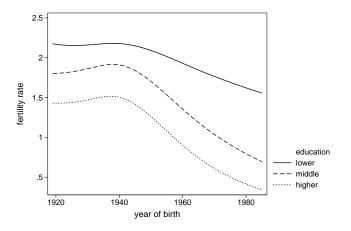
Data & Methods

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

イロト イポト イヨト イヨト

æ

Mother's education → Fertility

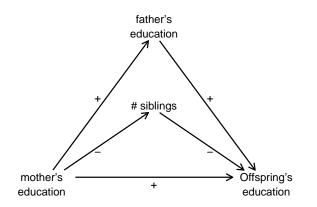


Maarten L. Buis Capturing the impact of demographic processes on social stratific

< 17 ▶

★ E → < E</p>

Number of siblings \rightarrow Offspring's education



Maarten L. Buis Capturing the impact of demographic processes on social stratific

イロト イポト イヨト イヨト

∃ <2 <</p>

Number of siblings \rightarrow Offspring's education

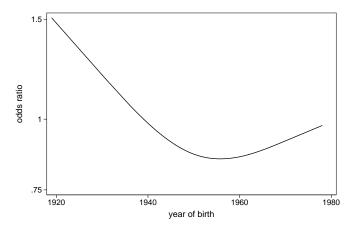
Data & Methods

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

イロト イポト イヨト イヨト

æ

Number of siblings \rightarrow Offspring's education



Maarten L. Buis Capturing the impact of demographic processes on social stratific

< 🗇 🕨

★ E → < E</p>

Outline

Introduction

Preliminary analysis

Combining information using simulation

Conclusion and discussion

Maarten L. Buis Capturing the impact of demographic processes on social stratific

ヘロア 人間 アメヨア 人口 ア

Simulation

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

イロト イポト イヨト イヨト

E DQC

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

イロト イポト イヨト イヨト

E DQC

- 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

ヘロト ヘアト ヘビト ヘビト

- 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

ヘロト ヘアト ヘビト ヘビト

- 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.

ヘロト ヘアト ヘビト ヘビト

- 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

ヘロン 人間 とくほ とくほ とう

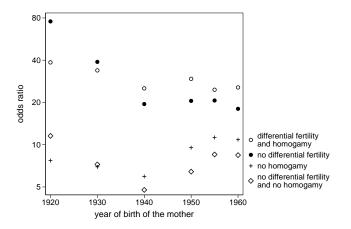
E DQC

- 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.

イロト 不得 とくほ とくほ とう

E DQC

Resutls



Maarten L. Buis Capturing the impact of demographic processes on social stratific

★ E > ★ E >

æ

Outline

Introduction

Preliminary analysis

Combining information using simulation

Conclusion and discussion

ヘロト ヘワト ヘビト ヘビト

Conclusion

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

ヘロト ヘアト ヘビト ヘビト

E DQC

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.

ヘロン 人間 とくほ とくほ とう

E DQC

What's next?

Confidence building in the simulation

Maarten L. Buis Capturing the impact of demographic processes on social stratific

イロン 不同 とくほ とくほ とう

What's next?

Confidence building in the simulation

Comparison with empirically observed cohorts

イロト イポト イヨト イヨト

What's next?

Confidence building in the simulation

- Comparison with empirically observed cohorts
- Add more data

ヘロト 人間 ト ヘヨト ヘヨト

What's next?

Confidence building in the simulation

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

イロト イポト イヨト イヨト

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

ヘロト 人間 ト ヘヨト ヘヨト

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

ヘロト ヘアト ヘビト ヘビト