Demographic Transition and Local Public Goods: Fiscal expenditure competition for mobile residents

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Outline

1. Background and motivation
2. Theoretical concepts
   - Local public goods
   - Fiscal competition
3. Fiscal competition empirics (the German setting)
4. Model discussion
5. Preliminary results and conclusions

Economic consequences of the demographic transition

- Economic growth
  - Capital markets
  - Labor markets

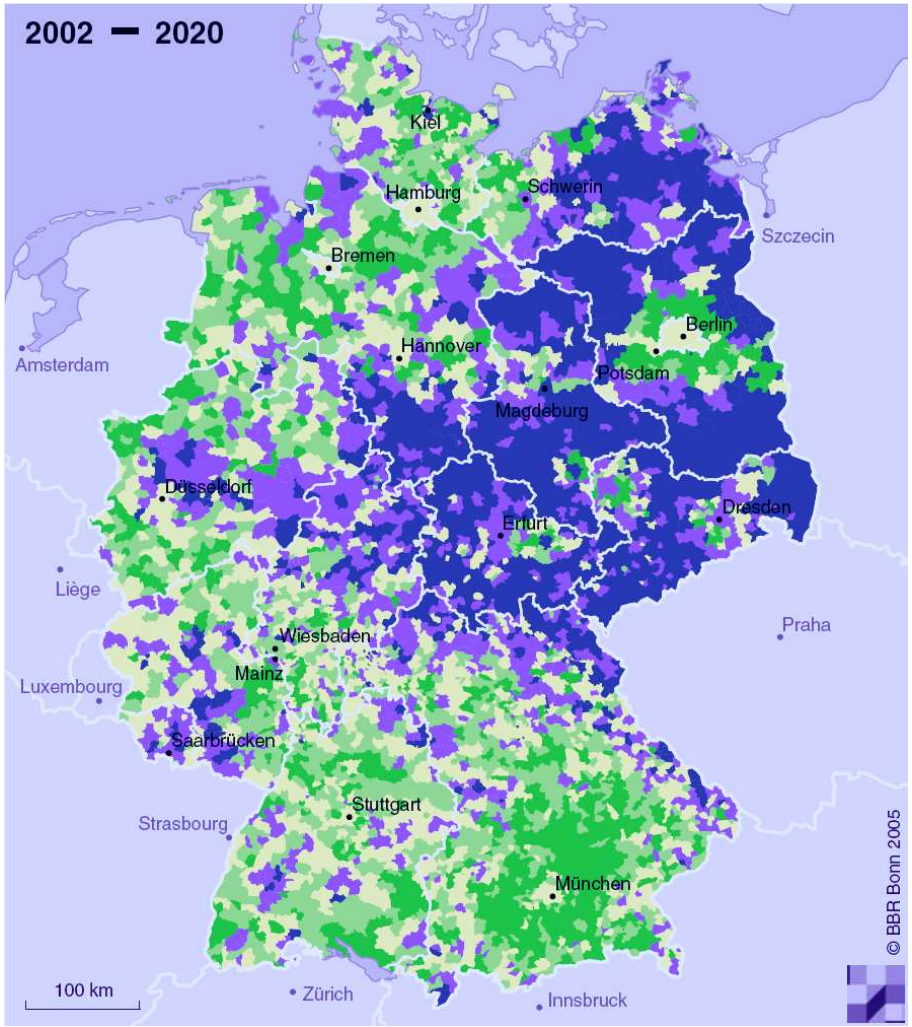
  Literature: Galor and Weil, 2000; Börsch-Supan 2002, 2003; Skirbekk, 2003

- Sustainable social security systems
  - Public Pension system
  - (Public) health expenditures

  Literature: Sinn and Uebelmesser, 2002, Bloom and Canning, 2006

- Local consequences have received less attention
  - Exceptions: Fiscal imbalances, and literature by Seitz
  - (Case) studies in spatial planning

Local discrepancies in predicted population change



more than -10%

-10 to -3%

-3 to 3%

3 to 10%

more than 10%

Figure: Predicted percentage change in county (Kreis) population 2002-2020

Source: Bundesamt für Bauwesen und Raumordnung, Raumordnungsprognose 2020/2050, 2006, own adaptation

Economic model

How does the local public goods provision change when:

1. the **age structure** and,
2. the **age distribution** of the residents changes.

→ Analyze the **strategic setting** of **local public goods** levels when **residents** are **mobile**

Theoretical concepts:

- Local public goods
- Fiscal competition

Theoretical concept: Local public goods

- School, swimming pool, park…
- Display limited geographic scope
- "Benefit from sharing versus disutility from crowding“ (Tiebout 1956, Buchanan 1965)
- Benefit local residents but potentially also neighbors (spillovers)
- Reflected in utility function

Theoretical concept: Fiscal competition

- There are multiple subnational jurisdictions, and productive resources (labor, capital) are mobile
- In the literature several types of competition are considered:
  - taxes/funding
  - public goods bundle
  - non-tax means
- Locally strategic interaction
- Mobile population segment

Fiscal competition empirics

- Individuals of different age groups are differently mobile
- Empirical evidence of competition (Surveys: Dowding, 1994, Brueckner, 2003, Wildasin, 2003)
- Municipalities are in a position to favor certain age groups

Local revenues and expenditures in Germany

- Large share of municipal revenue from grants, transfers and revenue sharing
- Size of grants highly correlated with size of municipal population and state fiscal power
- Relatively more scope for adjustment on the expenditure side
- Local level responsible for some 20 different expenditure categories (largest: social assistance, housing and administration)
- Some expenditure categories have clear age specific character (kindergartens, youth welfare)

The model I

- Municipal budget constraint
  - Municipality receives a per capita grant
  - Makes allocation choice

- Two municipalities (i=1,2)
- Per capita grant (b)
- Two age groups (N's)
- Provide two local public goods (Y's)

The model II

- Utility functions
  - Age specific

- Two age groups (*y* and *o*)
- Crowding of the public good (by parameter alpha)
- $0<\alpha<1$, $\alpha = 0$ pure public good, $\alpha = 1$ private good
- Only the young are mobile
- Competition assuming migration equilibrium

Determination of public good levels

- Derive equilibrium provision levels:
  - Gerontocracy outcome
  - Social planner

1. Local decision
   - Gerontocracy $(y_y^{G1} = 0, y_o^{G1} = b(N_y + N_o))$
   - Social planner (y_y^{R1}, y_o^{R1})
2. Fiscal competition in migration equilibrium
   - Gerontocracy $(y_{y,1}^{G2}, y_{o,1}^{G2})\,(y_{y,2}^{G2}, y_{o,2}^{G2})$
   - Social planner $(y_{y,1}^{R2}, y_{o,1}^{R2})\,(y_{y,2}^{R2}, y_{o,2}^{R2})$

- Conduct a comparative static analysis:
  - Age structure
  - Age distribution
  - Compare cases (social planner and gerontocracy)

Effect of changes in age structure and distribution

- Age structure
  - An increase in the overall share of the elderly has a negative effect on the provision of the public good for the young in community one
- Age distribution
  - More will be provided for the young when the elderly are more equally distributed between the two communities

⇒ Larger disparities cause less provision for the mobile population

Comparison of provision levels:

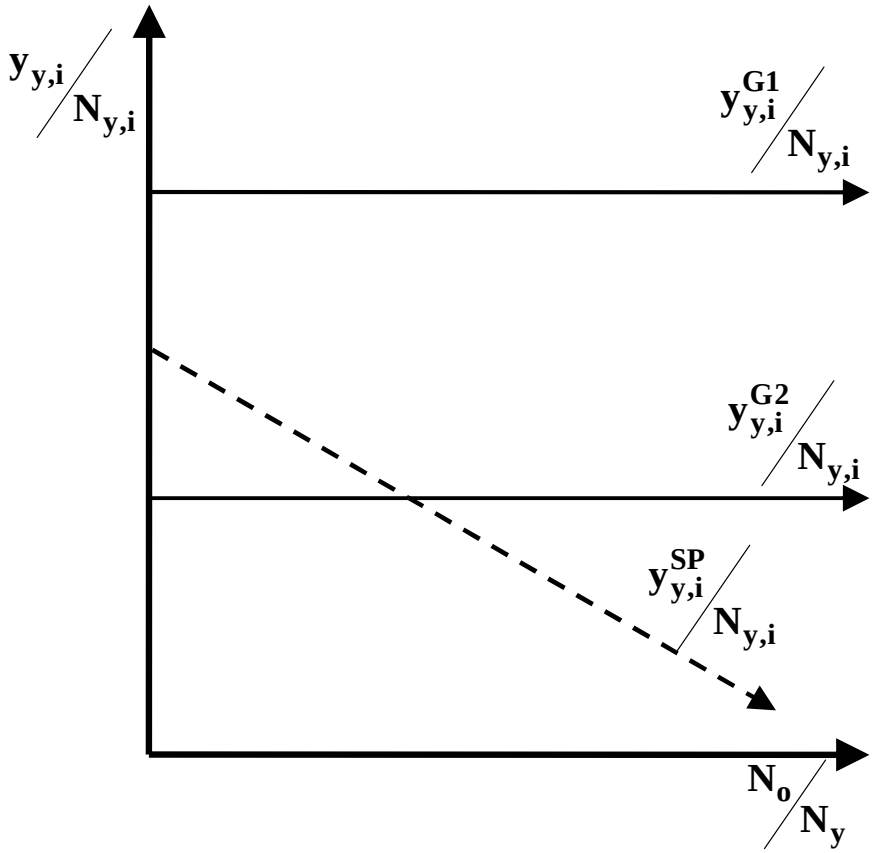
- Social planne $\frac{Y_{y,i}^{R2}}{N_{yi}} = \frac{b(1+\frac{N_o}{N_y})}{1+\left(\frac{N_o}{N_y}\right)^{\gamma}}$

- Gerontocracy $\frac{Y_{y,i}^{G2}}{N_{yi}} = \frac{b}{2\alpha}$

$0<\alpha<1$, $\alpha = 0$ pure public good, $\alpha = 1$ private good

Comparison of provision levels for different public choice outcomes

- Gerontocracy levels depend on the characteristics of the public good (congestion factor), the more public the more concentration
- The gerontocracy level of public good for the young is inefficiently high compared to welfare maximum



Outlook

- Additional decision making processes
- Empirically test:
  - Competition between neighboring municipalities?
  - Effect of age structure on expenditure development

Thank you for your attention!