

Lecture 7

Birth and Death

A model of fertility

- The family maximizes $U(c) + V(n)$, U and V are both increasing and concave
- Subject to $c = (1-nl)w + a$, and l is the cost of each pregnancy in terms of time, while a is unearned income.
- What is the effect of increasing a in this model on fertility?
- What is the effect of increasing w ?

Dynamics of fertility

- Add the assumption $w(t+1) = w(n^*(t))$, where $n^*(t)$ is the average level of fertility at time t
- Since all families are identical all of them have $n^*(t)$ children.
- This generates the dynamic:
- $w(t+1) = w(n^*(t)) = w(n^*(w(t)))$
- What does this imply?
- What do we know about the relation between fertility and income?
 - In theory: on average and distributionally
 - In the data: cross-country, within country, twinning?

Determinants of fertility

- Unearned income: evidence, policy implication
- Women's relative wages
- Women's education
- Child mortality
- Contraception, control over births
- Child labor
- Schools for children
- Schools for mothers
- Old age care, security
- Son preference
- Increasing women's bargaining power

Mortality

- Enormous decline in mortality
- 35-37 years in the 1700s
- 41 years in 1800s
- After 1870, climb begins: 50 years in the 1900s in UK, 47 years in USA.
- Now 77 years in the UK, 78 USA.
- Big declines in infant mortality: between 1841 life expectancy at birth went up by 30 years while life expectancy at age 10 went up by 15 years only.

Within country variation in mortality

- Lots of inequality though:
- Black infants die more often than white infants controlling for mother's education
- White infants of mothers with less than high school are twice as likely to die as white infants of mothers with high school
- Whitehall civil servant studies

Determinants of Mortality

- Nutrition:
- Channels through which nutrition affects mortality
 - Nutrition affects immunity against diseases: Evidence?
 - GDP health link
 - Fetal origins (Barker): Evidence
 - Timing of birth
- Public health
- Channels
 - Water
 - Sanitation
 - Health practices (boiling bottles, not smoking)
 - Living conditions (urbanization)

Determinants of Mortality

- **Vaccines:**
- Evidence?
- However early childhood diseases
- How about in developing countries?
- **Medical treatments**
- Channels
 - Antibiotics
 - Cardiovascular

Determinants of Mortality

- **Maternal education**
- Channels?
- Evidence?
- **Social stress**
- Channels: allostatic load
- Evidence?
- **Health related behaviors**
- Channels
- Evidence?
- **Education?**
- Channels