Human capital: Population

Lecture 6 - 2/2013

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Economic approaches to population growth

- Health and education
- Female education, labor force participation, and wages
- Child schooling (the 'quality' of children)
- Family income and income distribution
- Infant mortality and fertility
- Family planning programs and fertility

Health and education

- Large family >> children have lower educational attainment and low levels of health
  - Greater effect in poor countries or poor families with lower income and higher family size
- Family might actually decide simultaneously on number of children and investment per child.
  - If this is the case, an exogenous shock which reduced the number of children would not raise investments in the health and education of the remaining children.
- This leads to the question whether parents trade off more children against higher inputs per child, or whether they invest in children taking the number as given.

Health and education

- If it's a quantily-quality trade off and parents are not altruistic toward their children (not incorporate their children into their utility)
  - then there will be a negative intertemporal externality
  - But, this justifies public intervention to discourage high fertility
  - It is reasonable to assume, except in the case of '*unwanted*' children, that parents have another child only when they feel that the benefits of an additional child to the family as a whole exceed the costs.
- Government generally assume that parents are altruistic. The decision on family size should be left to parents, not by order of the government.
  - Birth control or family planning programs are just a means to assist parents avoid unwanted children for whom the private costs would add to any social costs of additional births.

Female education, labor force participation, and wages

- At low levels of education (0-4 years), education's effect on fertility is positive.
  - HIgher education at these levels is also associated with higher income, having a positive effect on fertility (by increasing fecundity or demand for children)
- At higher levels of education, education has a negative relationship to fertility. Its negative effect is consistent with the price of time effect (taste effect of education) and efficiency effect (efficiency in the use of contraception).
- Female with higher education tends to marry at a higher age (prefer non-familial activities).
- Rosenzweig and Wolpin (1982) find that households in villages with a school have lower fertility than households in villages without school.

Female education, labor force participation, and wages

- Participation in the labor market is negatively associated with fertility only for women in relatively high-wage modern sector jobs.
- Jobs outside modern sector (those in agricultural sector) do not take women far from household and allow flexible hours. These jobs do not increase the time cost of raising children and are not associated with low fertility.
- Rosenzweig (1982) also finds that farm households with more exposed to new agricultural technology have lower fertility and higher child schooling.

Family income and income distribution

- Controlling for parents' education in IV estimation on income, income has a positive effect on fertility.
- Within the same socioeconomic group, e.g. among small farmers, higher income parents tend to have more children.
- In industrial countries, income growth in the short run is associated with higher fertility.
- In the long run, income growth tends to be offset by social changes that reduce fertility, such as rising education, so that people with more income want and have fewer children.
- Below some minimum income, increases in income are associated with higher fertiity. Above some threshold, further increases in income are associated with lower fertility

Infant mortality and fertility

- A decline in infant mortality brings about a compensating decline in fertility.
- At the aggregate level, declines in fertiity have tended to lag behind declines in mortality. Therefore, we have rapid rates of population growth during the 1950s through the early 1970s.
- However, there are several problems complicate empirical analyses of the effect of infant mortality on fertility behavior.
- First, high mortality and high fertility may be jointly determined >> OLS estimates will be biased
  - We need to isolate the family-specific exogenous component of life expentency
  - High fertility may cause high mortality (reverse causal)

Infant mortality and fertility

- Biological effect vs. behavioral effect of mortality on fertility.
  - Probability of child mortality could increase the cost per surviving child and increase the number of births required to obtain a survivor.
  - If parental demand for surviving children is elastic, a reduction in the cost (price of births) with a decline in (exogenous) mortality should increase the demand for children and raise fertility.
  - If inelastic, mortality decline should reduce fertility. The price of child quality is lower, encouraging investment in child quality (in schooling and health).

Infant mortality and fertility

- Replacement behavior (replacement of lost children) is likely to be significant for the highest and lowest levels of development.
- On average, families do not completely replace a lost child.
- Hence, in the short run, infant mortality reduces overall population growth, given others constant.
- In the long-run, the effect of reduced mortality is probably to reduce fertility in a more than compensating amount, and shifting toward child quality investment.