The Magnitude and Gender Consequences of the Demographic Dividend

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Demographic Transition Effects on the age composition

- Ratio of Children (0-14) to Working Age Adults (15-59) decreases
- Ratio of Working Age Adults to the Total Population is more stable, because share of elderly increases gradually
- Tables 1 indicates Adult population share in developing countries decreases from 61 to 59 percent from 2005 to 2050, according to UN median projection– a modest decline

Change in Working Age Adult share of population by continent

- East Asia declines from 66 to 55 percent, due to the inclusion of China
- Latin America declines from 61 to 58 percent
- South and West Asia increase slightly
- Africa increases from 53 to 61 percent, having begun its demographic transition last

Macro economic benefits associated with an increase in working age share of population depend on several factors

- Age Profiles of individual productivity and savings rates may imply gains in output and savings per capita, other things equal
- Measurement problem arise in attributing product or savings to individuals by age, when young and old are not observed as heads of their own households, and wages only for wage workers
- Moreover, household formation and wage work are responses to the relative income and consumption needs of individuals

Micro economic perspective on the demographic transitions focuses on household lifetime resource reallocation from having more children toward substitutes for children

- Increased Investment in Child Human Capital: health, schooling, migration
- Investment in Women's health and productive skill raises their wage opportunities, and they reallocate labor to home and market production
- Accumulate Physical Capital to smooth consumption in retirement with fewer children

Causal Inference problems with estimating household lifetime substitution effects of fertility

- Substitution effect of a decline in fertility may differ depending on the origins of the decline:

(1) opportunity costs of women's time increases;

(2) returns to child schooling increases;

(3) child mortality decreases;

(4) cost and uncertainty of birth control techniques decreases, etc.

Estimation of Substitution Effect due to Fertility Decline requires an Instrument that affects directly only fertility

- Best available instrument is the occurrence of twins, an “undemanded” shock to fertility supply, which is arguably independent of parent demand preferences or unobserved family constraints
- Not ideal, because twins are lighter and lower “quality” than singleton births, and the spacing of twins places strains on availability of credit to the family to invest in child human capital, and twins are only a few percent of births,i.e. a weak instrument

Twins and other estimation techniques confirm that parents do substitute child human capital for exogenous declines in fertility

- But estimated effects of twins on the schooling of other siblings is only about half as large as the simple partial correlation with fertility, which is biased upward by heterogeneity
- But to assess the fertility effects on the mother's labor supply, estimated effects from twins are not as satisfactory because of the timing of twins

To understand the determinants of women's labor supply, a variable is needed that affects the productivity of women only in non-wage activities

- In rural households this variable may be the land or business assets of the family, which raises the woman's non-wage productivity – e.g. Bangladesh
- In urban households this variable may be a woman's non-earned income, ownership of assets, or possibly her claims on network resources of her parents and extended family
- Her human capital, however, may affect both her market wage offers and home productivity

This framework can explain who works in the wage labor force, and corrects for bias in estimating women's productivity

- It also provides the structure around which household studies can jointly explain:

1) Who works for wages
2) How productivity per hour varies
3) Time allocation among activities: wage work, self employment, home production, and leisure
4) Lifetime fertility

Two Studies of rural South Asia identify the effect of outside developments on fertility and women's labor supply

- A Social Experiment in Matlab, Bangladesh which provided half of the district villages with home access to birth control and health services, followed from 1977 to 1996 (Joshi and Schultz, 2007)
- A panel survey of rural Indian households from 1977 to 1999 for which agricultural technical change differed (Foster and Rosenzweig, 2006)

Matlab Social Experiment in home delivery of contraception

- After five years in 1982, fertility is 16 percent lower in 71 program villages than in 70 comparison villages, and remains 15 percent lower after 19 years in 1996
- Women 25-54 receive wages that are a third higher in program villages by 1996, and their household assets are also proportionately larger, whereas male wages do not differ.
- Women and their daughters have better health as measured by their body mass index (BMI) and sons have significantly more schooling
- But women reallocate time to home production

NCAER Rural Indian Household Panel Survey (ARIS-REDS)

- Green revolution raises village level agricultural yields, which raises women's wages after 1982, and reduces their fertility
- Agricultural technical change increases schooling of boys and girls age 5-14
- But rising women's wages does not increase women's participation in the wage labor force.
- Income effects must have augmented household demand for home production of women or leisure

There are few estimates determining fertility, female time allocation, and child human capital investments

- These two studies imply that women reallocate their time from child care to home production with fertility decline
- Does this imply that labor markets for less educated rural women are distorted or limited?
- Or are customary restrictions on the mobility of these women limiting their pursuit of off-farm work?
- Village health and family planning programs unrelated in India to demographic/economic change, suggesting the need for social welfare program evaluations

Policy Conclusions

- Labor market regulations in the form of minimum wages, mandatory social insurance, and fringe benefits restrict employment for the least educated, inexperienced women in search of entry level jobs – this is a well documented problem in Latin America, and could become a problem for women in Asia and Africa
- Micro-credit programs oriented to poor women should expand their objectives to fund women's investments in the human capital of their children and to assist women in their search for more rewarding wage jobs

Programs to assist women out of poverty need to be targeted to those for whom effects on fertility and family are large

- Family planning and reproductive health programs may be effective where women have their mobility restricted or for other reasons have limited access to public social welfare programs
- Program evaluation and targeting may be useful
- Technical change and liberalization of international trade associated with returns to schooling and benefit for women's productivity and wages relative to those of men and children