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Updated: September 2009



The Effects of Health and Demographic Change on Economic Growth: Integrating Micro and Macro Perspectives – Part IV

IV. Long-Term Effects of Child Nutrition and Health on Adult Productivity in Bangladesh

The Brown University research program aims to increase the understanding of how investments in health and fertility decline contribute to economic growth. The project focuses on the effects of changes in health and demographic structure on the level of economic activity, the role of demographic change in the sustainable use of environmental resources, and the long-term effects of early child health and nutrition on adult productivity. This subproject uses longitudinal data to link early nutritional intake, nutritional status, and adult outcomes including productivity.

Country where the research will take place

Bangladesh

How does the research describe the impact of population/reproductive health on poverty reduction and/or economic growth?

Most data sets that are informative about the nutritional status of children and adults in low-income countries are consumption-type surveys that describe food consumption at one point in time and at the household level, from which one must infer intrahousehold allocation to individuals. A small number of studies provide food intake and nutritional status information at the individual level, with even fewer still also providing detailed information on the socio-economic environment of the respondents. Except for the longitudinal survey from Bangladesh that is being continued and analyzed as part of this project, no large-scale surveys from low-income countries, however, have followed and monitored the health and economic status of individuals within a family context over long time spans so as to enable an assessment of the links between early nutritional intake, nutritional status, and adult outcomes including productivity.

How will the research address a policy need, and what kind of policy lesson is expected?

This program and project will produce results that contribute to a more nuanced understanding of the mechanisms that underlie the relationship among health, fertility, and economic growth. The results from the analysis of health's effect on economic growth will have a number of policy-specific uses.

Methods used

Using longitudinal data from the Nutrition Survey of Bangladesh, researchers will use new panel data to assess the contribution of economic growth and early health interventions on adult outcomes, inclusive of spatial mobility in a dynamic environment. The new survey round in 2007 will add importantly to this data set by 1) providing a more precise fix on how those 0 to 5 years of age in 1981 to 1982 are faring as adults; these individuals were still relatively young adults at the beginning of their work, marriage, or childbearing careers in 2000; 2) disentangling the separate influences of the age at which the childhood intervention occurred and the age at which the adult outcome is measured; 3) adding two important outcomes that are independent of the work choices of the respondents—cognitive ability as measured by a series of tests, and direct measures of physical performance using measures of strength and pulmonary function; and 4) directly measuring exposure to particulates and carbon monoxide using portable air monitoring equipment. The three rounds of longitudinal data will thus provide a rich basis for quantifying the relationship between early nutritional intake and health interventions (indoor air pollution), geographic mobility, and adult outcomes including economic productivity; as well as the health and general human capital of the children of these respondents.

Data used

The 1981 to 1982 Nutrition Survey of Bangladesh serves as the baseline. A newly completed survey of the households in the same 14 villages including a resurvey of all surviving members of the households, and a new additional survey round to be carried out in 2007 to 2008, will provide multi-level (individual, household, and village) longitudinal sur-

vey information on the nutritional intake; exposure to indoor air pollutants; health status; activities; cognitive function; strength; and economic productivity of over 4,000 men and women. The new survey round that is in the process of being collected adds importantly to this data set by adding three important outcomes that are independent of the work choices of the respondents—cognitive ability as measured by a series of tests; direct measures of physical performance using measures of strength and pulmonary function; and direct measures of exposure to particulates and carbon monoxide using portable air monitoring equipment. The three rounds of longitudinal data will thus provide a rich basis for quantifying the relationship between early nutritional intake and health intervention, including

indoor air pollution, geographic mobility, and adult outcomes including economic productivity, as well as the health and general human capital of the children of these respondents.

This resurvey is an opportunity to measure arsenic exposure through collection and analysis of toenail clippings. Through integrating information on the history of arsenic exposure, we relate that exposure to our measure of physical strength, the energy intensity of effort and time allocation, cognitive function, nutrition, and anthropometric status.

Notes

This project is in its second year of funding.