



Mother's Education and Child Health Outcomes in Burkina Faso: Is there a Strong Causal Relationship?

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Outline

- Background
- Research Problem
- Motivation
- Objectives
- Policy Change
- Previous Evidence
- Conceptual Framework
- Data
- Methodology

Background on Burkina Faso

- Land area = 274,000 km², Population = 16.5 million (2012), GNI per capita = \$602 (2012).
- In Burkina Faso, the prevalence rate for stunting (height-for-age) was 35% in 2010.
- In 2012 the gross school enrolment rate for primary, secondary, and higher education were 82%, 25%, and 4%, respectively.

Research problem

- High prevalence of stunting in preschool children in Burkina Faso (Rates between 30 and 39% are considered high)
- Link between child health and child nutrition: malnourished children are more likely to develop illnesses that can have long lasting effects throughout their lives.
- Mothers play an important role in child nutrition. How does her education come into play?

Why are child health outcomes important?

- Costs of related illnesses (physical suffering, time costs and monetary costs).
- Impacts on ability to learn i.e. on schooling outcomes.
- Impacts on productivity later in life which could adversely affect economic growth

Objectives

- **General objective:**
 - Examine the relationship between maternal education and child health in Burkina Faso
- **Specific objectives:**
 - Verify whether a strong causal relationship exists
 - Understand the channels through which mother's education affects child health
 - investigate whether threshold effects exist, that is, whether specific years or levels of mothers' education have unusually large impacts on children's health.

Change in education policy in Burkina Faso

- Massive primary school construction took place under the Plan décennal de développement de l'éducation de base (PDDEB) 2001-2010 in Burkina Faso with the number of public schools increasing from 4,697 in 2001 to 8,831 in 2010, a 188% increase.
- Both girls and boys benefitted from the program with enrolment rates rising from 38.9% to 75% and 54.1% to 80.2% between 2001 and 2010.

Previous Evidence

- Empirical studies without pathways (did not use natural experiment):
 - Baya (1998) found no impact on mother's education on child survival in Burkina Faso
 - Appoh and Krekling (2005) found a positive and significant impact of mother's education in Ghana .
- Empirical studies without pathways (used natural experiment):
 - Breierova and Duflo (2004) found positive and equal importance of mother's and father's education (Indonesia)
 - Chou et. al. (2007) found that mother's education reduces child mortality in Taiwan

Previous Evidence

- Empirical studies with pathway(s):
 - Thomas et al. (1991): acquisition of information
 - Glewwe (1999): health knowledge
 - Handa (1999): information processing
 - Burchi (2010): health knowledge and wealth

Contribution

- Many have studied the subject but few studies have used natural experiments (change in policy) in identifying the relationship between mother's education and child health in developing countries
- Use of both natural experiment and pathways
- Estimation of threshold effects

Conceptual framework

- Draws on Becker's model of the family, and Rosenzweig and Schultz (1983) health production function
- Consider the following equations:

$$U = u(\mathbf{X}, H)$$

$$H = h(\mathbf{Z}, \mathbf{I}, \mu)$$

$$M = p_1\mathbf{X} + p_2\mathbf{Z} + p_3\mathbf{I}$$

- Where X is market goods, Z represents goods that affect child health, H is child health, I represents inputs that affect utility only through their effect on H and μ is child health endowment.

Conceptual framework

- Estimating H requires detailed data on health inputs, data which are not available to this study. A way out of that, is to use reduced form equations.
- Maximizing U subject to the health production and the budget constraint yields reduced-form demand functions for X , Z , H and I .

Data

- Main source: Burkina Faso 2010 Demographic and Health Survey
- Additional data sources include the Ministry of primary education, World Development Indicator database and UNESCO: number, location, and year of construction of the schools, and enrollment information by province

Methods and Procedures

- Parents' education and child health maybe affected by many 'unobservables'. To identify the effect of parents education on child health, a system of equations will be used:

$$S_i = \alpha + \lambda_k + \delta \mathbf{Z} + \gamma \mathbf{X} + \varepsilon_i$$

$$H_i = \tau + \lambda_k + \beta S_i + \theta \mathbf{X} + v_i$$

- For robustness check, a difference-in-differences approach will also be used:

$$S_{ijk} = \alpha + \lambda_k + \beta_j + \delta P_k T_i + \gamma \mathbf{R}_k T_i + \varepsilon_{ijk}$$

T dummy var. for young cohort

P program intensity

Methods and procedures

- Use both two-stage least squares and difference-in-differences methods to estimate the impact of mother's education on child health.
- Add income, mother health knowledge, mother's bargaining power, etc. to the child health equation and estimate it.
- Include dummy variables for each year of mother's education to estimate threshold effects



Thank you!



Questions?