

The Nature of Maternal Work and Children's Health and Educational Outcomes in Nepal: A Study using the Nepal Living Standards Survey (NLSS) of 1995/96 and 2003/04

**Ashish Bajracharya
Cornell University
ab377@cornell.edu**

Extended Abstract

In recent years, two areas in the developing world have received a great deal of attention: women's economic roles and the survival and healthy development of children. As an astounding number of women have entered into the labor force all over the developing world, researchers have increasingly become interested in the impacts that maternal work could have on their children's all round healthy development. While much of the earlier research on women's work related their employment to fertility, the increased visibility and participation of women in the market economy coupled with the continued high levels of child mortality, morbidity and malnutrition in the developing world has generated much interest in research that examines the linkages among these variables.

While most developing countries still remain in poverty, most economies have generally shifted away from agriculture to industry and services alongside global macroeconomic changes and transitions in the means of production. These changes have drastically altered the nature of work for both men and women in these countries. Given the multiple roles that women play in their households, these changes have been of particular consequence to them. On the one hand, transitions into more formal sectors of the economy have given women higher wages and earnings, allowing for greater investments in their own and their children's welfare (a positive *income effect*). On the other hand, these transitions have also compelled women to work away from their homes and their children, creating challenges for childcare in the household (a negative *time effect*). These opposing time and income effects are clearly indicative of the complexity of these issues and of the challenges that transitions in women's work create for mothers, their children and their families, particularly when they live in extreme poverty. The goal of this paper will thus be to explore this understudied yet important topic and to examine the consequences of these effects on children's health and education, two of the most important indicators of development in underdeveloped countries.

In order to answer these questions, I use longitudinal and cross sectional data from Nepal, one of the poorest and least developed countries in the world. Using the wealth of household data on men, women and children from the Nepal Living Standards Survey (NLSS), this study mainly seeks to examine whether the transitions of parents, particularly mothers, from agricultural and informal self employed forms of work into more formalized and wage-based forms of employment could have significant consequences for the health and schooling outcomes of their children. Nepal is an interesting country for this study for several reasons. First, until 1981, around 90% of economically active men and virtually all of the economically active women were engaged in the agriculture sector. By 2001, these figures had dropped to around 60% and 73% respectively¹. Also, Nepalese society has undergone very rapid social, economic and political changes in the last several decades catalyzing changes in the labor force.

While questions regarding how maternal work *effort* affects children and families have been of interest to researchers and policymakers alike around the developing world, and a strong literature spanning

¹ Central Bureau of Statistics (2003). Also see Figure 1.

three decades exists on countries ranging from those in Latin America to Southeast Asia², there is a noted void in research that focuses on which sector the mother works in. This study will be the first of its kind to address the nature maternal employment and child wellbeing in Nepal and will be among the few that have addressed the sector of maternal work in the development literature.

Data

Data for this study comes from the 1995/96 and 2003/04 waves of the Nepal Living Standards Survey (NLSS I & II). The NLSS is a multi-topic household survey conducted by the Central Bureau of Statistics (CBS) of the Nepalese Government in conjunction with the World Bank. This survey follows the World Bank's Living Standards Measurement Survey (LSMS) methodology. The NLSS I collected data from 3373 households from around the country in 1995/96. Similarly, The NLSS II enumerated data from 3912 households. In addition to these cross sectional households, 962 households were chosen in the NLSS I as panel households and were re-interviewed in the NLSS II, facilitating the tracking of changes in living standards of a representative sample of the Nepali population over this period. The NLSS collects comprehensive data on different aspects of household welfare in Nepal including questions that pertain to a multitude of economic, demographic and health related behaviors of all members of the chosen households. This household survey is the most comprehensive and complete household level survey ever collected in Nepal.

In this study, I use matched mother-child data on a sample of children under the age of 19 whose mothers are economically active, i.e. at least participating in one economically gainful activity. The analyses will be conducted for four separate age groups of children: children under the age of 5, children aged 5 to 9 years old, children aged 10 to 14 years old, and children aged 15 to 19 years old. Analyses will also be conducted by stratifying the sample by the gender of the child and urban/rural households.

Measures

The independent variables in this study distinguish between the following characteristics of the mother's (and father's) work, capturing two important domains of economic participation in the labor force:

- a) Whether the work was in the formal wage-based sectors or the informal self employment sectors of the economy.
- b) Whether the work was in the agriculture sector or the non-agriculture sector

These variables, coded as dummy variables, are obtained from detailed data on the type of economic activities available in the NLSS about both the mother and the father.

The dependent variables will measure several different domains of children's health and education in separate age groups. Among health related variables, outcome variables include the child's parent-reported health status, whether the child was ill in the past calendar year, and the child's morbidity to common acute illnesses such as diarrhea, respiratory problems such as cough and general fever related illnesses. Additionally, a variable indicating immunization completion is also included for all children. Among education related variables, schooling outcomes are measured for children aged between 5 and 19 years of age (school going age). These include a simple measure of whether a child has ever been enrolled in school, whether the child is currently enrolled in any kind of school, and whether a child has ever dropped out of school. In addition, a measure of whether the child attends a private school is

² For a review, see Glick (2002); early literature reviewed in Leslie & Paolisso (1989)

also measured to account for schooling quality. These variables are measured for all children. As educational attainment indicators vary by age, variables that indicate whether the child has completed primary school or secondary school and the number of years studied towards completing or to complete these levels of schooling are measured as appropriate for the age of each child in the sample.

The analyses in this study will control extensively for a range of parental, child, family and demographic characteristics. These variables can broadly be categorized into several categories that represent the key influences that might confound the results. These categories include:

- a) Human capital characteristics of the parents: e.g. age, level of education, health status.
- b) Maternal work related characteristics: e.g. number of working hours of the mother, her total earnings, her wage rate and whether the mother was head of the household (to determine for her control over her income and household decision making)
- c) Non-maternal family income and assets: e.g. income of other household members and non-maternal assets including value of land, machinery, and livestock owned etc.
- d) Family size and composition: e.g. total family size, number of children in the household in different age groups (0-4 years, 5-9 years, 10-14 years and 15-19 years)
- e) Variables indicating adequacy and access to resources: These include access to basic resources such as distance to nearest primary school, health post, paved road, source of drinking water, telephone etc. from the household and adequacy of food consumption, clothing, health care and school access and income as reported by the respondents.

Analytical Plan

The analyses in this study will be conducted for both cross-sectional and panel data from the NLSS. For the cross-sectional data, the analyses will include a series of ordinary least squares (OLS) regressions for models with continuous dependent variables and logistic regressions for models with dichotomous dependent variables, for both waves. Regression techniques such as child fixed effects that take advantage of the panel structure of the smaller set of households that are part of the NLSS will be employed to estimate potential causal linkages among variables among panel households.

In the cross sectional data, the OLS and logistic regressions will follow sequential specifications, with each additional specification adding an additional set of control variables mentioned in the categories above. Such a model allows for the concurrent examination of any mediating effects of the intermediary variables. The final model with a full set of intermediate and control variables can be represented by the following equation:

$$\text{Child Health / School Outcomes} = \alpha + \delta (\text{Maternal Work Pattern}) + \beta_1 (\text{Paternal Work Pattern}) + \beta_2 (\text{Maternal Wage Rate \& Earnings}) + \beta_3 (\text{Non Mother Family Income \& Assets}) + \beta_4 (\text{Human Capital Characteristics}) + \beta_5 (\text{Family Size and Composition}) + \beta_6 (\text{Adequacy of Resources/ Access to Resources}) + \beta_7 (\text{Child and Family Controls}) + \varepsilon$$

In the panel data models, a child fixed effects model will be estimated, which can be represented by the following equation:

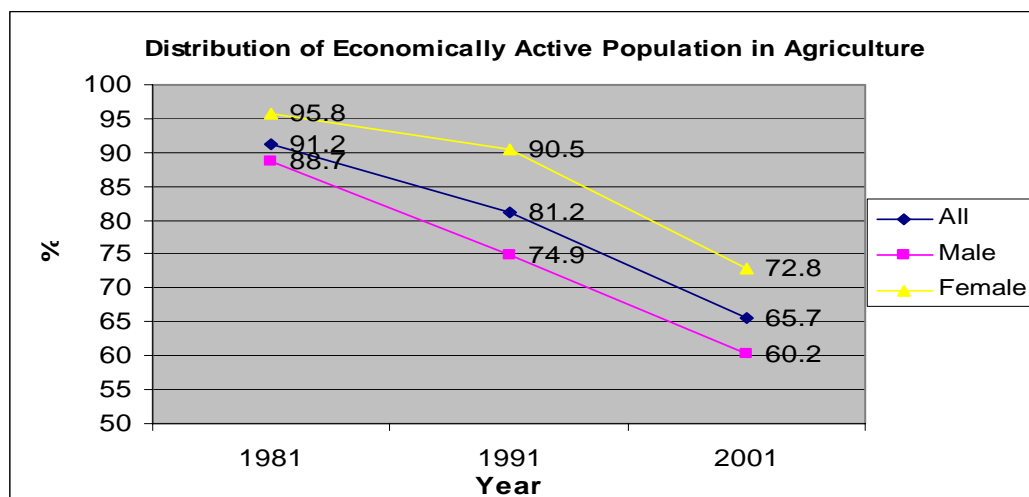
$$\text{Child Health / School Outcomes}_{it} = \alpha_0 + \alpha_i + \delta (\text{Maternal Work Pattern})_{it} + \beta_1 (\text{Paternal Work Pattern})_{it} + \beta_2 (\text{Maternal Wage Rate \& Earnings})_{it} + \beta_3 (\text{Non Mother Family Income \& Assets})_{it} + \beta_4 (\text{Human Capital Characteristics})_{it} + \beta_5 (\text{Family Size and Composition})_{it} + \beta_6 (\text{Adequacy of Resources/ Access to Resources})_{it} + \beta_7 (\text{Child and Family Controls})_{it} + \varepsilon_{it}$$

where α_i is the child specific fixed effect. The fixed effects models here are appropriate because the individual specific unobserved effects may be correlated with one or more of the explanatory variables. The main advantage of a model such as this is that in this model, all time invariant observed and unobserved child and family characteristics are differenced out. In other words, the child fixed effect controls for not only the fixed or time invariant individual characteristics that are unobserved, but the α_i absorbs the effects of the constant explanatory variables that are observed as well.

Trends in Employment in Nepal (1981-2001)

The following figure shows the trend in distribution of employment of men and women in Nepal in the Agriculture sector from the Census between 1981 and 2001. This includes all economically active persons in the population.

Figure 1. Trends in Agriculture Sector Employment for Men and Women in Nepal from the Census



Source: Population Monograph of Nepal 2003 (Central Bureau of Statistics)

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