

Maternal Participation and Child Health in a Developing Setting

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In recent years, the idea that participation in community activities may create network resources that in turn improve the well-being of individuals and families has gained considerable prominence among both researchers and policymakers. It has been suggested that the “social capital” generated from these networks may in some instances substitute for financial capital, particularly in poor communities or for poor households in developing countries. In this paper I assess the link between participation in community activities and health. Specifically, I ask whether children are healthier when their mothers are active within their communities.

A positive link between maternal participation and child health could arise via several pathways. For example, through participation and interaction with other parents, mothers may acquire information that helps them raise healthier children. Mothers may also develop connections with women who can help provide care for the child, or help them navigate the process of obtaining formal medical care or interpret a health care provider’s advice when the child is ill (Gryboski 1996).

It is important to note that with respect to child health, information sharing through social interaction may potentially benefit the giver of the information as well as the receiver. Unlike information related to income generation, wherein competitive neighbors, friends, and acquaintances may risk personal loss by information sharing, no substantial incentive exists to protect information related to children’s health. In fact, given the transmission mechanisms of viral infection and disease, parents may actually benefit from good health among the children with whom their own children interact.

DATA

This study uses data from the 1997 and 2000 waves of the Indonesia Family Life Survey (IFLS), a panel survey that represents over 83 percent of the Indonesian population. The first wave of IFLS was fielded in 1993 and interviewed over 7,200 households. The second and third waves, fielded in 1997 and 2000, respectively, successfully re-interviewed over 94 percent of households in the original sample (Frankenberg and Thomas 2000, Strauss et al. 2004). The resulting sample contains data on over 32,000 individuals in 321 communities.

IFLS data include extensive information on both individuals and households, including data on height, measured by trained anthropometrists for all respondents. Additionally, adults provide data on their participation in various community organizations. The IFLS data also include community-level information from interviews from village leaders and the head of the village women’s group. These interviews concern a wide range of topics; among them, the history and presence of community organizations in which residents are involved.

This study focuses on the health of children between the ages of 0 and 10, as a function of the characteristics of their mothers, households, and communities.

CHILDREN’S HEALTH

Many aspects of children’s health have been considered in the literature, including both health behaviors, such as curative care methods and immunization uptake, and health outcomes, such as mortality and nutritional status. This study will focus on nutritional status. The most common approach to measuring children’s nutritional status is to use an anthropometric indicator such as height-for-age, because it reflects both the amount and nutritional content of food intake, as well as the presence of disease and infection. Height-for-age is a direct measure of growth, but it is considered an indirect measure of nutritional status as well (Pinstrup-Andersen et al. 1995).

Because height varies systematically with age and gender, capturing height variation within a population is facilitated by standardizing respondents' values against the median values for children of the same age and sex from a reference population. For this reason, measures of height-for-age in Indonesia are standardized against gender and age specific medians of children in the United States.

COMMUNITY PARTICIPATION

In general Indonesian villages offer a number of opportunities for individuals to interact socially, and in fact, Indonesia is recognized as a success story by many donor organizations for the development of a series of community participation programs (Shiffman 2002, World Bank 2003). In practice, participation programs represent an effort to place community development and maintenance in the hands of the communities themselves to supplement the work of the national government. The goals of these programs vary, but include improving education, sanitation, security, and village upkeep while involving and empowering community residents (Wibisana et al. 1999). This study focuses on the availability of five such programs in Indonesia: community meetings, village cooperatives, voluntary labor, village improvement projects, and village women's associations. IFLS asks respondents about participation in programs over the previous 12 months. In 1997, more than 20 percent of adult female respondents reported participating in at least one program.

Because community programs are developed at the village level, they are not likely to involve a mother's closest ties prior to her participation in the activity. In community programs, a woman is more likely to interact with people outside of her closest social circles. For this reason, community programs should extend a mother's social network and access to breadth of information beyond what would be available to her without participating in these organizations.

The benefits of social networks are thought to be particularly important for families from households of lower socioeconomic status, who cannot otherwise afford to purchase the things that participation provides, such as help with child care or aid in treating illness. For this reason, this study also examines the relationship between mothers' participation and child height-for-age stratified by socioeconomic status indicators.

PRELIMINARY RESULTS

The primary objective of this research is to assess the relationship between mothers' social participation and children's health outcomes. To do so, child height-for-age is regressed on a number of covariates, including the number of community programs in which a mother participates. The coefficients estimated from this type of regression are indicative of whether an association between maternal participation and child height exists. However, interpreting that relationship as a causal one is problematic for a number of reasons.

One concern is the issue of reverse causality. Mothers with children who are sick may be unable to participate in community programs because of the time required to care for the children. To address this issue, I measure children's health outcomes at a later point in time (2000) than maternal participation (1997).

A second problem arises if maternal participation is related to maternal characteristics which are also associated with child health. I address this issue by first identifying the factors related to mothers' participation and then controlling for these factors in the models predicting child health. In regressions of mothers' participation on maternal covariates (not shown), socioeconomic factors such as education, age, and household expenditures are significantly associated with participation. The estimates of child height-for-age, then, control for these characteristics. It is possible, however, that mothers who participate in social activities may choose to do so because of some unmeasured characteristic that also makes them particularly successful or unsuccessful with respect to their children's health.

Finally, coefficient bias arises if mothers' participation is related to un-measurable community characteristics which also affect child health. For example, mothers may be particularly likely to participate in communities where government services work well, and conditions related to sanitation and hygiene are above average. To address this issue, community fixed-effects are included in the estimates. This provides estimates of the relationship between maternal participation and child health outcomes, net of community characteristics, both observed and unobserved.

Table 1 presents the results of three specifications for the regression of child height-for-age on maternal participation, controlling for a number of individual, household, and community level characteristics.

In the first specification, I find that there is a positive but not statistically significant relationship between the number of programs in which a woman participates and the height-for-age of her child. The coefficient is small in magnitude. In the second specification I introduce an interaction between the participation measure and whether the mother and child are from a relatively poor household—one in which the level of expenditures is below the median. The relationship between participation and child height for age is much stronger for individuals from poor households. In fact, a positive relationship between participation and child health is only observed if the child is from a household with per capita expenditures below the median.

In sum, maternal participation in community programs appears to mitigate the deleterious effects of growing up in a poorer household. Figure 1 displays these trends in a graph of predicted height-for-age values by maternal participation. When community fixed effects are added in the third specification, the coefficient of maternal participation attenuates somewhat, but remains positive and significant, suggesting that maternal participation may in fact provide a benefit to child health for poorer families.

FUTURE WORK

While several of the potential difficulties of interpreting the association between maternal participation and child health have been addressed, the current estimates may not have adequately eliminated potential coefficient bias arising from unobserved characteristics of the mother that drive both her participation and her children's health status. In future research, I will explore using an instrumental variables approach. This requires identifying a variable that predicts mothers' participation but is otherwise unrelated to children's health status. Given the richness of IFLS data, it is likely that such an instrument can be identified—for example, the availability of participatory community activities in the village.

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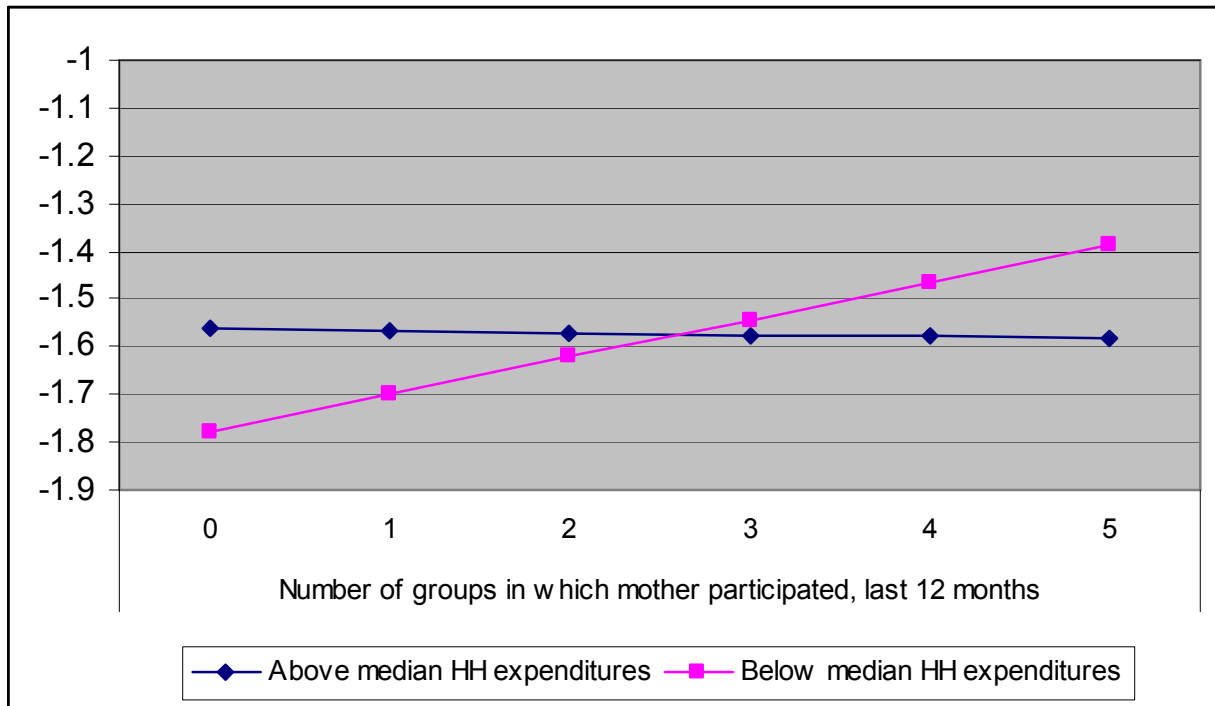
Table 1. Coefficients of Height-for-Age, Indonesian Children 0-10, 2000.

	OLS with robust standard errors	OLS with robust standard errors	With Community Fixed Effects
Covariates (1997)			
Number of programs in which Mother participated	0.03	0.00	-0.02
Number of programs*HH below expenditure median	-	0.08*	0.08*
HH below median in per capita expenditures	-0.17*	-0.21*	-0.17*
Child's age	-0.02*	-0.02*	-0.03*
Child is male	-0.11*	-0.11*	-0.12*
Child's birthweight (g)	0.19*	0.19*	0.22*
Child's birthweight is missing	-0.14*	-0.14*	-0.10*
Mother's height (cm)	0.06*	0.06*	0.05*
Mother's education - 0 years	0.08	0.08	0.04
1-5 years	-0.04	-0.04	-0.03
6 years	-	-	-
7-11 years	0.10*	0.10*	0.08
12+ years	0.30*	0.30*	0.29*
Mother's age - 15-24 years	-	-	-
25-34 years	-0.08	-0.08	-0.05
35+ years	0.02	0.02	0.07
Household moved between 1993 and 1997	0.07	0.07	0.02
Houshold in an urban location	0.15**	0.15**	-
Mean HH per capita expenditures in community	0.11	0.11	-
Constant	-11.01	-11.01	-9.87
Observations	5146	5146	5146

Omitted category for maternal education is 6 years (completed primary school). Omitted category for maternal age 15-24 years. Controls for province location not shown.

*p<=0.05

Figure 1. Predicted Child Height-for-Age* by Maternal Participation and Per Capita Household Expenditures, Indonesian Children, 2000.



*Height-for-age values are standardized against the United States age- and sex-specific population medians.