INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

sustainable solutions for ending hunger and poverty

FOOD CONSUMPTION AND NUTRITION DIVISION

August 2005

FCND Discussion Paper 200

Is Greater Decisionmaking Power of Women Associated with Reduced Gender Discrimination in South Asia?

Lisa C. Smith and Elizabeth M. Byron

2033 K Street, NW, Washington, DC 20006-1002 USA • Tel.: +1-202-862-5600 • Fax: +1-202-467-4439 • ifpri@cgiar.org
www.ifpri.org

Abstract

Recent research has shown that improving women's decisionmaking power relative to men's within households leads to improvements in a variety of well-being outcomes for children. In South Asia, where the influence of women's power is particularly strong, these outcomes include children's nutritional status and the quality of feeding and health care practices. Focusing on nutritional status, this paper presents the results of a study investigating whether increases in women's power have a stronger positive influence on the nutritional status of their daughters than their sons. If so, then increasing women's power not only improves the well-being of children as a group, but also serves as a force to reduce long-standing discrimination that undermines female capabilities in many important areas of life as well as human and economic development in general. To investigate this issue, the study draws on Demographic and Health Survey data collected during the 1990s in four countries: Bangladesh, India, Nepal, and Pakistan. The main empirical technique employed is multivariate regression analysis with statistical tests for significant differences in effects for girl and boy children. A total of 30,334 women and 33,316 children under three years old are included in the analysis. The study concludes that, for the South Asia region as a whole, an increase in women's decisionmaking power relative to men's, if substantial, would be an effective force for reducing discrimination against girl children. However, this finding is not applicable in all countries and for all areas and age groups of children. Indeed the study finds evidence that in some areas, for instance the northern and western states of India as a group, increasing women's power would lead to a *worsening* of gender discrimination against girls. This is likely the result of deeply embedded son preference associated with highly patriarchal social systems. The lesson for policymakers and development practitioners is that while increasing women's power is likely to improve the well-being of children, in some geographical areas it will not necessarily diminish discrimination against girls, which violates human rights and undermines the region's economic development and the health of its population. In these areas, to overcome son preference, economic returns to

girls will have to be increased and efforts to change customs regarding marriage and inheritance associated with patriarchal kinship systems, which favor males, will have to be made.

Key words: gender discrimination, nutritional status, Bangladesh, India, Nepal, Pakistan

Contents

Tables

Figures

Acknowledgments

This research is an extension of a larger project examining the determinants of child malnutrition in developing countries that was generously funded by the Swedish International Development Agency. We thank the other project researchers, Usha Ramakrishnan, Aida Ndiaye, Lawrence Haddad, and Reynaldo Martorell, as well as all those who assisted in the construction of the multicountry data set: Denise Zabkiewicz, Sonu Khera, Heather Hustad, Morgan Hickey, Julia Hendrickson, Raymond Dogore, and Yasmin Ali. We also thank Agnes Quisumbing for her insightful comments.

Lisa C. Smith and Elizabeth M. Byron
International Food Policy Research Institute

1. Introduction

South Asia is the region with the most severe anti-female gender discrimination in the world. Among adults, it is manifested in strong gender differences in education levels, employment, and earnings (World Bank 2001). The region's high rates of maternal mortality (Adamson 1996) indicate a neglect of women's health care. While not all studies agree, many find that males are favored in the allocation of food within households, especially when it comes to diet quality (Haddad et al. 1996; Chen, Huq, and D'Souza 1981; Bouis and Novenario-Reese 1997; Del Ninno et al. 2001; DeRose, Messer, and Millman 1998; Miller 1992).

Gender-based discrimination in the region is not limited to adults. Among children, boys are treated for illness more often than girls, and immunization rates are higher for boys, indicating a relative neglect of girls' health needs (Haddad et al. 1996; Filmer, King, and Pritchett 1998; Arnold 1997; Ryland and Raggers 1998; Hazarika 2000). The most extreme son preference in the world is found in South Asian countries. It stems from economic considerations such as the greater ability of sons to provide old-age economic support to parents, and from deeply engrained traditions, such as dowry, which make it costly to marry off daughters (Arnold 1997; Alderman and Gertler 1997; Rosenzweig and Schultz 1982). Perhaps the most disturbing manifestations of son preference are female infanticide (relatively rare) and an increasingly common "high-tech" form of discrimination, sex-selective abortion, leading to "natality inequality" between the genders (Sen 2001; Miller 2001). With these practices, girl children's rights are violated before they are even born or shortly after, times when they are most vulnerable and innocent.

The end result of gender discrimination among both adults and children in South Asia is a high rate of excess female mortality, unnaturally low life expectancies for females relative to males, and population sex ratios skewed disproportionately in favor of males. At an aggregate level, these skewed ratios document that millions of women are missing from the region's population (Sen 1992; Klasen and Wink 2001).

Poor health among girls and women leads to low birth weight in babies and continued health problems for both men and women, including increased incidence of cardiovascular disease later in life. Further, gender inequalities slow the pace of development by stalling economic growth and poverty reduction (Sen 2001; World Bank 2001). Reducing gender discrimination would not only improve equity, it would benefit the regions' overall social and economic development in many ways.

While women's decisionmaking power within households, where most of the decisions about care for children take place, is known to be lower than that of their husbands, women are the main caretakers of children in South Asia, as in most of the developing world. Past studies have demonstrated that when their power is increased, women use it to direct household resources toward improving their caring practices and, therefore, the health and nutritional status of their children (see, for example, Smith et al. 2003; Thomas 1997; Doss 1997; Kishor 2000; Mencher 1988).

This study asks if there is an association between women's power and discrimination against girl children in South Asia. The results will help assess whether women would use increased power to direct household resources toward equalizing the well-being of girls and boys. The measure used for examining gender discrimination among children is comparison of the nutritional status of girls and boys 0 to 3 years old. Nutritional status is the outcome of a child's nutrient intakes and health status, both of which are strongly influenced by the quality of the care children receive (UNICEF 1998).[1] The objective of the paper is to determine whether increases in women's decisionmaking power relative to their husbands will lead to greater improvements in girl children's nutritional well-being than boy children's, evidence that increasing women's power would serve to reduce gender inequalities not only among adults but in the next generation as well. The data employed are from nationally representative Demographic and Health Surveys conducted in Bangladesh, India, Nepal, and Pakistan.

[1] "Care" is defined as "the provision in household and communities of time, attention, and support to meet the physical, mental, and social needs of the growing child and other household members" (ICN 1992). Examples of caring practices include breastfeeding, complementary feeding, and the utilization of health services and facilities to attend to health needs targeted programs."

The next section reviews previous studies of the effects of parental power on investment in female and male children. Then the data sets, measures of child nutritional status and women's power, and methods employed are discussed. Finally the empirical results are presented and discussed, followed by concluding comments.

2. Parental Power and Gender Discrimination among Children

Power is the ability to make choices. It is the ability of a person or group of people to define goals and pursue them, even in the face of opposition from others. It is exercised through decisionmaking and can take the form of actual decisions made on one's own or made jointly with another person through a process of bargaining and negotiation. It can also take the form of deception and manipulation, subversion and resistance, violence, coercion, threat, or even "non-decisionmaking," in which a person or group accepts the status quo as given without reflection or allows others to make a decision for them (Kabeer 1999; Riley 1997; Safilios-Rothschild 1982; Sen 1990). A person's control over resources, including economic resources, human resources (such as education), and social resources (such as membership in groups), enhances her or his ability to exercise choice (Quisumbing and Maluccio 2003; Kabeer 1999; Sen and Batliwala 2000).

The question this study explores is whether increasing the power of women relative to men within households will bring about a reduction in discrimination against girl children in South Asia. There are at least three circumstances under which such a reduction might be expected. First, if women's basic preferences are inherently altruistic toward all, regardless of gender, we would expect them to strive to provide equitable care to boys and girls, given the ability to do so. Second, such a reduction might be expected if exposure to education, employment, and time spent outside of the home, which are common instigators of power shifts, bring increased consciousness on the part of women of gender inequalities and a subsequent growing sense of responsibility for reducing them among their own children. Finally, it might be expected if women and men have same-

sex preferences, in which case women would actually *favor* their own gender and thus tend to allocate increased resources under their control toward girls.

While some may think it inevitable that women will take action to reduce gender discrimination against girls as their power increases, for whichever of the above reasons, Sen (2001) questions this assumption. Pointing to the number of Indian women who choose to use sex-selective abortion, he writes "This face of gender inequality cannot . . . be removed, at least in the short run, by the enhancement of women's empowerment and agency, since that agency is itself an integral part of the cause of natality inequality" (Sen 2001, p. 11). He points to the examples of East Asian countries, such as Singapore, Taiwan, China, and South Korea, where two traditional paths to reducing gender inequality, increased female education and economic participation, do not appear to have reduced natality and mortality inequalities that favor males. These countries have even more male-skewed population ratios than those of South Asia.

Turning to the evidence from past empirical studies, most have explored parental investment patterns in children and have focused on control over resources as an indicator of power. Among these, few have looked specifically at differences in parental investment, disaggregating both between resources controlled by mothers and fathers as well as investments in daughters and sons. Those that do find mixed results.

Hallman (2000) finds that parental resource control, measured as control over current and premarital assets as well as transfers of assets at marriage, has different effects on child health in Bangladesh, depending on the gender of the parent and of the child. Mothers' resources reduce morbidity of preschool-age girls, while fathers' resources reduce morbidity of preschool boys. The study thus detects same-sex preferences in the effect of parental resource control, suggesting that increasing women's power would indeed reduce discrimination against girls.

Using data from four developing countries, Quisumbing and Maluccio (2003) test for differences in educational attainment of school-aged girls and boys associated with their mother's and father's education or assets controlled at the time of marriage. They find a pattern of same-sex preferences in Bangladesh, Ethiopia, and among households of

Indian origin in South Africa. They find no evidence of gender preferences in Indonesia, but of opposite-sex preferences among African households in South Africa. Among the latter, fathers' education and assets are associated with better educational outcomes for daughters than sons while mothers' education is associated with better outcomes for sons.

Similarly, while some earlier studies from across the developing world, as reviewed by Hallman (2000), find a pattern of same-sex preferences, others do not. Analyzing data from urban Brazil, Thomas (1990) finds that parents' individual non-labor income is associated with larger positive effects on the nutritional status of children of their same gender, that is, mothers invest more in daughters and fathers invest more in sons. Similarly, in Zambia, Wang (1996) finds that mothers' income improves infant girls' nutritional status while fathers' income improves infant boys'. However, a study by Haddad and Hoddinott (1994) concludes that increases in women's share of household cash income in Côte d'Ivoire result in greater improvements in boys' nutritional status than in girls', evidence of opposite-sex preferences.

Godoy et al. (2003) test whether parents invest resources consistently in favor of children of one sex, using panel data from an Amerindian group living in the Bolivian Amazon. The study considers a variety of resources, including income, wealth, and schooling, with nutritional status as the child well-being outcome. The conclusion reached is that mothers and fathers do not invest resources consistently in favor of children of either sex. For example, fathers' cash earnings are found to benefit boys more than girls, but fathers' schooling and wealth benefit girls more than boys. In the Philippines, Quisumbing, Estudillo, and Otsuka (2004) find that parents invest resources differently by gender of their children, directing greater investment in education to daughters and land inheritance toward sons. The authors conclude that land and schooling are alternate forms of intergenerational wealth transfers and may be close substitutes.

In sum, a clear global pattern of gender discrimination in investment in children by mothers and fathers does not emerge from existing research. This is to be expected as the relative returns to parents from investing in boys and girls, for example in the form of

old age support, as well as the degree of patriarchy in kinship systems, differ substantially across cultures and societies (see discussion below). With respect to South Asia in particular, while the two studies from Bangladesh, and that of households of Indian origin in South Africa, suggest same-sex preferences, no strong hypothesis as to the direction of the effect of women's power on discrimination among girl and boy children can be advanced given the dearth of studies. The rest of this paper attempts to fill this knowledge gap using a broad set of data covering multiple countries in the region.

3. Data, Measures, and Methods

Data

This study employs data from Demographic and Health Surveys (DHS) conducted in the 1990s in Bangladesh, India, Nepal, and Pakistan. These countries represent 97 percent of the population of South Asia. The sample includes 33,316 children under three years of age and 30,334 women-husband pairs, usually the children's parents.[2] The country with the largest sample size, by far, is India (see Table 1).

Table 1—The data sets and sample sizes

	Name of survey	Year of collection	Number of children (< 3 years of age)	Number of women/ husbands
Bangladesh	Demographic and Health Survey III	1997	2,767	2,633
India	National Family Health Survey II	1998	24,360	22,149
Nepal	Demographic and Health Survey III	1996	3,692	2,349
Pakistan	Demographic and Health Survey II	1991	2,497	2,203
Total from all countries			33,316	30,334

The DHS data sets are from nationally representative surveys of households with at least one woman 10 to 49 years of age. The surveys are based on two-stage sample designs. In the first stage, enumeration units or "clusters" are selected from larger

[2] Only children living in households containing both their mother and her husband are included, as is necessary for construction of the measure of women's relative decisionmaking power (see below). The percent of women dropped from the sample because they did not meet these criteria is 1.2 percent.

regional units within countries. Then households are randomly selected within clusters (Macro International, Inc. 1996). The data are collected by various in-country research and statistical agencies with technical assistance from Macro International, Inc., and major funding from the United States Agency for International Development. Due to similar survey instruments and data collection methodologies, the data are largely comparable across countries.

Measure of Child Nutritional Status

The measure of nutritional status employed is a child's height-for-age Z-score (HAZ), a long-term measure of nutritional well-being reflecting linear growth achieved both in utero and during early childhood. Children who have a HAZ two standard deviations below the median (HAZ ≤ -2) of the National Center for Health Statistics/World Health Organization international growth reference (WHO 1995) are considered to be "stunted." A stunted child has likely suffered from long-term inadequate nutrition or poor health or both.

Measure of Women's Relative Decisionmaking Power

The measure of women's decisionmaking power relative to their husbands used in this study is based on four indicators that are combined into an index using factor analysis. The indicators were chosen as part of a broader global study investigating the influence of women's status on child nutritional status in developing countries (Smith et al. 2003) and based on their conceptual relevance, their applicability across cultures, and their availability for a large number of developing countries. The sample for creation of the index includes 133,555 women and their husbands from 40 countries in four developing regions: South Asia, Sub-Saharan Africa, Latin America and the Caribbean, and the Near East and North Africa.

Indicators of women's relative decisionmaking power can be classified into three types (Kishor 2000): (1) those that give direct *evidence* of such power; (2) those that are

sources of power; and (3) those that characterize the *setting* of power. All three are important in measuring relative decisionmaking power in households, with the first capturing the end product, and (2) and (3) capturing the process leading to the outcome. "Direct evidence" indicators come from data collected through detailed surveys of the nature of decisionmaking in households, including control over resources, women's autonomy, and women's and men's attitudes on gender roles and acceptable behaviors. "Source" indicators of power represent the building blocks of power, which are knowledge and advantage in access to or control of resources. Examples of such indicators are education, employment, media exposure, earnings, and asset ownership. "Setting" indicators refer to the circumstances women and their husbands find themselves in that are a constant of their environment or that they were exposed to at different times in their lives. Examples of setting indicators are customs and norms regarding marriage (for example, dowry, levirate, co-residence with in-laws), the literacy and education of spouses' parents, age differences between spouses, education differences between spouses, and the degree of spousal communication (Kishor 2000).

Given the data available in the DHS surveys, this study employs source and setting indicators. In keeping with the multidimensionality of the concept of women's empowerment or status (Mason 1986; Jejeebhoy 2000; Sen and Batliwala 2000), four indicators, one in the area of employment, one in the area of marriage, and two in the area of human capital (education and experience) are employed. The following is a list of the indicators along with a brief rationale for choosing them. Note that indicators (1) and (2) are source indicators, while (3) and (4) are setting indicators. Table 2 reports the mean of each indicator for the study countries.

(1) Whether the woman works for cash income (*workcash*, a dummy variable*)*.

Contributing cash income to a household's budget is thought to be a source of increased decisionmaking power of women relative to their husbands for a number of reasons. First, it can give a woman a higher perceived contribution to her household's economic status. Second, employment is at the root of women's economic independence

from men. If such employment is gained other than in a family business, it increases a woman's fall-back position, giving her greater bargaining power. Her control over income may be enhanced either through her own earnings or a greater influence over the allocation of total household income, depending on her household's decisionmaking mode. These benefits are thought to be enhanced if the woman works for cash. Additional benefits if the woman works outside of her home are increased social contact, which provides a source of social capital outside of the immediate family or kinship group, exposure to knowledge and new norms of behavior, enhanced capability, and a clearer perception of individuality and well-being, all of which may enhance a woman's power relative to her husband's (Sen 1990; England 2000; Riley 1997; Kishor 1999, 2000).[3] In the study sample, 15.4percent of women work for cash. Note that because the large majority of sample men do so, this indicator essentially captures women's cash earning *relative* to men's.

(2) The woman's age at first marriage (*agemar*).

Across the world women usually marry at younger ages than men, and in developing countries they tend to begin married life at a very young age. The average age at first marriage of the women in this study is 17.1 years, with the lowest in Bangladesh at 14.3 years. At its foundation, age at marriage is directly linked to women's power, because early marriage is a strategy used by older generations to control the sexuality of unmarried females (Mason 1993). From a practical standpoint, early marriage is thought to perpetuate the weaker decisionmaking power of women than men in households. The earlier a woman marries the less likely she is to have an opportunity to develop an income-earning career, to create support networks beyond her family, or to complete schooling. This is partially because of the demands of childbearing, which start

[3] There is a long-standing debate over whether women who work outside of their home in very patriarchal cultures, for example, those in South Asia practicing *purdah*, actually gain power from doing so. Women may be looked down upon if they work outside of the home because it is considered a sign of poverty, since most only do so out of dire economic need (Mason 1986; Sathar and Kazi 1990; Safilios-Rothschild 1982). However, many studies have shown that even in the most patriarchal of cultures women who work eventually gain greater power despite initial resistance (Kishor 2000; Simmons, Mita, and Koenig 1992).

soon after marriage (Riley 1997; Kishor 1999). Men's ages at first marriage are not reported in the DHS surveys so it is not possible to construct a relative measure of this indicator.

(3) The percent difference in the woman's and her husband's age (*agedif*).

Power structures within the household are often based on age hierarchies. This indicator is included because in households in which men are considerably older than their wives, wives are believed to have a disadvantage in their ability to exercise decisionmaking power (Balk 1997, cited in Yount 1999; Kishor 1999). In all of the study countries women are generally at an age disadvantage relative to their husbands, with the average percent difference being around 20 percent. The percent difference (rather than the difference itself) controls for the age of the woman's husband, so that the same difference is given a higher value the lower the husband's age, basically giving this factor more importance for younger couples.

(4) The difference in the woman's and her husband's years of education (*educdif*).

Education confers many benefits on its holder that are sources of power, including increased opportunities for employment, increased knowledge and skills that allow one to better understand, interpret, and operate in one's environment (Kishor and Neitzel 1996; Kishor 1999), and increased social contacts outside of the home. In South Asia, as across most of the developing world, women are at an educational disadvantage relative to men. Our indicator captures relative difference in education by taking the total number of years of formal schooling of the husband minus the years of schooling of the wife. In the study sample, the average difference is 2.5 years.

Factor analysis is employed to combine the above four indicators into an index. This "data reduction" technique reduces a set of observed variables that are hypothesized to be related to one another to a smaller number of unobserved, more fundamental constructs called "factors." It does so by detecting structure in the relationships among the observed variables as represented by their correlation matrix. For each identified

factor, the analysis produces "loadings," one for each variable, that are estimated drawing only on the *shared* variance of the variables. The loadings are the correlation between the observed variables and the factor. If, after examining the loadings, the hypothesis is born out, then new variables (indices, or factor scores) that are linear combinations of the observed variables are estimated, based on the loadings. Note that the original observed variables are standardized before analysis so that their ranges and variations do not affect their index coefficients (Sharma 1996).

The factor analysis yields one factor for which the loadings of all four indicators are positive (and the eigenvalue is positive, meaning that sufficient variance is captured). The resulting index is calculated as follows:

$$dm\_index = 0.0701 * workcash + 0.3645 * agemar + 0.2832 * agedif + 0.1540 * educdif \ ,$$

where the values of the indicators are standardized values. Accordingly, *agemar* is given the greatest weight, followed by *agedif*, *educdif*, and lastly *workcash*. The final index is placed on a 0–100 scale for ease of interpretation in the regression analysis. The sample mean of the index is 34 (Table 2). It is highest for Pakistan, followed by India and Nepal, and lowest for Bangladesh. Note for reference that the index value for Norway, where women and men have the highest degree of equality in power in the world today according to the above indicators, is 59.2 (Smith et al. 2003).[4]

Smith et al. (2003) undertake a validation analysis using data from one of the study countries, India, in which the "validation variables"—which give *direct evidence* of women's decisionmaking power relative to men[5]—are compared with the four indicators and the index. The analysis shows that the indicators and the index are all significantly

[4] Note also that a factor analysis index based only on the four South Asian countries of this study assigns roughly the same index numbers to women, having a correlation with the 40-country index of 0.97 (p=0.000).

[5] The validation variables are dummy variables constructed from women's answers to the following questions: (1) Is the woman allowed to "set money aside"? (2) Does the woman participate in decisions about her visiting her natal family? (3) Does the woman participate in decisions on obtaining health care? (4) Is the woman allowed to both go to the market and to visit relatives or friends?

and positively associated with the validation variables. The index itself is quite strongly associated with them, and the indicators are ranked in strength of association as follows: percent difference in woman's and her husband's age (strongest), woman's age at first marriage, whether the woman works for cash income, and the difference in the woman's and her husband's years of education (weakest). We can thus move forward with confidence that the index indeed represents women's decisionmaking power relative to men's.

Table 2—Means of indicators and index of women's decisionmaking power relative to men

	Whether woman works for cash	Woman's age at first marriage	Age difference of woman and husband	Education difference of woman and husband	Index of women's relative decisionmaking power
	(yes=1)	(years)	(percent)	(years)	(0-100)
India	0.165	17.6	-17.40	-2.48	34.5
Bangladesh	0.200	14.3	-26.39	-1.16	28.6
Nepal	0.071	16.2	-13.26	-3.17	33.7
Pakistan	0.107	17.9	-16.97	-3.11	35.8
South Asia	0.154	17.1	-17.98	-2.45	34.0

Empirical Methodology

The central empirical task of this paper is to investigate whether women's relative decisionmaking power affects the nutritional status of girls and boys differently. The technique used is to test for structural differences in the determinants of child nutritional status and their strength of association for girl and boy children, employing multivariate regression analysis. A country fixed-effects regression model is specified (Greene 1997).[6] In addition to the index of women's relative decisionmaking power, the

[6] While a household or "maternal" fixed effects analysis (Alderman, Hoddinott, and Kinsey 2003) would control for factors influencing child nutritional status at the household level other than those directly included as explanatory variables here, it is not possible to implement this approach. This is because even though a sufficient number of cases exist where a woman has two or more children of opposite sex under three years of age (N = 2,982 children), the explanatory variables employed, and most particularly women's status, do not vary across children in the same household.

independent variables, commonly included in studies of the socioeconomic determinants of child nutritional status, are

- the child's sex, measured as a dummy variable indicating whether the child is a boy (0) or girl (1);
- the child's age, measured as an ordered dummy variable, with the 0–1 group being the reference category and indicator dummies for the 1–2 and 2–3 groups;
- the woman's and her husband's education, measured as ordered dummy variables, with "no education" being the reference category and indicator dummies for both primary and secondary education;
- type of water use, with the reference category being surface water and dummy variables for well and piped water, reflecting increasingly safe water;
- type of latrine use, with the reference category being no latrine and dummy variables for pit latrines and flush toilets indicating more sanitary facilities;
- economic status, with households classified into four groups, destitute, poor, middle, and rich, based on consideration of two factors: the degree to which a household is able to satisfy the basic needs of its members using its own investments, as opposed to public resources, and ownership of various assets;[7]

[7] The variables used to reflect whether basic needs are met are a home with a finished floor, a home with a toilet facility of some kind, and access to water piped into the home. The assets are broken into two groups, those that are relatively cheap (radio, television, and bicycle) and those that are relatively expensive (refrigerator, motorcycle, and car). The classification is based on *numbers* of basic needs satisfied and cheap or expensive assets owned rather than on any specific type of need or asset in order to maintain cross-country comparability. The four groups and their definitions are as follows:

Destitute	Owns no assets and satisfies either none or only one basic need;
Poor	Owns no assets but satisfies two basic needs, or owns only cheap assets and satisfies either none or only one basic need;
Middle	Owns only cheap assets and satisfies either two or three of the basic needs, or owns at least one expensive asset but satisfies either none or one basic need; and
Rich	Owns at least one expensive asset and satisfies two or three of the basic needs.

Here a "destitute" household owns no luxury items at all and has an unfinished floor, no toilet facility, and water that is not piped into the home, or has just one of these amenities. By contrast, a "rich" household owns an expensive luxury asset, such as a refrigerator or motorized vehicle, and has satisfied all or almost all of the basic needs. The poor and middle groups fall in between (see Smith et al. 2003 for additional information).

- the child's parents' ages;
- household age-sex composition; and
- country of residence.

All explanatory variables are assumed to be contemporaneously exogenous (in other words, the model is a reduced-form model).[8]

The dependent variable, child nutritional status (denoted *Y*), is hypothesized to be determined by the child's sex and K explanatory variables, denoted *X* and indexed $k = 1 \ldots K$, whose effects are possibly dependent on the child's sex. The cross-country model takes the form:

$$Y_{ic} = \alpha + \beta_0 sex + \sum_{k=1}^{K} \beta_k X_{k,ic} + \mu_c + \sum_{k=1}^{K} \gamma_k X_{k,ic} sex + \mu_c sex + \upsilon_{ic},\ \upsilon_{ic} \sim N(0, \sigma^2),$$
$$i = 1,\ldots,n \qquad c = 1,\ldots C$$

where *i* denotes children and *c* denotes countries. The μ_c are unobservable country-specific, household-invariant effects and the ν_{ic} are stochastic. Unbiased and consistent estimates of the β_k and γ_k can be obtained using Ordinary Least Squares (OLS) estimation if the error term does not contain components that are correlated with an explanatory variable. The country effects are included to avoid any such bias emanating from country-specific factors that may be correlated with included explanatory variables.[9]

---

[8] While they are of course important determinants of child nutritional status, more "proximal" determinants, such as caring practices and mother's nutritional status, are not included in the regression model. Including them would lead to biased estimation of the regression coefficients of the socioeconomic determinants because they are themselves pathways through which the socioeconomic determinants influence child nutrition. To illustrate, if we include mother's body mass index (BMI) in the regression equation, the coefficient on women's education would no longer represent the full association between education and child nutrition because of the presence of another independent variable (BMI) that is partially influenced by education.

[9] Because of the two-stage sample design of the DHS surveys, more than one household is sampled for each cluster. Thus the possibility that the error term will not be independently and identically distributed arises. Unobserved cluster-specific attributes will influence the outcome variables similarly for households living in the same cluster, leading to biased estimates of the parameter covariance matrix. Additionally, a Cook-Weisberg test (STATA 2001) indicates strong heteroskedasticity. Thus a robust covariance matrix is used to compute standard errors (and thus t-statistics).

In the above equation, the coefficient of each explanatory variable for boys is given by β_k. That for girls is given by $(\beta_k + \gamma_k)$. If γ_k is statistically significant (at least at the 10 percent level), a significant difference in effect between girls and boys is detected. To determine whether the girl and boy coefficients are individually statistically significant, we estimate the following equation using the data only for the girl children and then only for the boy children:

$$Y_{ic} = \alpha + \sum_{k=1}^{K} \beta_k X_{k,ic} + \mu_c + \upsilon_{ic}.$$

The above regression analysis is conducted first for the entire four-country sample of children and then for the four countries individually, followed by a set of regressions run by age groups of children (0–1 year olds, 1–2 year olds, and 2–3 year olds) within countries. Finally, using data from India only, regressions are run separately for regions and states within the country to test for differences at more geographically disaggregated levels.

4. Empirical Results

In this section we first lay out the evidence on gender differences in child nutritional status and discuss their implications for the existence of gender discrimination. We then present the results of the regression analysis examining the relationship between women's power and gender discrimination among children.

Evidence on Gender Differences in Child Nutritional Status

Because of *biological* differences between girls and boys, gender bias—a *behavioral* phenomenon—as manifested in measures of physical well-being, often reveals itself not in comparing girls and boys directly, but in comparing differences between them to some norm. Boys are inherently more vulnerable to illness than girls as

infants, even in an optimal health environment. Therefore, the first year of life (infancy) is characterized by excess male mortality. However, empirical evidence shows that in the 1–4 age group, gender differentials in mortality are normally insignificant. Thus, inferring gender bias in the 0–1 age group from mortality data requires examination of whether girl-boy mortality differentials are higher than the norm of a health-neutral environment (a differential less than zero), while inferring it in the 1–4 age group requires examination of whether the differentials are higher than (roughly) zero (Agnihotri 1999).

Inferring gender bias using anthropometric data requires the same sensitivity to (1) the comparison of gender differences with some norm, and (2) differences in norms across age groups. To be sure, the measure employed in this study, the height-for-age Z-score, already incorporates a comparison to a reference norm that takes into account biologically based gender differences in growth. But in developing countries, even without evidence of gender bias, we see infant boys doing worse than girls in nutritional status, which is similar to the pattern of mortality data. Perhaps this is because living conditions are harsher than those facing the reference population, which exaggerates the gender difference attributable to biological male vulnerability. Given that boy children as a group are worse off than girl children, a bias against females can be detected if girls are doing the same or worse than boys nutritionally, especially in the 1–4 age group. This is indeed the pattern revealed by the data from South Asia used in this paper.

Table 3 first compares the children of South Asia with those of two other developing regions, Sub-Saharan Africa (SSA) and Latin America and the Caribbean (LAC), both of which have been found to be sites of little gender discrimination among children (Arnold 1997). It shows that among 0–3 year olds as a group, boys have slightly lower long-term nutritional status than girls in both SSA and LAC. In comparison, while not statistically significant, the opposite pattern is found for South Asia: girls have slightly lower measures of nutritional status, on average, than boys.

The gender differences are more starkly revealed when examined by age group. The second through fourth columns of Table 3 report girl and boy HAZ means for 0–1

year olds (infants), 1–2 year olds, and 2–3 year olds. Among 0–1 year olds in SSA and LAC, we find a fairly strong difference in HAZ in favor of girls (the difference is 0.15 Z-scores for both); for South Asia, we also find a statistically significant difference in favor of girls, but it is much smaller (0.04 Z-scores). This suggests the presence of gender discrimination even among infants. For 1–2 and 23 year olds in SSA and LAC, we continue to see differences in favor of girls. However, in contrast, South Asia exhibits a pattern favoring boys. In the 2–3 year old group, the average HAZ for girls is less than that for boys by 0.14 Z-scores, a statistically significant difference.

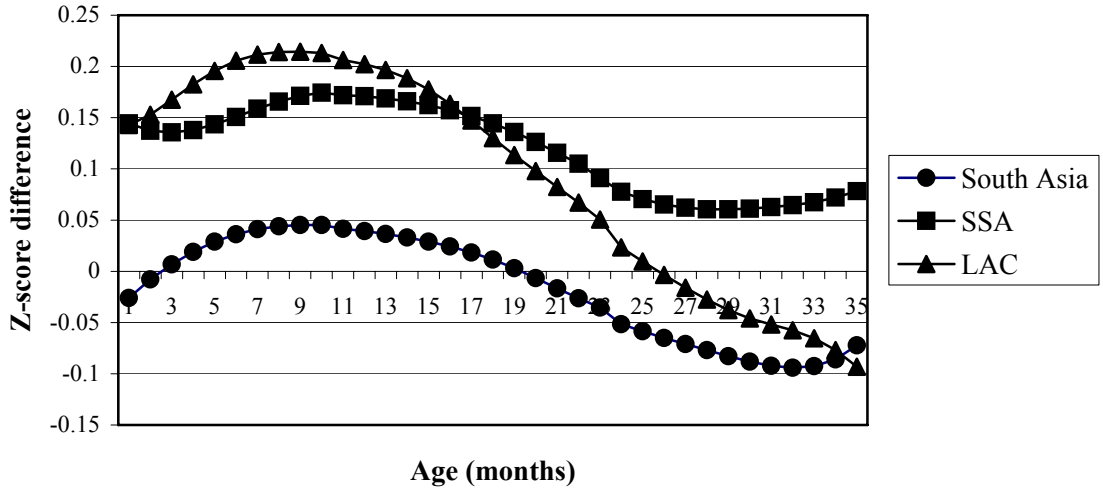
Table 3—Nutritional status of girls and boys in South Asia, Sub-Saharan Africa, and Latin America and the Caribbean (mean height-for-age Z-score)

	0-3 year olds		0-1 year olds		1-2 year olds		2-3 year olds	
	Girls	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**	**Boys**
Developing regions								
South Asia	-1.86	-1.81	-1.11	-1.15***	-2.21	-2.19	-2.26	-2.12***
Sub-Saharan Africa	-1.33	-1.44***	-0.60	-0.75***	-1.71	-1.84***	-1.82	-1.88***
Latin America/Caribbean	-0.61	-0.69***	-0.32	-0.47***	-0.90	-0.97***	-0.61	-0.62
South Asian countries								
Bangladesh	-1.91	-1.93	-1.08	-1.11	-2.32	-2.33	-2.40	-2.34
India	-1.86	-1.79	-1.13	-1.16**	-2.21	-2.18	-2.23	-2.07***
Nepal	-1.98	-1.93	-1.21	-1.26	-2.25	-2.21	-2.51	-2.34**
Pakistan	-1.74	-1.81	-0.87	-1.03	-2.13	-2.16	-2.29	-2.31

Notes: ** and *** indicate that a two-sided t-test of the girl-boy difference is significant at 5 percent and 10 percent levels, respectively. Countries in Sub-Saharan Africa include Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Côte d'Ivoire, Ghana, Kenya, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Tanzania, Togo, Uganda, Zambia, and Zimbabwe. Countries in Latin America and the Caribbean include Bolivia, Brazil, Colombia, Dominican Republic, Guatemala, Haiti, Nicaragua, Paraguay, and Peru.

This is illustrated graphically in Figure 1, which shows the relationship between age (in months) and the girl-boy HAZ difference for South Asia, SSA, and LAC. In all regions, we see a pattern where the girl advantage begins to drop off near the end of the first year. This is consistent with a reduction with age in the importance of the biological factors driving gender differences. What stands out is that in South Asia, the girl-boy HAZ difference stays near zero and far below the other regions over most of the 0–3 age range and actually drops below zero at 19 months. Curiously, in LAC, the difference drops below zero as well, at 26 months.

Figure 1 Girl-boy difference in height-for-age Z-score, by developing country region and age



Note: Generated using lowess smoothing of the average girl-boy difference in height-for-age Z-score over all sample children in the region-specific data sets (see notes to Table 3 for a list of countries).

Returning to Table 3, the lower panel presents the mean HAZ for girls and boys from the four study countries. Among 0–1 year olds, the mean Z-score for boys is consistently less than that for girls, though the difference is only statistically significant for India. Among 1–2 year olds, boy and girl Z-scores are roughly equal. By 2–3 years of age, mean Z-scores for girls are lower than for boys in Bangladesh, India, and Nepal, with the latter two countries displaying the biggest differences (0.16 and 0.17 Z-scores, respectively), indicating the presence of anti-girl gender bias in caring practices. Pakistan stands out from the other three countries, displaying a particularly strong girl-boy difference in favor of girls among 0–1 year olds (0.16 Z-scores) and no significant difference among 1–3 year olds, a pattern more consistent with those of SSA and LAC. Note that this result is not consistent with the cultural patterns described in Hazarika (2000) and Miller (2001), which characterize Pakistan as similar to North and West India

when it comes to women's status and son preference (see discussion of regional patterns within India below).

The Relationship Between Women's Power and Gender Discrimination Among Children: Regression Results

Table 4 presents the results of regressions exploring the determinants of child nutritional status for girls and boys using the entire sample of children in the four countries combined while controlling for country of residence. Both boys' and girls' nutritional statuses are influenced by the major socioeconomic determinants in the

Table 4—Determinants of child height-for-age Z-scores in South Asia: Girl-boy differences

	Girls		Boys		p-value for difference (if significant)[a]
Variable	**Coefficient**	**t-statistic**	**Coefficient**	**t-statistic**	
Women's relative decisionmaking power	0.018	7.45***	0.012	5.30***	0.074
Mother's education: primary	0.154	4.76***	0.160	5.11***	
Mother's education: secondary	0.275	6.22***	0.358	8.71***	
Father's education: primary	0.108	3.34***	0.151	4.72***	
Father's education: secondary	0.264	7.19***	0.269	7.95***	
Well water used	-0.098	-1.95*	0.037	0.79	
Piped water used	-0.049	-0.94	0.071	1.46	0.083
Pit latrine used	0.169	4.70***	0.087	2.51**	
Flush toilet used	0.254	5.57***	0.205	4.85***	
Poor	0.064	2.18**	0.072	2.60***	
Middle	0.192	4.45***	0.183	4.42***	
Rich	0.383	6.79***	0.367	6.86***	
Child aged 1-2	-1.080	-37.98***	-1.018	-37.88***	
Child aged 2-3	-1.120	-37.09***	-0.951	-33.90***	0.000
Mother's age	-0.020	-4.30***	-0.016	-3.67***	
Father's age	0.019	5.63***	0.015	5.05***	
Household size	-0.011	-3.30***	-0.008	-2.31**	
Percent females 15-55	0.006	3.99***	0.004	2.56**	
Percent females 55+	0.003	1.50	0.003	1.62	
Percent males 0-15	0.000	0.47	0.000	-0.01	
Percent males 15-55	0.002	1.70*	0.001	1.00	
Percent males 55+	0.000	-0.01	-0.001	-0.86	
Bangladesh	-0.003	-0.06	-0.030	-0.62	
Nepal	0.067	1.67*	0.117	2.99***	
Pakistan	-0.011	-0.21	-0.021	-0.40	
Number of observations		15,967		17,349	
R-squared		0.185		0.159	

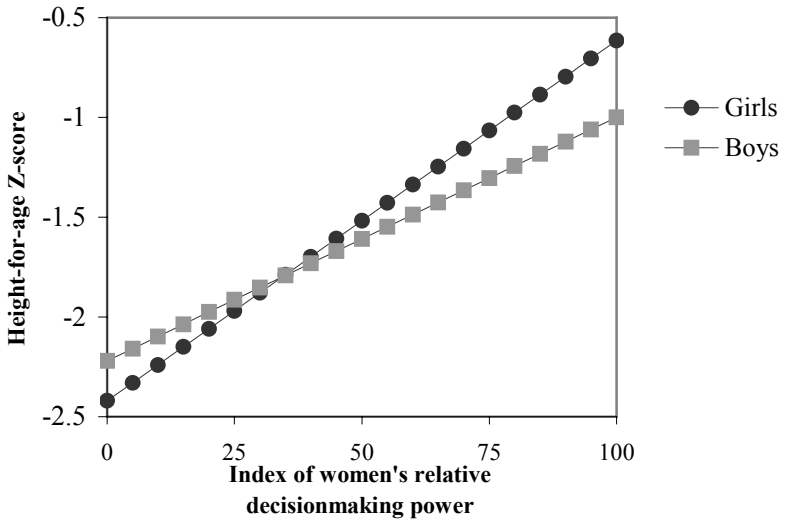
Notes: All p-values are based on White-corrected standard errors and are robust to intra-cluster correlation.

[a] For variables constructed using more than one term (ordered dummy variables), the reported statistic is for a test of a jointly significant difference.

expected, positive direction: the child's mother's decisionmaking power relative to her husband's, the child's parents' educations and ages, and the economic status, sanitary conditions, and size of the child's household. The only exception is safe water use. The use of well and piped water (as opposed to surface water) appears to have a weak association with children's nutritional status. This brings into doubt the cleanliness of water, perhaps due to inadequate protection from human and animal waste or, as appears to be the case in Bangladesh, from groundwater toxins such as arsenic. The regression coefficients on the age dummy variables bring out the reduction in nutritional status after one year of age typical in developing countries. Note that the pattern has a fairly strong gender difference: the age-related reduction for the 2–3 year old group is substantially greater for girls than boys (1.12 versus 0.95 Z-scores).

Our main interest is in determining whether there is a gender difference in the effect of women's relative decisionmaking power on child nutritional status. The test for parameter stability does indeed pick up on such a difference. Although it is not strongly statistically significant ($p = 0.074$), its magnitude is fairly large. The estimated girl coefficient on the index of women's relative decisionmaking power is 50 percent higher than the boy coefficient (0.018 versus 0.012). To give a sense of the practical significance of the regression coefficients and their difference, Figure 2 plots out the predicted HAZ for girl and boy children as the index of women's relative decisionmaking power increases over its range. The increase in HAZ is large for both boys and girls, confirming that this variable has a strong influence on child nutritional status in the region, as found by Smith et al. (2003). In terms of the girl-boy difference, an increase in the index of women's decisionmaking power relative to men's from its current level of 34 points to 61 points, almost double, would be required to bring about a girl-boy difference roughly on par with that of SSA, for instance (which is 0.11 Z-scores). Thus, for the South Asian region as a whole, the regression results imply that an increase in women's relative decisionmaking power—if quite substantial—would be an effective force for reducing gender discrimination against girl children.

Figure 2 Predicted height-for-age Z-scores of girls and boys by index of women's relative decisionmaking power



The top panel of Table 5 reports the regression results for the index of women's relative decisionmaking power for 0–3 year olds by country. The lower panel gives the results broken down by age group. Bolded coefficients signify that the coefficient is statistically significant at the 10 percent or lower level. For the 0–3 year olds as a group, the regression coefficients for Bangladesh and Nepal are not statistically significant. This could indicate that women's relative decisionmaking power has no impact on child nutritional status in these countries, that the variation in this independent variable is not strong enough to pick up an impact if one indeed exists,[10] or that statistically significant impacts among some population groups within these countries (for example, age or ethnic groups) are canceling each other out at the aggregate level. In the case of Nepal, any of these could apply, and it is not possible to tell which.

[10] An examination of the standard deviations of the index of women's relative decisionmaking power reveals that Bangladesh and Nepal have the lowest within-country variance. The standard deviations are India, 7.2; Bangladesh, 6.4; Nepal, 6.8; and Pakistan, 8.2.

Table 5—Girl-boy differences in the effect of women's relative decisionmaking power on children's height-for-age Z-scores, by country and age group

	Bangladesh			India			Nepal			Pakistan		
Variable	**Girl**	**Boy**	**p-value for difference** (if significant)	**Girl**	**Boy**	**p-value for difference** (if significant)	**Girl**	**Boy**	**p-value for difference** (if significant)	**Girl**	**Boy**	**p-value for difference** (if significant)
0-3 year olds	-0.001	-0.003		**0.018**	**0.016**		0.008	0.007		**0.025**	0.005	0.064
Number of observations	1,372	1,395		11,574	12,786		1,800	1,892		1,221	1,276	
R-squared	0.262	0.237		0.175	0.147		0.238	0.208		0.249	0.212	
0-1 year olds	-0.015	**0.027**	0.022	0.006	**0.011**		0.013	0.004		**0.042**	0.012	0.094
1-2 year olds	0.014	**-0.030**	0.022	**0.028**	**0.018**		-0.002	0.014		**0.018**	0.010	
2-3 year olds	0.007	-0.010		**0.019**	**0.020**		0.014	0.008		0.014	0.003	

Notes: All p-values are based on White-corrected standard errors and are robust to intra-cluster correlation. Bolded coefficients signify that the coefficient is statistically significant at the 10 percent or lower level.

For Bangladesh, after examining the results broken down by age group, it appears that the latter reason is applicable. For 0–1 and 1–2 year olds, we find that there is a significant difference ($p = 0.022$) between the influence of women's relative decisionmaking power for girls and boys. Specifically, in the 0–1 group, the effect is strongly positive for boys but not significant for girls, indicating that improvements in women's power relative to men's will lead to a *worsening* of gender discrimination against girls among infants. By contrast, in the 1–2 group, the effect is strongly negative for boys, remaining statistically insignificant for girls, suggesting that improvements in women's power will reduce discrimination against girls. However, the reduction would be brought about not through greater improvements in the nutrition of girls, but rather through reductions in the nutritional status of boys. Of course this is not a desirable pathway for reducing discrimination against girls in a population group for which the average HAZ for both boys and girls is already below the classification of stunting (see Table 3).

The data from India reveal strong positive associations between women's relative decisionmaking power and children's nutritional status for both boys and girls, but no significant difference between them for any of the age groups. The only country for which a significant gender difference in the influence of women's relative decisionmaking power can be detected is Pakistan, where anti-girl discrimination is weakest and women's relative power highest. Here the effect for girls 0–3 years is very strong and that for boys is not statistically significant. The greater positive influence for girls is most apparent in the 0–1 age group.

Finally, we turn to an examination of the possibility that the influence of women's relative decisionmaking power varies by geographical areas within countries. Only the data from India, for which the large sample size allows such an analysis, are used. For this country, Sen (2001) writes of a "remarkable geographical split" between the states in the north and west, where the female-male ratio of children is lower than 0.948 (a European benchmark), indicating the presence of strong gender-based discrimination (see, also, Miller 1981), and the states in the east and south where it is above. Sen

attributes these differences not to gaps in economic prosperity but instead to differences in cultural and social influences. The left-hand panel of Table 6 reports regression coefficients for the index of women's relative decisionmaking power for the north and west region and the right-hand panel for the east and south.

For the northern and western states as a whole, the boy coefficient is substantially higher than the girl coefficient (70 percent), indicating that when women's power is increased, they use it to favor boys, although the girl-boy difference is not statistically significant. For the eastern and southern states by contrast, the girl coefficient is much higher than the boy coefficient, and their difference is statistically significant at a 5 percent level. Disaggregating geographically even further, separate regressions were run for each of the country's states. For one of these states, Haryana in the north, the boy coefficient was found to be much higher than the girl coefficient (0.057 versus –0.003) and their difference to be significant at a 5 percent level, strong evidence that increases in women's relative decisionmaking power will *increase* discrimination against girl children in this location. For the state of West Bengal in the eastern part of the country, the opposite is found. These results give added emphasis to the importance of avoiding generalizations to world regions, countries within them, and even localized areas within countries. As discussed in the next section, intracountry differences in class, kinship structure, marriage practices, and property inheritance laws may cancel out any significant finding at the national level.

5. Discussion of Results

The general conclusion reached from the empirical analysis of this paper is that for the South Asian region as a whole, an increase in women's relative decisionmaking power—if substantial—may indeed be an effective force for reducing gender discrimination against girl children. However, this finding is certainly not applicable everywhere and for all children in the region. Pakistan is the only country of the four studied for which there is strong evidence that increases in women's power benefit girl

Table 6—Girl-boy differences in the effect of women's relative decisionmaking power on children's height-for-age Z-scores (0-3 year olds), Indian regions and states

	North and west states						South and east states					
	All			Haryana			All			West Bengal		
Variable	**Girl**	**Boy**	**p-value for difference** (if significant)	**Girl**	**Boy**	**p-value for difference** (if significant)	**Girl**	**Boy**	**p-value for difference** (if significant)	**Girl**	**Boy**	**p-value for difference** (if significant)
Coefficients	**0.010**	**0.017**		-0.003	**0.057**	0.021	**0.017**	0.004	0.041	**0.026**	-0.008	0.036
Number of observations	7,069	7,884		387	472		4,200	4,552		481	544	
R-squared	0.1827	0.1546		0.243	0.216		0.155	0.1282		0.211	0.235	

Notes: All p-values are based on White-corrected standard errors and are robust to intra-cluster correlation. Bolded coefficients signify that the coefficient is statistically significant at the 10 percent or lower level. The north and west states included in the regressions are Bihar, Gujarat, Haryana, Himachal Pradesh, Jammu, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Uttar Pradesh, and New Delhi. The south and east states are Andhra Pradesh, Assam, Karnataka, Kerala, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Tamil Nadu, West Bengal, Arunachal Pradesh, and Tripura. This breakdown largely follows that given by Sen (2001).

children more than boy children. While the finding does not apply for Bangladesh at the country level, it does for 1–2 year old Bangladeshi children. In India, we find that it applies only for the region comprising the eastern and southern states. Furthermore, in two cases, we find evidence that increases in women's relative decisionmaking power can be expected to *worsen* discrimination against girl children. The first is for 0–1 year olds in Bangladesh. The second is for the northern and western states of India, with particularly strong evidence for the northern state of Haryana.

The lack of a consistent positive association between women's decisionmaking power and gender discrimination within South Asia calls for a deeper examination of the factors underlying gender discrimination. The anthropological and economic literature on son preference provides useful insights for unpacking the findings by sifting through the embedded cultural and economic roots of gender discrimination against females.

Within the highly patriarchal social systems of South Asia, two institutions, patrilocal postmarital residence and patrilineal inheritance, are thought to underlie gender discrimination against females (Messer 1997; Miller 1997; Das Gupta et al. 2003). These social institutions typically coincide with kinship systems that attribute social identity to male lineage. Patrilocality dictates that a couple take up residence in the man's home, weakening a woman's decisionmaking power, particularly if she brings with her few or no assets that she can control. Patrilineal inheritance patterns dictate the transfer of productive assets through male lines, marginalizing women's and girls' economic and social value in both their natal and postmarital households.

Comparative research highlights regional variation in gender discrimination within South Asia associated with the flexibility of patriarchal kinship systems. Within India, for example, compared to the North, the South is characterized by "less rigid construction of gender in the kinship system" (Das Gupta et al. 2003). Women have greater access to property through traditional marriage transfers than in the North (Harriss 1990). Bride-price, in which the groom's family is expected to transfer economic resources to the bride's family, is more common in the South, while dowry is more common in the North. Further, in the South, women have greater economic roles and the

custom of marital hypergamy (marrying for social mobility) is weak or absent (Basu 1999).[11] Differences in social institutions such as these may explain our inability to generalize a positive association between women's decisionmaking power and discrimination against girl children.

Turning to the economic roots of son preference in South Asia, parents' perceptions of greater economic contributions by male children may explain, in part, why in some areas of South Asia, women as mothers and mothers-in-laws are themselves agents of gender discrimination within the household. Old-age support for women is highly dependent on resources from their adult sons. If resources are allocated based on perceptions of economic contribution to household welfare over the lifetime, women motivated by self-interest in their own future economic security would be expected to invest more in sons (Messer 1997; Quisumbing, Estudillo, and Otsuka 2004) and perhaps to use any increased power to do so.

In future studies of the determinants of gender discrimination, the influence of class and caste group (Miller 1997; Murthi, Guio, and Drèze 1995; Harriss 1990) as well as birth order and the gender composition of older siblings should be taken into account. These factors may interact with women's status in influencing gender discrimination. With regard to class, Miller (1997) finds that intrahousehold nutritional discrimination against girls is stronger among the propertied classes than the poor. With regard to birth order, second- or third-born girls are often at a disadvantage as additional daughters are seen as excessive future financial liabilities because of the necessity of marriage payments coupled with a perceived lack of economic contribution (Pal 1999; Subramanian 1996; Miller 2001).

[11] It is interesting to note that in some areas, South Indians are shifting their aspirations to copy the social forms of the upper class from the North, where women's status is lower. This is evident, for example, in the increased practice of dowry (Basu 1999). This possible convergence of the South to the patterns of gender discrimination in the North needs further empirical study.

6. Policy Implications

The lesson for policymakers and development practitioners is that while increasing women's decisionmaking power is likely to improve the well-being of children, in some geographic areas it will not necessarily diminish the anti-girl discrimination that violates human rights and undermines the region's economic development and the health of its population. A key reason that mothers prefer to invest in boys more than in girls is a perception that the returns are higher from boy children when they become adults. Overcoming this perception will require increasing the economic returns to investments in girls by (1) extending and improving schooling systems in rural areas and increasing parental incentives to send girls to school; (2) removing barriers to female participation in labor markets and developing technologies that increase the returns to women's labor (Quisumbing, Estudillo, and Otsuka 2004; Murthi, Guio, and Drèze 1995). The implementation of formal social security systems would also lessen parent reliance on children in old age (Hallman 2003).

However, as discussed above, at the root of son preference are long-standing, deeply embedded cultural and social influences, such as customs regarding marriage and inheritance associated with patriarchal kinship systems. These influences act as constraints to reducing discrimination against girls that increases in women's power in the household may not be sufficient to overcome. Several authors have addressed the rigidity of son preference despite increased education and economic opportunities for women, arguing that women remain marginal if social roles within the family do not change (Das Gupta 2003; Pal 1999). And writes Sen (2001, 15) "When anti-female bias ... reflects the hold of traditional masculinist values from which mothers themselves may not be immune, what is needed is not just freedom of action, but also freedom of thought —in women's ability and willingness to question received values." Such a fundamental change in perceptions will require policy measures that address the patriarchal customs practiced within the household and society on which both women's and men's values are based. Legislative reform to equalize civil, political, economic, social, and cultural

rights, including rights to asset inheritance and ownership and voting rights, is fundamental in this endeavor. Also important are continued efforts to eliminate the practice of dowry. Measures to protect women's mobility and their physical and emotional safety would increase their access to new information and enable them to formulate and express nontraditional values without fear of retribution.

References

Adamson, P. 1996. A failure of imagination. (Comment on Women: Maternal Mortality). *The progress of nations*. New York: United Nations Children's Fund).

Agnihotri, S. B. 1999. Inferring gender bias from mortality data: A discussion note. *Journal of Development Studies* 35 (4): 175–200.

Alderman, H., and P. Gertler. 1997. Family resources and gender differences in human capital investments: The demand for children's medical care in Pakistan. In *Intrahousehold resource allocation in developing countries: Models, methods, and policy*, ed. L. Haddad, J. Hoddinott, and H. Alderman. Baltimore, Md., U.S.A.: Johns Hopkins University Press for the International Food Policy Research Institute.

Alderman, H., J. Hoddinott, and B. Kinsey. 2003. *Long-term consequences of early childhood malnutrition*. Food Consumption and Nutrition Division Discussion Paper 168. Washington, D.C.: International Food Policy Research Institute.

Arnold, F. 1997. *Gender preferences for children.* Demographic and Health Surveys Comparative Studies No. 23. Calverton, Md., U.S.A.: Macro International, Inc.

Balk, D. L. 1997. Individual and community aspects of fertility and women's status in rural Bangladesh. *Population Studies* 48 (1): 21– 45.

Basu, A. M. 1999. Fertility decline and increasing gender imbalance in India, including a possible South Indian turnaround. *Development and Change* 30 (2): 237–263.

Bouis, H., and M. J. G. Novenario-Reese. 1997. *The determinants of demand for micronutrients: An analysis of rural households in Bangladesh*. Food Consumption and Nutrition Division Discussion Paper 32. Washington, D.C.: International Food Policy Research Institute.

Chen, L., E. Huq, and S. D'Souza. 1981. Sex bias in family allocation of food and health care in rural Bangladesh. *Population and Development Review* 7 (1): 55–70.

Das Gupta, M., J. Zhenghua, L. Bohua, X. Zhenming, W. Chung, and B. Hwa-Ok. 2003. Why is son preference so persistent in East and South Asia? A cross-country study of China, India, and the Republic of Korea. *Journal of Development Studies* 40 (2): 153–187.

Del Ninno, C., P. A. Dorosh, L. C. Smith, and D. K. Roy. 2001. *The 1998 floods in Bangladesh: Disaster impacts, household coping strategies, and response.* Research Report 122. Washington, D.C.: International Food Policy Research Institute.

DeRose, L., E. Messer, and S. Millman. 1998. *Who's hungry? And how do we know? Food shortage, poverty, and deprivation.* Tokyo: United Nations University.

Doss, C. 1997. The effects of women's bargaining power on household health and education outcomes: Evidence from Ghana. Economics Department, Williams College, Williamstown, Mass., U.S.A.

England, P. 2000. Conceptualizing women's empowerment in countries of the north. In *Women's empowerment and demographic processes*, ed. H. Presser and G. Sen. Oxford: Oxford University Press.

Filmer, D. E., M. King, and L. Pritchett. 1998. *Gender disparity in South Asia: Comparison between and within countries.* Policy Research Working Paper 1867. Washington, D.C.: Development Research Group, Poverty and Human Resources, World Bank.

Godoy, R., W. R. Leonard, E. Byron, V. Reyes-García, V. Vadez, T. Huanca, and K. Patel. 2003. Do parents use investment resources consistently to favor children of one sex? A methodological contribution to the measure of intrahousehold girl-boy discrimination with data from an Amazonian society. Brandeis University, Waltham, Mass., U.S.A. Photocopy.

Greene, W. H. 1997. *Econometric analysis.* Third edition. Upper Saddle River, N.J., U.S.A.: Prentice Hall.

Haddad, L., and J. Hoddinott. 1994. Women's income and boy-girl anthropometric status in the Côte d'Ivoire. *World Development* 22 (4): 543–553.

Haddad, L. C. Peña, C, Nishida, A. Quisumbing, and A. Slack. 1996. *Food security and nutrition implications of intrahousehold bias: A review of literature*. Food Consumption and Nutrition Division Discussion Paper 19. Washington, D.C.: International Food Policy Research Institute.

Hallman, K. K. 2000. *Mother-father resource control, marriage payments, and girl-boy health in rural Bangladesh*. Food Consumption and Nutrition Division Discussion Paper 93. Washington, D.C.: International Food Policy Research Institute.

Hallman, K. K. 2003. Mother-father resources, marriage payments, and girl-boy health in rural Bangladesh. In *Household decisions, gender, and development: A synthesis of recent research*, ed. A. R. Quisumbing. Washington, D.C.: International Food Policy Research Institute.

Harriss, B. 1990. The intrafamily distribution of hunger in South Asia. In *The political economy of hunger,* vol. 1, ed. J. Drèze and A. Sen. Oxford: Clarendon Press.

Hazarika, G. 2000. Gender differences in children's nutrition and access to health care in Pakistan. *Journal of Development Studies* 37 (1) (October): 73–92.

ICN (International Conference on Nutrition). 1992. *Caring for the socioeconomically deprived and nutritionally vulnerable.* Major Issues for Nutrition Strategies Theme Paper No. 3. ICN/92/INF/7. Rome: Food and Agricultural Organization of the United Nations and World Health Organization.

Jejeebhoy, S. 2000. Women's autonomy in rural India: Its dimensions, determinants, and the influence of context. In *Women's empowerment and demographic processes*, ed. H. Presser and G. Sen. Oxford: Oxford University Press.

Kabeer, N. 1999. Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change* 30 (3): 435–464.

Kishor, S. 1999. Women's empowerment and contraceptive use in Egypt. Paper presented at the Annual Meetings of the Population Association of America, March, New York.

_____. 2000. Empowerment of women in Egypt and links to the survival and health of their infants. In *Women's empowerment and demographic processes*, ed. H. Presser and G. Sen. Oxford: Oxford University Press.

Kishor, S., and K. Neitzel. 1996. *The status of women: Indicators for twenty-five countries.* Comparative Studies No. 21, Demographic and Health Surveys. Calverton, Md., U.S.A.: Macro International, Inc.

Klasen, S., and C. Wink. 2001. *A turning point in gender bias in mortality? An update on the number of "missing women."* Discussion Paper 2001-13. Munich: Department of Economics, University of Munich.

Macro International, Inc. 1996. *Sampling manual.* DHS III Basic Documentation No. 6. Calverton, Md., U.S.A.

Mason, K. 1986. The status of women: Conceptual and methodological issues in demographic studies. *The Eastern Sociological Society* 1 (2): 284–300.

_____. 1993. The impact of women's position on demographic change during the course of development. In *Women's position and demographic change*, ed. N. Federici, K. Mason, and S. Sogner. Oxford: Clarendon Press.

Mencher, J. P. 1988. Women's work and poverty: Women's contributions to household maintenance in South India. In *Women at the center: Development issues and practices for the 1990s*, ed. D. Dwyer and J. Bruce. Stanford, Calif., U.S.A.: Stanford University Press.

Messer, E. 1997. Intra-household allocation of food and health care: Current findings and understanding—Introduction. *Social Science and Medicine* 44 (11): 1675–1684.

Miller, B. 1981. *The endangered sex: Neglect of female children in rural North India*. Ithaca, N.Y., U.S.A.: Cornell University Press.

_____. 1992. Gender discrimination in intrahousehold food allocation in South Asia: Debates and dilemmas. Paper presented at the 1992 meetings of the American Anthropological Association, November 2–6, San Francisco, Calif., U.S.A.

_____. 1997. Social class, gender, and intrahousehold food allocation to children in South Asia. *Social Science and Medicine* 44 (11): 1685–1695.

_____. 2001. Female-selective abortion in Asia: Patterns, policies, and debates. *American Anthropologist* 103 (4): 1083–1095.

Murthi, M., A. Guio, and J. Drèze. 1995. Mortality, fertility, and gender bias in India: A district-level analysis. *Population and Development Review* 21 (4) (December): 745-782.

Pal, S. 1999. An analysis of child malnutrition in rural India: Role of gender, income, and other household characteristics. *World Development* 27 (7): 1151–1171.

Quisumbing, A. R., and J. A. Maluccio. 2003. Resources at marriage and intrahousehold allocation: Evidence from Bangladesh, Ethiopia, Indonesia, and South Africa. *Oxford Bulletin of Economics and Statistics* 65 (3): 283–328.

Quisumbing, A. R., J. P. Estudillo, and K. Otsuka. 2004. *Land and schooling: Transferring wealth across generations.* Baltimore, Md., U.S.A.: Johns Hopkins University Press for the International Food Policy Research Institute.

Riley, N. 1997. Gender, power, and population change. *Population Bulletin* 52 (1): 2–46.

Rosenzweig, M. R., and T. P. Schultz. 1982. Market opportunities, genetic endowments, and intrafamily resource distribution: Child survival in rural India. *American Economic Review* 72 (4): 803–815.

Ryland, S., and H. Raggers. 1998. *Childhood morbidity and treatment patterns.* Demographic and Health Surveys Comparative Studies No. 27. Calverton, Md., U.S.A.: Macro International, Inc.

Safilios-Rothschild, C. 1982. Female power, autonomy, and demographic change in the Third World. In *Women's roles and population trends in the Third World*, ed. R. Ankar, M. Buvinic, and N. Youssef. London: Croom Helm.

Sathar, Z. A., and S. Kazi. 1990. Women, work, and reproduction in Karachi. *International Family Planning Perspectives* 16 (2): 66–70.

Sen, A. 1990. Gender and cooperative conflicts. In *Persistent inequalities: Women in world development*, ed. I. Tinker. Oxford: Oxford University Press.

_____. 1992. Missing women. *British Medical Journal* 304: 586–587.

_____. 2001. Many faces of gender inequality. *Frontline* 18 (22, Oct. 27-Nov. 9). Available at <http://www.flonnet.com/fl1822/18220040.htm>.

Sen, G., and S. Batliwala. 2000. Empowering women for reproductive rights. In *Women's empowerment and demographic processes*, ed.H. Presser and G. Sen. Oxford: Oxford University Press.

Sharma, S. 1996. *Applied multivariate techniques*. New York: John Wiley & Sons.

Simmons, R., R. Mita, and M. Koenig. 1992. Employment in family planning and women's status in Bangladesh. *Studies in Family Planning* 23 (2): 97–109.

Smith, L. C., U. Ramakrishnan, A. Ndiaye, L. Haddad, and R. Martorell. 2003. *The importance of women's status for child nutrition in developing countries.* Research Report 131. Washington, D.C.: International Food Policy Research Institute.

STATA. 2001. *Stata Statistical Software: Release 7.0.* College Station, Tex., U.S.A.: Stata Corporation.

Subramanian, R. 1996. Gender-bias in India: The importance of household fixed-effects. *Oxford Economic Papers* 48 (2): 280–299.

Thomas, D. 1990. Intrahousehold resource allocation: An inferential approach. *Journal of Human Resources* 25 (4): 635-664.

_____. 1997. Income, expenditures, and health outcomes: Evidence on intrahousehold resource allocation. In *Intrahousehold resource allocation in developing countries: Models, methods, and policy*, ed. L. Haddad, J. Hoddinott, and H. Alderman. Baltimore, Md., U.S.A.: Johns Hopkins University Press for the International Food Policy Research Institute.

UNICEF (United Nations Children's Fund). 1998. *The state of the world's children 1998*. New York: Oxford University Press.

Wang, M. 1996. *Gender differences in intrahousehold resource allocations: An empirical analysis of child health in Zambia*. Washington, D.C.: Department of Economics, George Washington University.

WHO (World Health Organization). 1995. *Physical status: The use and interpretation of anthropometry.* WHO Technical Report Series No. 854. Geneva.

World Bank. 2001. *Engendering development through gender equality in rights, resources, and voice.* Policy Research Report. Washington, D.C.

Yount, K. 1999. Persistent inequalities: Women's status and differentials in the treatment of sick boys and girls: Case study of Minia, Egypt. University of Michigan Dissertation Services, Ann Arbor, Mich., U.S.A.

FCND DISCUSSION PAPERS

199 *Evaluating the Cost of Poverty Alleviation Transfer Programs: An Illustration Based on PROGRESA in Mexico*, David Coady, Raul Perez, and Hadid Vera-Ilamas, July 2005

198 *Why the Poor in Rural Malawi Are Where They Are: An Analysis of the Spatial Determinants of the Local Prevalence of Poverty*, Todd Benson, Jordan Chamberlin, and Ingrid Rhinehart, July 2005

194 *Livelihoods, Growth, and Links to Market Towns in 15 Ethiopian Villages*, Stefan Dercon and John Hoddinott, July 2005

193 *Livelihood Diversification and Rural-Urban Linkages in Vietnam's Red River Delta*, Hoang Xuan Thanh, Dang Nguyen Anh, and Ceclila Tacoli, June 2005

192 *Poverty, Inequality, and Geographic Targeting: Evidence from Small-Area Estimates in Mozambique*, Kenneth R. Simler and Virgulino Nhate, June 2005

191 *Program Participation Under Means-Testing and Self-Selection Targeting Methods*, David P. Coady and Susan W. Parker, April 2005

190 *Social Learning, Neighborhood Effects, and Investment in Human Capital: Evidence from Green-Revolution India*, Futoshi Yamauchi, April 2005

189 *Estimating Utility-Consistent Poverty Lines*, Channing Arndt and Kenneth R. Simler, March 2005

188 *Coping with the "Coffee Crisis" in Central America: The Role of the Nicaraguan* Red de Protección Social *(RPS)*, John A. Maluccio, February 2005

187 *The Use of Operations Research as a Tool for Monitoring and Managing Food-Assisted Maternal/Child Health and Nutrition (MCHN) Programs: An Example from Haiti*, Cornelia Loechl, Marie T. Ruel, Gretel Pelto, and Purnima Menon, February 2005

186 *Are Wealth Transfers Biased Against Girls? Gender Differences in Land Inheritance and Schooling Investment in Ghana's Western Region*, Agnes R. Quisumbing, Ellen M. Payongayong, and Keijiro Otsuka, August 2004

185 *Assets at Marriage in Rural Ethiopia*, Marcel Fafchamps and Agnes Quisumbing, August 2004

184 *Impact Evaluation of a Conditional Cash Transfer Program: The Nicaraguan* Red de Protección Social, John A. Maluccio and Rafael Flores, July 2004

183 *Poverty in Malawi, 1998*, Todd Benson, Charles Machinjili, and Lawrence Kachikopa, July 2004

182 *Race, Equity, and Public Schools in Post-Apartheid South Africa: Is Opportunity Equal for All Kids?* Futoshi Yamauchi, June 2004

181 *Scaling Up Community-Driven Development: A Synthesis of Experience*, Stuart Gillespie, June 2004

180 *Kudumbashree—Collective Action for Poverty Alleviation and Women's Employment*, Suneetha Kadiyala, May 2004

179 *Scaling Up HIV/AIDS Interventions Through Expanded Partnerships (STEPs) in Malawi*, Suneetha Kadiyala, May 2004

178 *Community-Driven Development and Scaling Up of Microfinance Services: Case Studies from Nepal and India*, Manohar P. Sharma, April 2004

177 *Community Empowerment and Scaling Up in Urban Areas: The Evolution of PUSH/PROSPECT in Zambia*, James Garrett, April 2004

176 *Why Is Child Malnutrition Lower in Urban than Rural Areas? Evidence from 36 Developing Countries*, Lisa C. Smith, Marie T. Ruel, and Aida Ndiaye, March 2004

175 *Consumption Smoothing and Vulnerability in the Zone Lacustre, Mali*, Sarah Harrower and John Hoddinott, March 2004

174 *The Cost of Poverty Alleviation Transfer Programs: A Comparative Analysis of Three Programs in Latin America*, Natàlia Caldés, David Coady, and John A. Maluccio, February 2004

FCND DISCUSSION PAPERS

173 *Food Aid Distribution in Bangladesh: Leakage and Operational Performance*, Akhter U. Ahmed, Shahidur Rashid, Manohar Sharma, and Sajjad Zohir in collaboration with Mohammed Khaliquzzaman, Sayedur Rahman, and the Data Analysis and Technical Assistance Limited, February 2004

172 *Designing and Evaluating Social Safety Nets: Theory, Evidence, and Policy Conclusions*, David P. Coady, January 2004

171 *Living Life: Overlooked Aspects of Urban Employment*, James Garrett, January 2004

170 *From Research to Program Design: Use of Formative Research in Haiti to Develop a Behavior Change Communication Program to Prevent Malnutrition*, Purnima Menon, Marie T. Ruel, Cornelia Loechl, and Gretel Pelto, December 2003

169 *Nonmarket Networks Among Migrants: Evidence from Metropolitan Bangkok, Thailand*, Futoshi Yamauchi and Sakiko Tanabe, December 2003

168 *Long-Term Consequences of Early Childhood Malnutrition*, Harold Alderman, John Hoddinott, and Bill Kinsey, December 2003

167 *Public Spending and Poverty in Mozambique*, Rasmus Heltberg, Kenneth Simler, and Finn Tarp, December 2003

166 *Are Experience and Schooling Complementary? Evidence from Migrants' Assimilation in the Bangkok Labor Market*, Futoshi Yamauchi, December 2003

165 *What Can Food Policy Do to Redirect the Diet Transition?* Lawrence Haddad, December 2003

164 *Impacts of Agricultural Research on Poverty: Findings of an Integrated Economic and Social Analysis*, Ruth Meinzen-Dick, Michelle Adato, Lawrence Haddad, and Peter Hazell, October 2003

163 *An Integrated Economic and Social Analysis to Assess the Impact of Vegetable and Fishpond Technologies on Poverty in Rural Bangladesh*, Kelly Hallman, David Lewis, and Suraiya Begum, October 2003

162 *The Impact of Improved Maize Germplasm on Poverty Alleviation: The Case of Tuxpeño-Derived Material in Mexico*, Mauricio R. Bellon, Michelle Adato, Javier Becerril, and Dubravka Mindek, October 2003

161 *Assessing the Impact of High-Yielding Varieties of Maize in Resettlement Areas of Zimbabwe*, Michael Bourdillon, Paul Hebinck, John Hoddinott, Bill Kinsey, John Marondo, Netsayi Mudege, and Trudy Owens, October 2003

160 *The Impact of Agroforestry-Based Soil Fertility Replenishment Practices on the Poor in Western Kenya*, Frank Place, Michelle Adato, Paul Hebinck, and Mary Omosa, October 2003

159 *Rethinking Food Aid to Fight HIV/AIDS*, Suneetha Kadiyala and Stuart Gillespie, October 2003

158 *Food Aid and Child Nutrition in Rural Ethiopia*, Agnes R. Quisumbing, September 2003

157 *HIV/AIDS, Food Security, and Rural Livelihoods: Understanding and Responding*, Michael Loevinsohn and Stuart Gillespie, September 2003

156 *Public Policy, Food Markets, and Household Coping Strategies in Bangladesh: Lessons from the 1998 Floods*, Carlo del Ninno, Paul A. Dorosh, and Lisa C. Smith, September 2003

155 *Consumption Insurance and Vulnerability to Poverty: A Synthesis of the Evidence from Bangladesh, Ethiopia, Mali, Mexico, and Russia*, Emmanuel Skoufias and Agnes R. Quisumbing, August 2003

154 *Cultivating Nutrition: A Survey of Viewpoints on Integrating Agriculture and Nutrition*, Carol E. Levin, Jennifer Long, Kenneth R. Simler, and Charlotte Johnson-Welch, July 2003

153 Maquiladoras *and Market Mamas: Women's Work and Childcare in Guatemala City and Accra*, Agnes R. Quisumbing, Kelly Hallman, and Marie T. Ruel, June 2003

152 *Income Diversification in Zimbabwe: Welfare Implications From Urban and Rural Areas*, Lire Ersado, June 2003

151 *Childcare and Work: Joint Decisions Among Women in Poor Neighborhoods of Guatemala City*, Kelly Hallman, Agnes R. Quisumbing, Marie T. Ruel, and Bénédicte de la Brière, June 2003

150 *The Impact of* PROGRESA *on Food Consumption*, John Hoddinott and Emmanuel Skoufias, May 2003

FCND DISCUSSION PAPERS

149 *Do Crowded Classrooms Crowd Out Learning? Evidence From the Food for Education Program in Bangladesh*, Akhter U. Ahmed and Mary Arends-Kuenning, May 2003

148 *Stunted Child-Overweight Mother Pairs: An Emerging Policy Concern?* James L. Garrett and Marie T. Ruel, April 2003

147 *Are Neighbors Equal? Estimating Local Inequality in Three Developing Countries*, Chris Elbers, Peter Lanjouw, Johan Mistiaen, Berk Özler, and Kenneth Simler, April 2003

146 *Moving Forward with Complementary Feeding: Indicators and Research Priorities*, Marie T. Ruel, Kenneth H. Brown, and Laura E. Caulfield, April 2003

145 *Child Labor and School Decisions in Urban and Rural Areas: Cross Country Evidence*, Lire Ersado, December 2002

144 *Targeting Outcomes Redux*, David Coady, Margaret Grosh, and John Hoddinott, December 2002

143 *Progress in Developing an Infant and Child Feeding Index: An Example Using the Ethiopia Demographic and Health Survey 2000*, Mary Arimond and Marie T. Ruel, December 2002

142 *Social Capital and Coping With Economic Shocks: An Analysis of Stunting of South African Children*, Michael R. Carter and John A. Maluccio, December 2002

141 *The Sensitivity of Calorie-Income Demand Elasticity to Price Changes: Evidence from Indonesia*, Emmanuel Skoufias, November 2002

140 *Is Dietary Diversity an Indicator of Food Security or Dietary Quality? A Review of Measurement Issues and Research Needs*, Marie T. Ruel, November 2002

139 *Can South Africa Afford to Become Africa's First Welfare State?* James Thurlow, October 2002

138 *The Food for Education Program in Bangladesh: An Evaluation of its Impact on Educational Attainment and Food Security*, Akhter U. Ahmed and Carlo del Ninno, September 2002

137 *Reducing Child Undernutrition: How Far Does Income Growth Take Us?* Lawrence Haddad, Harold Alderman, Simon Appleton, Lina Song, and Yisehac Yohannes, August 2002

136 *Dietary Diversity as a Food Security Indicator*, John Hoddinott and Yisehac Yohannes, June 2002

135 *Trust, Membership in Groups, and Household Welfare: Evidence from KwaZulu-Natal, South Africa*, Lawrence Haddad and John A. Maluccio, May 2002

134 *In-Kind Transfers and Household Food Consumption: Implications for Targeted Food Programs in Bangladesh*, Carlo del Ninno and Paul A. Dorosh, May 2002

133 *Avoiding Chronic and Transitory Poverty: Evidence From Egypt, 1997-99*, Lawrence Haddad and Akhter U. Ahmed, May 2002

132 *Weighing What's Practical: Proxy Means Tests for Targeting Food Subsidies in Egypt*, Akhter U. Ahmed and Howarth E. Bouis, May 2002

131 *Does Subsidized Childcare Help Poor Working Women in Urban Areas? Evaluation of a Government-Sponsored Program in Guatemala City*, Marie T. Ruel, Bénédicte de la Brière, Kelly Hallman, Agnes Quisumbing, and Nora Coj, April 2002

130 *Creating a Child Feeding Index Using the Demographic and Health Surveys: An Example from Latin America*, Marie T. Ruel and Purnima Menon, April 2002

129 *Labor Market Shocks and Their Impacts on Work and Schooling: Evidence from Urban Mexico*, Emmanuel Skoufias and Susan W. Parker, March 2002

128 *Assessing the Impact of Agricultural Research on Poverty Using the Sustainable Livelihoods Framework*, Michelle Adato and Ruth Meinzen-Dick, March 2002

127 *A Cost-Effectiveness Analysis of Demand- and Supply-Side Education Interventions: The Case of* PROGRESA *in Mexico*, David P. Coady and Susan W. Parker, March 2002

126 *Health Care Demand in Rural Mozambique: Evidence from the 1996/97 Household Survey*, Magnus Lindelow, February 2002

FCND DISCUSSION PAPERS

125 *Are the Welfare Losses from Imperfect Targeting Important?*, Emmanuel Skoufias and David Coady, January 2002

124 *The Robustness of Poverty Profiles Reconsidered*, Finn Tarp, Kenneth Simler, Cristina Matusse, Rasmus Heltberg, and Gabriel Dava, January 2002

123 *Conditional Cash Transfers and Their Impact on Child Work and Schooling: Evidence from the* PROGRESA *Program in Mexico*, Emmanuel Skoufias and Susan W. Parker, October 2001

122 *Strengthening Public Safety Nets: Can the Informal Sector Show the Way?*, Jonathan Morduch and Manohar Sharma, September 2001

121 *Targeting Poverty Through Community-Based Public Works Programs: A Cross-Disciplinary Assessment of Recent Experience in South Africa*, Michelle Adato and Lawrence Haddad, August 2001

120 *Control and Ownership of Assets Within Rural Ethiopian Households*, Marcel Fafchamps and Agnes R. Quisumbing, August 2001

119 *Assessing Care: Progress Towards the Measurement of Selected Childcare and Feeding Practices, and Implications for Programs*, Mary Arimond and Marie T. Ruel, August 2001

118 *Is* PROGRESA *Working? Summary of the Results of an Evaluation by IFPRI*, Emmanuel Skoufias and Bonnie McClafferty, July 2001

117 *Evaluation of the Distributional Power of* PROGRESA*'s Cash Transfers in Mexico*, David P. Coady, July 2001

116 *A Multiple-Method Approach to Studying Childcare in an Urban Environment: The Case of Accra, Ghana*, Marie T. Ruel, Margaret Armar-Klemesu, and Mary Arimond, June 2001

115 *Are Women Overrepresented Among the Poor? An Analysis of Poverty in Ten Developing Countries*, Agnes R. Quisumbing, Lawrence Haddad, and Christina Peña, June 2001

114 *Distribution, Growth, and Performance of Microfinance Institutions in Africa, Asia, and Latin America*, Cécile Lapenu and Manfred Zeller, June 2001

113 *Measuring Power,* Elizabeth Frankenberg and Duncan Thomas, June 2001

112 *Effective Food and Nutrition Policy Responses to HIV/AIDS: What We Know and What We Need to Know*, Lawrence Haddad and Stuart Gillespie, June 2001

111 *An Operational Tool for Evaluating Poverty Outreach of Development Policies and Projects*, Manfred Zeller, Manohar Sharma, Carla Henry, and Cécile Lapenu, June 2001

110 *Evaluating Transfer Programs Within a General Equilibrium Framework*, Dave Coady and Rebecca Lee Harris, June 2001

109 *Does Cash Crop Adoption Detract From Childcare Provision? Evidence From Rural Nepal*, Michael J. Paolisso, Kelly Hallman, Lawrence Haddad, and Shibesh Regmi, April 2001

108 *How Efficiently Do Employment Programs Transfer Benefits to the Poor? Evidence from South Africa*, Lawrence Haddad and Michelle Adato, April 2001

107 *Rapid Assessments in Urban Areas: Lessons from Bangladesh and Tanzania*, James L. Garrett and Jeanne Downen, April 2001

106 *Strengthening Capacity to Improve Nutrition*, Stuart Gillespie, March 2001

105 *The Nutritional Transition and Diet-Related Chronic Diseases in Asia: Implications for Prevention*, Barry M. Popkin, Sue Horton, and Soowon Kim, March 2001

104 *An Evaluation of the Impact of PROGRESA on Preschool Child Height*, Jere R. Behrman and John Hoddinott, March 2001

103 *Targeting the Poor in Mexico: An Evaluation of the Selection of Households for PROGRESA*, Emmanuel Skoufias, Benjamin Davis, and Sergio de la Vega, March 2001

102 *School Subsidies for the Poor: Evaluating a Mexican Strategy for Reducing Poverty*, T. Paul Schultz, March 2001

FCND DISCUSSION PAPERS

101 *Poverty, Inequality, and Spillover in Mexico's Education, Health, and Nutrition Program*, Sudhanshu Handa, Mari-Carmen Huerta, Raul Perez, and Beatriz Straffon, March 2001

100 *On the Targeting and Redistributive Efficiencies of Alternative Transfer Instruments*, David Coady and Emmanuel Skoufias, March 2001

99 *Cash Transfer Programs with Income Multipliers: PROCAMPO in Mexico*, Elisabeth Sadoulet, Alain de Janvry, and Benjamin Davis, January 2001

98 *Participation and Poverty Reduction: Issues, Theory, and New Evidence from South Africa*, John Hoddinott, Michelle Adato, Tim Besley, and Lawrence Haddad, January 2001

97 *Socioeconomic Differentials in Child Stunting Are Consistently Larger in Urban Than in Rural Areas*, Purnima Menon, Marie T. Ruel, and Saul S. Morris, December 2000

96 *Attrition in Longitudinal Household Survey Data: Some Tests for Three Developing-Country Samples*, Harold Alderman, Jere R. Behrman, Hans-Peter Kohler, John A. Maluccio, Susan Cotts Watkins, October 2000

95 *Attrition in the Kwazulu Natal Income Dynamics Study 1993-1998*, John Maluccio, October 2000

94 *Targeting Urban Malnutrition: A Multicity Analysis of the Spatial Distribution of Childhood Nutritional Status*, Saul Sutkover Morris, September 2000

93 *Mother-Father Resource Control, Marriage Payments, and Girl-Boy Health in Rural Bangladesh*, Kelly K. Hallman, September 2000

92 *Assessing the Potential for Food-Based Strategies to Reduce Vitamin A and Iron Deficiencies: A Review of Recent Evidence*, Marie T. Ruel and Carol E. Levin, July 2000

91 *Comparing Village Characteristics Derived From Rapid Appraisals and Household Surveys: A Tale From Northern Mali*, Luc Christiaensen, John Hoddinott, and Gilles Bergeron, July 2000

90 *Empirical Measurements of Households' Access to Credit and Credit Constraints in Developing Countries: Methodological Issues and Evidence*, Aliou Diagne, Manfred Zeller, and Manohar Sharma, July 2000

89 *The Role of the State in Promoting Microfinance Institutions*, Cécile Lapenu, June 2000

88 *The Determinants of Employment Status in Egypt*, Ragui Assaad, Fatma El-Hamidi, and Akhter U. Ahmed, June 2000

87 *Changes in Intrahousehold Labor Allocation to Environmental Goods Collection: A Case Study from Rural Nepal*, Priscilla A. Cooke, May 2000

86 *Women's Assets and Intrahousehold Allocation in Rural Bangladesh: Testing Measures of Bargaining Power*, Agnes R. Quisumbing and Bénédicte de la Brière, April 2000

85 *Intrahousehold Impact of Transfer of Modern Agricultural Technology: A Gender Perspective*, Ruchira Tabassum Naved, April 2000

84 *Intrahousehold Allocation and Gender Relations: New Empirical Evidence from Four Developing Countries*, Agnes R. Quisumbing and John A. Maluccio, April 2000

83 *Quality or Quantity? The Supply-Side Determinants of Primary Schooling in Rural Mozambique*, Sudhanshu Handa and Kenneth R. Simler, March 2000

82 *Pathways of Rural Development in Madagascar: An Empirical Investigation of the Critical Triangle of Environmental Sustainability, Economic Growth, and Poverty Alleviation*, Manfred Zeller, Cécile Lapenu, Bart Minten, Eliane Ralison, Désiré Randrianaivo, and Claude Randrianarisoa, March 2000

81 *The Constraints to Good Child Care Practices in Accra: Implications for Programs*, Margaret Armar-Klemesu, Marie T. Ruel, Daniel G. Maxwell, Carol E. Levin, and Saul S. Morris, February 2000

80 *Nontraditional Crops and Land Accumulation Among Guatemalan Smallholders: Is the Impact Sustainable?* Calogero Carletto, February 2000

79 *Adult Health in the Time of Drought*, John Hoddinott and Bill Kinsey, January 2000

78 *Determinants of Poverty in Mozambique: 1996-97*, Gaurav Datt, Kenneth Simler, Sanjukta Mukherjee, and Gabriel Dava, January 2000

FCND DISCUSSION PAPERS

77 *The Political Economy of Food Subsidy Reform in Egypt*, Tammi Gutner, November 1999.

76 *Raising Primary School Enrolment in Developing Countries: The Relative Importance of Supply and Demand*, Sudhanshu Handa, November 1999

75 *Determinants of Poverty in Egypt, 1997*, Gaurav *Datt* and Dean Jolliffe, October 1999

74 *Can Cash Transfer Programs Work in Resource-Poor Countries? The Experience in Mozambique*, Jan W. Low, James L. Garrett, and Vitória Ginja, October 1999

73 *Social Roles, Human Capital, and the Intrahousehold Division of Labor: Evidence from Pakistan*, Marcel Fafchamps and Agnes R. Quisumbing, October 1999

72 *Validity of Rapid Estimates of Household Wealth and Income for Health Surveys in Rural Africa*, Saul S. Morris, Calogero Carletto, John Hoddinott, and Luc J. M. Christiaensen, October 1999

71 *Social Capital and Income Generation in South Africa, 1993-98*, John Maluccio, Lawrence Haddad, and Julian May, September 1999

70 *Child Health Care Demand in a Developing Country: Unconditional Estimates from the Philippines*, Kelly Hallman, August 1999

69 *Supply Response of West African Agricultural Households: Implications of Intrahousehold Preference Heterogeneity*, Lisa C. Smith and Jean-Paul Chavas, July 1999

68 *Early Childhood Nutrition and Academic Achievement: A Longitudinal Analysis*, Paul Glewwe, Hanan Jacoby, and Elizabeth King, May 1999

67 *Determinants of Household Access to and Participation in Formal and Informal Credit Markets in Malawi*, Aliou Diagne, April 1999

66 *Working Women in an Urban Setting: Traders, Vendors, and Food Security in Accra*, Carol E. Levin, Daniel G. Maxwell, Margaret Armar-Klemesu, Marie T. Ruel, Saul S. Morris, and Clement Ahiadeke, April 1999

65 *Are Determinants of Rural and Urban Food Security and Nutritional Status Different? Some Insights from Mozambique*, James L. Garrett and Marie T. Ruel, April 1999

64 *Some Urban Facts of Life: Implications for Research and Policy*, Marie T. Ruel, Lawrence Haddad, and James L. Garrett, April 1999

63 *Are Urban Poverty and Undernutrition Growing? Some Newly Assembled Evidence*, Lawrence Haddad, Marie T. Ruel, and James L. Garrett, April 1999

62 *Good Care Practices Can Mitigate the Negative Effects of Poverty and Low Maternal Schooling on Children's Nutritional Status: Evidence from Accra*, Marie T. Ruel, Carol E. Levin, Margaret Armar-Klemesu, Daniel Maxwell, and Saul S. Morris, April 1999

61 *Does Geographic Targeting of Nutrition Interventions Make Sense in Cities? Evidence from Abidjan and Accra*, Saul S. Morris, Carol Levin, Margaret Armar-Klemesu, Daniel Maxwell, and Marie T. Ruel, April 1999

60 *Explaining Child Malnutrition in Developing Countries: A Cross-Country Analysis*, Lisa C. Smith and Lawrence Haddad, April 1999

59 *Placement and Outreach of Group-Based Credit Organizations: The Cases of ASA, BRAC, and PROSHIKA in Bangladesh*, Manohar Sharma and Manfred Zeller, March 1999

58 *Women's Land Rights in the Transition to Individualized Ownership: Implications for the Management of Tree Resources in Western Ghana*, Agnes Quisumbing, Ellen Payongayong, J. B. Aidoo, and Keijiro Otsuka, February 1999

57 *The Structure of Wages During the Economic Transition in Romania*, Emmanuel Skoufias, February 1999

56 *How Does the Human Rights Perspective Help to Shape the Food and Nutrition Policy Research Agenda?*, Lawrence Haddad and Arne Oshaug, February 1999

55 *Efficiency in Intrahousehold Resource Allocation*, Marcel Fafchamps, December 1998

FCND DISCUSSION PAPERS

54 *Endogeneity of Schooling in the Wage Function: Evidence from the Rural Philippines*, John Maluccio, November 1998

53 *Agricultural Wages and Food Prices in Egypt: A Governorate-Level Analysis for 1976-1993*, Gaurav Datt and Jennifer Olmsted, November 1998

52 *Testing Nash Bargaining Household Models With Time-Series Data*, John Hoddinott and Christopher Adam, November 1998

51 *Urban Challenges to Food and Nutrition Security: A Review of Food Security, Health, and Caregiving in the Cities*, Marie T. Ruel, James L. Garrett, Saul S. Morris, Daniel Maxwell, Arne Oshaug, Patrice Engle, Purnima Menon, Alison Slack, and Lawrence Haddad, October 1998

50 *Computational Tools for Poverty Measurement and Analysis*, Gaurav Datt, October 1998

49 *A Profile of Poverty in Egypt: 1997*, Gaurav Datt, Dean Jolliffe, and Manohar Sharma, August 1998.

48 *Human Capital, Productivity, and Labor Allocation in Rural Pakistan*, Marcel Fafchamps and Agnes R. Quisumbing, July 1998

47 *Poverty in India and Indian States: An Update*, Gaurav Datt, July 1998

46 *Impact of Access to Credit on Income and Food Security in Malawi*, Aliou Diagne, July 1998

45 *Does Urban Agriculture Help Prevent Malnutrition? Evidence from Kampala*, Daniel Maxwell, Carol Levin, and Joanne Csete, June 1998

44 *Can FAO's Measure of Chronic Undernourishment Be Strengthened?*, Lisa C. Smith, with a *Response* by Logan Naiken, May 1998

43 *How Reliable Are Group Informant Ratings? A Test of Food Security Rating in Honduras*, Gilles Bergeron, Saul Sutkover Morris, and Juan Manuel Medina Banegas, April 1998

42 *Farm Productivity and Rural Poverty in India*, Gaurav Datt and Martin Ravallion, March 1998

41 *The Political Economy of Urban Food Security in Sub-Saharan Africa*, Dan Maxwell, February 1998

40 *Can Qualitative and Quantitative Methods Serve Complementary Purposes for Policy Research? Evidence from Accra*, Dan Maxwell, January 1998

39 *Whose Education Matters in the Determination of Household Income: Evidence from a Developing Country*, Dean Jolliffe, November 1997

38 *Systematic Client Consultation in Development: The Case of Food Policy Research in Ghana, India, Kenya, and Mali*, Suresh Chandra Babu, Lynn R. Brown, and Bonnie McClafferty, November 1997

37 *Why Do Migrants Remit? An Analysis for the Dominican Sierra*, Bénédicte de la Brière, Alain de Janvry, Sylvie Lambert, and Elisabeth Sadoulet, October 1997

36 *The GAPVU Cash Transfer Program in Mozambique: An assessment*, Gaurav Datt, Ellen Payongayong, James L. Garrett, and Marie Ruel, October 1997

35 *Market Access by Smallholder Farmers in Malawi: Implications for Technology Adoption, Agricultural Productivity, and Crop Income*, Manfred Zeller, Aliou Diagne, and Charles Mataya, September 1997

34 *The Impact of Changes in Common Property Resource Management on Intrahousehold Allocation*, Philip Maggs and John Hoddinott, September 1997

33 *Human Milk—An Invisible Food Resource*, Anne Hatløy and Arne Oshaug, August 1997

32 *The Determinants of Demand for Micronutrients: An Analysis of Rural Households in Bangladesh*, Howarth E. Bouis and Mary Jane G. Novenario-Reese, August 1997

31 *Is There an Intrahousehold 'Flypaper Effect'? Evidence from a School Feeding Program*, Hanan Jacoby, August 1997

30 *Plant Breeding: A Long-Term Strategy for the Control of Zinc Deficiency in Vulnerable Populations*, Marie T. Ruel and Howarth E. Bouis, July 1997

FCND DISCUSSION PAPERS

29 *Gender, Property Rights, and Natural Resources*, Ruth Meinzen-Dick, Lynn R. Brown, Hilary Sims Feldstein, and Agnes R. Quisumbing, May 1997

28 *Developing a Research and Action Agenda for Examining Urbanization and Caregiving: Examples from Southern and Eastern Africa*, Patrice L. Engle, Purnima Menon, James L. Garrett, and Alison Slack, April 1997

27 *"Bargaining" and Gender Relations: Within and Beyond the Household*, Bina Agarwal, March 1997

26 *Why Have Some Indian States Performed Better Than Others at Reducing Rural Poverty?*, Gaurav Datt and Martin Ravallion, March 1997

25 *Water, Health, and Income: A Review*, John Hoddinott, February 1997

24 *Child Care Practices Associated with Positive and Negative Nutritional Outcomes for Children in Bangladesh: A Descriptive Analysis*, Shubh K. Kumar Range, Ruchira Naved, and Saroj Bhattarai, February 1997

23 *Better Rich, or Better There? Grandparent Wealth, Coresidence, and Intrahousehold Allocation*, Agnes R. Quisumbing, January 1997

22 *Alternative Approaches to Locating the Food Insecure: Qualitative and Quantitative Evidence from South India*, Kimberly Chung, Lawrence Haddad, Jayashree Ramakrishna, and Frank Riely, January 1997

21 *Livestock Income, Male/Female Animals, and Inequality in Rural Pakistan*, Richard H. Adams, Jr., November 1996

20 *Macroeconomic Crises and Poverty Monitoring: A Case Study for India*, Gaurav Datt and Martin Ravallion, November 1996

19 *Food Security and Nutrition Implications of Intrahousehold Bias: A Review of Literature*, Lawrence Haddad, Christine Peña, Chizuru Nishida, Agnes Quisumbing, and Alison Slack, September 1996

18 *Care and Nutrition: Concepts and Measurement*, Patrice L. Engle, Purnima Menon, and Lawrence Haddad, August 1996

17 *Remittances, Income Distribution, and Rural Asset Accumulation*, Richard H. Adams, Jr., August 1996

16 *How Can Safety Nets Do More with Less? General Issues with Some Evidence from Southern Africa*, Lawrence Haddad and Manfred Zeller, July 1996

15 *Repayment Performance in Group-Based credit Programs in Bangladesh: An Empirical Analysis*, Manohar Sharma and Manfred Zeller, July 1996

14 *Demand for High-Value Secondary Crops in Developing Countries: The Case of Potatoes in Bangladesh and Pakistan*, Howarth E. Bouis and Gregory Scott, May 1996

13 *Determinants of Repayment Performance in Credit Groups: The Role of Program Design, Intra-Group Risk Pooling, and Social Cohesion in Madagascar*, Manfred Zeller, May 1996

12 *Child Development: Vulnerability and Resilience*, Patrice L. Engle, Sarah Castle, and Purnima Menon, April 1996

11 *Rural Financial Policies for Food Security of the Poor: Methodologies for a Multicountry Research Project*, Manfred Zeller, Akhter Ahmed, Suresh Babu, Sumiter Broca, Aliou Diagne, and Manohar Sharma, April 1996

10 *Women's Economic Advancement Through Agricultural Change: A Review of Donor Experience*, Christine Peña, Patrick Webb, and Lawrence Haddad, February 1996

09 *Gender and Poverty: New Evidence from 10 Developing Countries*, Agnes R. Quisumbing, Lawrence Haddad, and Christine Peña, December 1995

08 *Measuring Food Insecurity: The Frequency and Severity of "Coping Strategies,"* Daniel G. Maxwell, December 1995

07 *A Food Demand System Based on Demand for Characteristics: If There Is "Curvature" in the Slutsky Matrix, What Do the Curves Look Like and Why?*, Howarth E. Bouis, December 1995

FCND DISCUSSION PAPERS

06 *Gender Differentials in Farm Productivity: Implications for Household Efficiency and Agricultural Policy*, Harold Alderman, John Hoddinott, Lawrence Haddad, and Christopher Udry, August 1995

05 *Gender Differences in Agricultural Productivity: A Survey of Empirical Evidence*, Agnes R. Quisumbing, July 1995

04 *Market Development and Food Demand in Rural China*, Jikun Huang and Scott Rozelle, June 1995

03 *The Extended Family and Intrahousehold Allocation: Inheritance and Investments in Children in the Rural Philippines*, Agnes R. Quisumbing, March 1995

02 *Determinants of Credit Rationing: A Study of Informal Lenders and Formal Credit Groups in Madagascar*, Manfred Zeller, October 1994

01 *Agricultural Technology and Food Policy to Combat Iron Deficiency in Developing Countries*, Howarth E. Bouis, August 1994