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Women's Status and Children's Food Security in Pakistan

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Abstract

This study examines the role of women's intra-household status relative to men in children's food security in Pakistan. Data from the 1991 Pakistan Integrated Household Survey (PIHS) yield a measure of evidence of a positive relation between women's intra-household status and children's food security.

Keywords: Pakistan, women, children, food security, anthropometric

JEL classification: I0, I10, D63

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Acronyms

AFDG   aid to families with dependent children

LSMS   living standards measurement survey

PIHS   Pakistan Integrated Household Survey

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1   Introduction

This study examines the effect of women's intra-household status relative to men upon children's food security in Pakistan. Food security, defined as access to sufficient food for an active and healthy life, is pivotal to early childhood development. Children's food security is, thus, a factor in economic growth since well-developed children are more productive as adults. Yet, malnutrition afflicts about a third of pre-school aged children in less developed countries. It is associated with over half of worldwide child mortality (Pelletier *et al.,* 1995). South Asia has the world's highest rate of child malnutrition, with 49.3 per cent of its 0 to 5 year old children underweight (Smith and Haddad 2000), this despite the fact that South Asia fares better than, e.g., Sub-Saharan Africa by a number of measures of economic development:. It has been argued that this—the so called South Asian Enigma—is due in part to the particularly low status of women in South Asia (e.g., Smith *et al.* 2004). Therefore, by examining the effect of women's status upon children's food security in a South Asian nation, namely, Pakistan, this paper hopes to contribute to a topical area of study in development economics.

Inquiry into the effect of women's intra-household status relative to children's food security is also the means of testing between two competing views of households. While economists have traditionally considered the household a monolithic unit, this 'unitary' model has lately been yielding to the view that a household's allocation decisions instead result from bargaining between its members. The unitary model, attributed to Becker (1965, 1981), typically assumes that, subject to a budget constraint, the household combines its labour with market inputs to produce a composite consumption good that is distributed among its members according to a single set of household preferences. It follows that improvement in women's status may not affect intra-household distribution. Collective models of intra-household allocation, on the other hand, often view intra-household distribution as the outcome of Nash Bargaining between members, so that allocations to a member (and her constituency) are dependent on her bargaining power. Thus, the models predict that improvement in women's status shall increase allocations to women and children. It is necessary to test between these competing views of households since mistaken adherence to the unitary model may reduce the efficacy of policy (Haddad, Hoddinott, and Alderman 1997). For instance, public transfers to benefit children may be less effective if the particular adult recipient is not wholly solicitous about children.

There is now much empirical support of bargaining models of intra-household allocation. For example, Schultz (1990) finds that a woman's unearned income in Thailand has a more pronounced positive effect upon her fertility and consumption of leisure than the unearned income of her spouse, such income being taken to measure intra-household bargaining power. Similarly, Thomas (1990) discovers that family health outcomes in Brazil, such as child survival probabilities, are improved much more by increases in mothers' than fathers' unearned income. Hoddinott and Haddad (1995) find that an increase in the share of household income earned by women in Côte d'Ivoire raises the proportion of the household budget expended on food and reduces the budget shares of alcohol and cigarettes. Handa (1996) uncovers evidence from Jamaica that the presence in a household of a female decisionmaker generally increases the share of the household budget allocated to child and family goods. Lundberg, Pollak, and Wales (1997), in an examination of a late 1970s policy change in the UK that transferred a substantial child allowance to wives, find that this resulted in greater expenditures on women's and children's clothing relative to men's clothing. Pitt and

Khandker (1998), in a study of microcredit programs in Bangladesh, determine that household consumption expenditure increased by 18 *taka* for every 100 *taka* borrowed by women, as opposed to an increase of only 11 *taka* for every 100 *taka* borrowed by men. Similarly, Levin, Ruel, and Morris (1999), in a study of urban households in Ghana, find that women allocate a larger share of their income towards meeting their children's and their own basic needs despite earning less than men. Thomas, Contreras, and Frankenberg (2002) learn that child health in Java is influenced by the relative asset positions of parents at the time of their marriage, pre-marital assets being taken to measure intra-household bargaining power. In their examination of US data, Rubalcava and Thomas (2002) find that a woman's options outside her marriage, as proxied by the generosity of aid to families with dependent children (AFDC) benefits in her state of residence, appear to influence her bargaining power with consequences for intra-household resource allocation. Lastly, using assets at the time of marriage as measures of bargaining power, Quisumbing and Maluccio (2003) reject the unitary model of the household in data from Bangladesh, Ethiopia, Indonesia, and South Africa.

It is clear, therefore, that tests of the unitary model against collective models of households have consisted of the investigation of links between, on the one hand, plausible measures of household members' bargaining power and, on the other, either household demand for certain goods and services, such as health care and food, or the consequences thereof, such as children's health outcomes. Quisumbing and Maluccio (2003) aptly note it is imperative that the tests employ exogenous measures of bargaining power. Accordingly, Hoddinott's and Haddad's (1995) measure of women's bargaining power as the share of household income earned by women may not be suitable since earned or labour income reflects time allocation decisions that may be the outcomes of bargaining. In other words, the share of household income earned by women may be correlated with the unobserved aspects of bargaining power that make up part of the error term in a regression of household expenditure patterns against women's income share. Other tests have adopted the intra-household distribution of unearned income (e.g., Schultz 1990), or of the ownership of inherited or pre-marital assets (e.g., Thomas, Contreras, and Frankenberg 2002), as their measure of bargaining power. While it is more likely to be exogenous than earned income, unearned income too may be endogenous if it derives from assets accumulated by the means of earned income. Neither are inherited or pre-marital assets unambiguously exogenous. For instance, if parents follow the compensatory strategy of bequeathing more to less able children, and ability is correlated with post-marital bargaining power, inherited assets shall be endogenous. Marriage market selection poses difficulties as well. For example, a study that finds a positive relation between mother's schooling and children's educational outcomes would be wrong in concluding that this owes to the increased resources for children's education being wrested from the household budget by means of the greater bargaining power of a more educated mother, if the children's favourable educational outcomes are due instead to the father's unobserved taste for educated children, the very taste that drove him to take an educated wife (Foster 2002). Only measures of bargaining power related to state supplied resources such as the child allowance in the UK investigated by Lundberg, Pollak, and Wales (1997) are likely to be unambiguously exogenous. Such natural experiments are, however, rare. This study must therefore adopt measures of the relative status of women that are not indisputably exogenous.

Following Smith *et al.* (2004), the measures chosen are: an indicator of whether a woman is working for cash income, her age at first marriage, the per cent age difference

between a woman and her spouse, and the difference between their years of education. Following Schultz (1990) and Thomas (1990), women's intra-household status is in addition measured by the unearned income from remittances accruing to a household's women. It is acceded that none of these five measures is unambiguously exogenous. A woman's decision to work for cash income may, in fact, be the outcome of bargaining. A woman's age at first marriage, the percent age difference between herself and her spouse, and the difference between their years of education may be endogenous because of marriage market selection. Income from remittances too might be endogenous if, for example, a neglected woman in an unequal marriage were more likely to receive material assistance from her natal family.

Children's food security is assessed by anthropometric measures of nutrition, as well as by means of the examination of household expenditures. Data from the 1991 Pakistan Integrated Household Survey (PIHS) yield a measure of evidence of a positive relation between women's intra-household status and children's food security.

The remainder of the paper is organized as follows. Section 2 describes the data and the empirical methodology. Section 3 presents the empirical findings. Section 4 presents the paper's conclusions.

2   Data and empirical methodology

The study's empirical analyses are performed upon data from the Pakistan Integrated Household Survey (PIHS), conducted by the World Bank and the Federal Bureau of Statistics of Pakistan in 1991 as part of the living standards measurement survey (LSMS) series of the Human Resources Division of the World Bank. The survey covered 4,800 households in 300 communities divided equally between rural and urban areas. The data are rich in personal, household, and community descriptors. These readily permit computation of the aforementioned measures of women's intra-household status, namely, an indicator of whether a woman is working for cash income, her age at first marriage, the percent age difference between the woman and her spouse, the difference between their years of education, and the income from remittances received by a household's women.

In the parlance of bargaining models, a woman's earned income is positively related to her reservation or threshold utility, i.e., to her options outside marriage. Hence, minimum resource allocations to her must increase in her earned income. Further, a woman who works outside her home may, from wider social contact, build extra-familial support networks as well as become exposed to progressive norms of behaviour. She may thus turn more assertive at home. A woman's age at first marriage is considered linked to her status since the earlier a woman marries, the less likely she is to complete schooling and embark upon an income earning career. Further, Pakistani women often enter a cloistered world upon marriage (the phrase 'char divari' or 'four walls' has been used to describe the circumscribed world of married women in Pakistan) and so it is conceivable that a woman who marries young will have had fewer opportunities to forge external support networks. The age difference between a woman

and her spouse too may be relevant to her bargaining power. It is likely that the larger[1] the age difference, the higher the woman's status. Since it is plausible that a given age difference is less consequential the older the couple, the variable is calculated as the difference between the ages of a woman and her spouse expressed as a percentage of her spouse's age. Similarly, since education pertains to earning capacity and, hence, to options outside marriage, it is likely that the larger the difference between the educational attainments of a woman and her spouse, the higher her status and bargaining power. Finally, unearned income from remittances accruing to a household's women is considered related to their intra-household bargaining power. Since the income is unearned, it is less likely to be the outcome of bargaining than earned income, and as it is received by women, it is possible they have more control over its allocation. Kishor (2000) considers measures of women's bargaining power to be of three types: those that give direct evidence of such power, such as an index of women's participation in household decisionmaking; those that are sources of such power, such as employment and income; and those that characterize the setting or background of the power, such as the age and education differences between spouses. By this taxonomy, the first two and the fifth of this study's measures of women's status are 'source' indicators, whereas the third and fourth measures are 'setting' indicators.

The empirical strategy is two-fold. First, the relation between women's status and children's food security is examined by the means of regressions of 0 to 5-year old children's height-for-age, weight-for-height, and weight-for-age anthropometric nutritional Z-scores, against a variety of explanatory variables including measures of women's status. The height-for-age Z-score, which measures 'stunting', is a gauge of children's long-term nutritional status. The weight-for-height Z-score, which measures 'wasting', is a gauge of children's shorter-term nutritional status. The weight-for-age Z-score, a combination of weight-for-height and height-for-age and the most common measure of children's nutritional status, is used to assess if a child is underweight. The regression equations may be specified as:

$$haz = \alpha_1.Mawork + \alpha_2.Agemar + \alpha_3.Agediff + \alpha_4.Educdiff + \alpha_5.Remitinc + X'\beta_1 + e_1, \quad (1)$$

$$whz = \gamma_1.Mawork + \gamma_2.Agemar + \gamma_3.Agediff + \gamma_4.Educdiff + \gamma_5.Remitinc + X'\beta_2 + e_2, \quad (2)$$

and

$$waz = \delta_1.Mawork + \delta_2.Agemar + \delta_3.Agediff + \delta_4.Educdiff + \delta_5.Remitinc + X'\beta_3 + e_3, \quad (3)$$

where *haz*, *whz*, and *waz* denote, respectively, a child's height-for-age, weight-for-height, and weight-for-age anthropometric Z-scores, *Mawork* is an indicator of whether the child's mother worked for wages in the preceding twelve months or currently operates a household enterprise, *Agemar* is the mother's age at first marriage, *Agediff* is the age difference between the mother and child's father expressed as a percentage of the father's age, *Educdiff* is the difference between their years of formal education, *Remitinc* is the sum of remittances received in the past 12 months by the women in the child's household, *X* is a vector of other plausible correlates of children's anthropometric nutritional status, and e_i, $i = 1, 2, 3$, the error terms, signify unobserved

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[1] Given that wives are typically younger than their husbands, 'larger' mostly translates as 'less negative'

random influences. (1), (2), and (3) may be estimated by OLS. The finding that the estimated coefficients of the five measures of women's status are positive and the variables significant would yield the conclusion that women's bargaining power and children's food security in Pakistan are positively related. Note, given that sampling in Living Standards Measurement Surveys is clustered, it is likely that multiple children are sampled from the very same cluster or village and, hence, probable that there is intra-cluster correlation in the regression errors, e_i , i = 1, 2, 3. Adjustment of the OLS generated standard errors is, therefore, necessary.

Next, household budgets are scrutinized to identify expenditure items that are plausibly related to children's food security. It may be argued, for example, that since mainly children consume milk, household spending on milk is positively related to children's food security. The difficulty, however, is that milk is not consumed exclusively by children. Indeed, it is near impossible to pick food items consumed solely by children in LDC household budgetary data. On the other hand, goods consumed solely by adults, such as tobacco, adult clothing, and adult footwear, are readily identified. Hence, why not draw inferences about children's food security from budget shares devoted to adult goods? *Ceteris paribus*, an increase in household budget shares devoted to goods consumed exclusively by adults ought to decrease children's food security. This argument draws upon the logic employed by Deaton (1989) in his study of intra-household gender discrimination. Hence, women's status may be inferred to be positively related to children's food security if improvement in women's status causes reduction in household budget shares devoted to adult goods. This may be tested via the augmented Working-Leser specification for Engel curves,

$$w = \alpha + \beta.\log(x/n) + \gamma.\log n + \lambda_1.(n04/n) + \lambda_2.(n59/n) + \lambda_3.(n1014/n) \tag{4}$$

$$+ \mu_1.Mawork + \mu_2. Agemar + \mu_3.Agediff + \mu_4.Educdiff + \mu_5.Remitinc + Z'\pi + u,$$

estimable by OLS, where w is the share of a household's budget devoted to the easily identified adult goods of tobacco, adult clothing, and adult footwear, x is total household expenditure, n is household size, $n04$, $n59$, and $n1014$ denote, respectively, the number of the household's children in the age groups 0-4, 5-9, and 10-14, the first four measures of women's status now pertain to the male household head's spouse, Z is a vector of other plausible correlates of the share of the household's budget devoted to adult goods, and u is the regression error. The finding that the estimated coefficients of the measures of women's status are negative and the variables significant may be considered evidence of a positive relation between women's status and children's food security in Pakistan.

Since Equations (1)–(3) are to be estimated upon data wherein the unit of observation is a child, whereas Equation (4) is to be estimated upon data wherein the unit of observation is a household, two separate samples, termed for the remainder of the paper as the 'anthropometrics sample' and the 'adult goods sample', are extracted from the PIHS. The anthropometrics sample consists of 3,718 children. Table 1 presents the sample mean values of the relevant variables. The adult goods sample consists of 3,745 households. Table 2 presents the sample mean values of the pertinent variables.

Approximately half of the children included in the anthropometrics sample are male. The average age among these 0-5 year olds is near 2 years and 4 months. About 54.8 per cent of the children are from rural households. Approximately 14.5 per cent of the children sampled have mothers who either worked for wages in the preceding 12

months or currently operate household enterprises. The average age at first marriage among mothers was about 17.5 years. On average, mothers have about 2.9 fewer years of schooling than fathers. Moreover, they are on average about 14.7 per cent younger than the children's fathers. Average annual income from remittances per household is about 254.9 rupees of which about 88.4 rupees accrue to women.

Slightly more than half of the households included in the adult goods sample are rural. On average, households in the sample spend about 7.4 per cent of their budgets upon the three adult goods of tobacco, adult clothing, and adult footwear. About 16 per cent of the wives[2] of household heads either worked for wages in the preceding 12 months or currently operate household enterprises. The average age at first marriage among these

Table 1
Sample means: anthropometrics sample
n = 3718

Variable	Sample mean
Dependent variables	
Height-for-age Z-score (*haz*)	-1.87
Weight-for-height Z-score (*whz*)	-0.40
Weight-for-age Z-score (*waz*)	-1.37
Child attributes	
Child is male	0.50
Child's age in years	2.26
Father's years of schooling	4.12
Father's age in years	35.61
Mother's age in years	29.83
Household attributes	
Natural log of household per capita annual expenditure	8.15
Actual household per capita annual expenditure in rupees (Rs.)	3463.38
Natural log of household size	2.19
Actual household size	8.94
Household net worth in thousands of Rs.	227.76
Remittances received in past 12 months by household in Rs.	254.95
Household has no unshared source of drinking water	0.12
Household has no drainage	0.86
Household uses a community latrine	0.03
Household has no garbage disposal	0.64
Distance to closest medical facility in km	3.19
Multi-generational household	0.53
Rural household	0.55
Resident of Punjab Province	0.52
Resident of Sind Province	0.23
Resident of NWF Province	0.18
Key variables	
Child's mother worked for cash income in past 12 months	0.15
Age in years at first marriage of child's mother	17.45
Mother's years of schooling less father's years of schooling	-2.89
Percent age difference between mother and father	-14.72
Remittances received in past 12 months by household women in Rs.	88.42

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2   In the event a household head has multiple wives, the eldest is considered the reference wife.

women was about 17.5 years. They have on average about 2.4 fewer years of schooling than their husbands. Further, they are on average about 14.3 per cent younger than their husbands. Average annual income from remittances per household is about 318.5 rupees of which about 128 rupees accrue to women.

Table 2
Sample means: adult goods sample
n = 3745

Variable	Sample mean
Dependent variable	
Percentage of household budget expended upon adult goods	7.40
Household attributes	
Natural log of household per capita annual expenditure	8.29
Actual household per capita annual expenditure in rupees (Rs.)	3983.83
Natural log of household size	1.94
Actual household size	6.96
Percentage of household in 0-4 age group	14.98
Percentage of household in 5-9 age group	15.78
Percentage of household in 10-14 age group	11.90
Household head's years of schooling	3.50
Household head's age in years	45.78
Age in years of wife of household head	39.08
Household net worth in thousands of rupees (Rs.)	232.27
Remittances received in past 12 months by household in Rs.	318.52
Multi-generational household	0.42
Rural household	0.52
Resident of Punjab Province	0.53
Resident of Sind Province	0.27
Resident of NWF Province	0.14
Key variables	
Wife of household head worked for cash income in past 12 months	0.16
Age in years at first marriage of wife of household head	17.50
Difference in years of schooling between wife and household head	-2.43
Percent age difference between wife and household head	-14.26
Remittances received in past 12 months by household women in Rs.	128.04

3 Empirical findings

Table 3 presents estimates of Equations (1)-(3). Boys in Pakistan appear significantly less nourished than girls by the weight-for-age anthropometric nutritional measure, i.e., boys seem more likely to be underweight. This is consistent with the findings of, e.g., Das Gupta (1987), that the male-female calorie intake ratio was less than one in the 0-1 age group in rural Punjab, India, and Walker and Ryan (1990), that more boys than girls of preschool (1-6) and school age (7-12) were poorly nourished on a standard of weight-for-age in six Southern Indian villages. Older children appear significantly less nourished by all three nutritional standards. Children's nutrition by the height-for-age measure increases in paternal education. Nutrition by the height-for-age and weight-for-age measures increases in household per capita annual expenditure. Since children's anthropometric nutritional status depends not only upon the ingestion of nutrients but also upon household sanitation and the availability of health care, the regressors include measures of sanitation as well as the distance in kilometres to the nearest medical

facility. It appears households without their own latrine have less nourished children by the weight-for-height and weight-for-age standards.

Table 3
Determinants of 0-5 year old children's anthropometric nutritional status: OLS estimates
Dependent variables: height-for-age (*haz*), weight-for-height (*whz*), and weight-for-age (*waz*) Z-scores

	haz stunted	*whz* wasted	*waz* under-weight
Variable		Coefficients	
Constant	-3.96*** (-5.06)	0.46 (0.22)	-2.09 (-1.51)
Child attributes			
Child is male	-0.08 (-1.01)	-0.25 (-1.27)	-0.29** (-2.34)
Child's age in years	-0.17*** (-5.42)	-0.16*** (-2.72)	-0.11*** (-2.60)
Father's years of schooling	0.12*** (6.34)	-0.01 (-0.31)	0.04 (1.54)
Father's age in years	-0.001 (-0.07)	0.10 (0.71)	0.09 (0.90)
Mother's age in years	0.04 (1.50)	-0.13 (-0.77)	-0.10 (-0.81)
Household attributes			
Natural log of household per capita annual expenditure	0.21*** (2.75)	0.05 (0.28)	0.21* (1.86)
Natural log of household size	-0.05 (-0.36)	0.17 (0.55)	0.03 (0.15)
Household net worth in thousands of Rs.	-0.00 (-0.59)	0.00 (0.57)	0.00 (0.18)
Remittances received in past 12 months by household in Rs.	0.00 (0.10)	-0.00 (-1.19)	-0.00 (-0.82)
Household has no unshared source of drinking water	-0.04 (-0.20)	0.24 (0.61)	0.08 (0.40)
Household has no drainage	-0.07 (-0.49)	-0.04 (-0.14)	-0.08 (-0.37)
Household uses a community latrine	0.23 (1.50)	-0.66*** (-2.73)	-0.29* (-1.74)
Household has no garbage disposal	-0.06 (-0.55)	-0.07 (-0.29)	-0.11 (-0.64)
Distance to closest medical facility in km	0.002 (0.37)	-0.005 (-0.62)	-0.002 (-0.33)
Multi-generational household	-0.12 (-1.09)	-0.06 (-0.20)	-0.11 (-0.61)
Rural household	-0.14 (-1.01)	0.18 (0.62)	-0.03 (-0.18)
Resident of Punjab Province	0.32 (1.49)	-0.38 (-1.02)	-0.13 (-0.47)
Resident of Sind Province	-0.09 (-0.30)	0.19 (0.37)	0.00 (0.00)
Resident of NWF Province	0.09 (0.35)	0.34 (0.75)	0.13 (0.47)

Table continues

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Table 3 (con't)
Determinants of 0-5 year old children's anthropometric nutritional status: OLS estimates
Dependent variables: height-for-age (*haz*), weight-for-height (*whz*), and weight-for-age (*waz*) Z-scores

	haz stunted	*whz* wasted	*waz* under-weight
Key variables			
Child's mother worked for cash income in past 12 months	-0.01 (-0.05)	0.68* (1.72)	0.46* (1.70)
Age in years at first marriage of child's mother	-0.02 (-1.48)	0.00 (0.00)	-0.01 (-0.58)
Mother's years of schooling less father's years of schooling	0.07*** (3.98)	0.03 (0.91)	0.04* (1.89)
Per cent age difference between mother and father	-0.002 (-0.05)	0.05 (0.65)	0.05 (0.82)
Remittances received in past 12 months by household women in Rs.	0.00 (0.17)	0.00 (0.94)	0.00 (0.98)
R^2	0.06	0.01	0.01
n =		3718	

Note: The numbers in parentheses are t-ratios using Huber-White robust standard errors. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Maternal status as measured by women's earning of cash income is significantly positively related to children's nutrition by the weight-for-height and weight-for-age standards. Maternal status as measured by the difference between the educational attainments of mother and father is significantly positively related to children's nutrition by the height-for-age and weight-for-age standards. In sum, children's long-term nutritional status as measured by the height-for-age standard significantly increases in the difference between the educational attainments of their mother and father, whereas their shorter-term nutritional status as measured by the weight-for-height standard significantly improves upon their mother working for cash income. Further, children are significantly less likely to be underweight the greater the difference between the educational attainments of their mother and father, and when their mother works for cash income.

Table 4 presents estimates of Equation (4). The share of a household's budget expended upon the three adult goods of tobacco, adult clothing, and adult footwear appears significantly positively related to the natural logs of household per capita annual expenditure and size. It is clear that the higher the proportion of a household's members in the 0-14 age group, the lower its budget share devoted to adult goods. Given the co7sts of child rearing, an increase in the proportion of dependent children naturally reduces the share of resources expendable upon adult goods. The share of a household's budget applied to adult goods decreases in the educational attainment of its head. Perhaps this is because a more educated household head is better aware of the critical role of resource allocations to children in human development. It appears wealthier households devote smaller proportions of their budgets to tobacco, adult clothing, and adult footwear as do rural households. Households in the Punjab and in the North West Frontier Province devote larger shares of their budgets to adult goods than do households in Balochistan, the omitted category.

Table 4
Determinants of household budgetary share expended upon adult goods: OLS estimates
Dependent variable: percentage of household budget expended upon adult goods

Variable	Coefficient
Constant	-52.77***
	(-12.80)
Household attributes	
Natural log of household per capita annual expenditure	6.43***
	(13.65)
Natural log of household size	4.05***
	(6.75)
Percentage of household in 0-4 age group	-0.03**
	(-2.00)
Percentage of household in 5-9 age group	-0.03***
	(-2.69)
Percentage of household in 10-14 age group	-0.03**
	(-2.30)
Household head's years of schooling	-0.38***
	(-4.86)
Household head's age in years	-0.22***
	(-2.64)
Age in years of wife of household head	0.18*
	(1.91)
Household net worth in thousands of rupees (Rs.)	-0.001***
	(-3.12)
Remittances received in past 12 months by household in Rs.	0.00
	(0.50)
Multi-generational household	-0.48
	(-1.01)
Rural household	-1.10**
	(-2.31)
Resident of Punjab Province	5.05***
	(5.01)
Resident of Sind Province	1.72
	(1.62)
Resident of NWF Province	2.21*
	(1.88)

Variable	Coefficient
Key variables	
Wife of household head worked for cash income in past 12 months	2.16***
	(4.63)
Age in years at first marriage of wife of household head	-0.02
	(-0.36)
Difference in years of schooling between wife and household head	-0.18**
	(-2.52)
Percent age difference between wife and household head	-0.11**
	(-2.48)
Remittances received in past 12 months by household women in Rs.	-0.00
	(-0.36)
R^2	0.15
n =	3745

Note: The numbers in parentheses are t-ratios using Huber-White robust standard errors. The superscripts *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Women's status as measured by the difference between the educational attainments of the wife and household head is significantly negatively related to the share of the household's budget expended upon adult goods, as is women's intra-household status as gauged by the percent age difference between wife and household head. As argued, this may be considered evidence of a positive relation between women's status and allocations to children. Even the age at first marriage of a household head's wife is negatively related to the share of the household's budget applied to adult goods, though the variable is statistically insignificant. Curiously, the earning of cash income by a household head's wife *raises* the share of the household's budget applied to adult goods. Perhaps working women must increase spending on workplace attire and footwear. There is evidence,[3] however, that more is spent on tobacco as well. Given that mainly men consume tobacco in Pakistan, perhaps working women have less than utter discretion over their earnings. In sum, two of the five measures of women's status may be considered significantly positively correlated with resources allocated to children. Since the bulk of poor households' resources is spent on food, it is likely that more resources allocated to children shall improve their food security.

4   Conclusion

This study aims to discover whether improvement in women's intra-household status relative to men raises children's food security in Pakistan, and, therefore, whether bargaining is the mechanism of intra-household resource allocation. Data from the 1991 Pakistan Integrated Household Survey yield a measure of evidence of a link between women's status and children's food security. It is found that the more educated a child's mother relative to her father, the better her long-term nutritional status as measured by the height-for-age standard. Further, the earning of cash income by mothers improves children's shorter-term nutritional status as measured by the weight-for-height standard. Additionally, children's weight-for-age anthropometric nutritional Z-scores increase in these two measures of mothers' status. It is also found that women's status as gauged by the difference between the educational attainments of his wife and household head, and the percent age difference between them, is significantly negatively related to the share of the household's budget expended upon the three adult goods of tobacco, adult clothing, and adult footwear. This suggests that resources allocated to children and, by plausible implication, their food security increase in these two measures of women's intra-household status. The paper's findings of a positive relation between measures of women's intra-household status and children's food security may be taken to imply that households are not monolithic units but that bargaining is the mechanism of intra-household allocation.

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3   Available upon request

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