

Does maternal employment augment spending for children's health care? A test from Haryana, India*



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Abstract

Evidence that women's employment and earnings foster increased allocations of household resources to children's well-being have led to advocacy of investment in women's employment as a method for targeting the social benefits of enhanced economic opportunity. Work and associated earnings are hypothesized to empower women, who can then exercise their individual preferences for spending on child well-being as well as influence household spending patterns. This paper presents results from a small detailed household and community study of maternal employment and child health in northern India (one of six studies in a research network), which sought to show that such effects did indeed occur and that they could be linked to work characteristics. Careful analysis of employment and earnings showed that they are multidimensional and highly variable over occupations and seasons. Contrary to expectations, spending on health care for children's illness episodes was negatively associated with maternal employment and earnings variables in econometric analysis. The expected individual effects on women of work and earnings, if they did occur, were not sufficient to alter the general spending pattern. We conclude that the attributes of work as well as the social and cultural environment are important mediators of such effects, suggesting a confluence of 'individual' and 'collective' behavioural determinants meeting in the locus of the household.

Employment generation for poor women is being promoted as a crucial component of poverty alleviation strategies by the Indian government and international donors (Government of India 1988; World Bank 1991). Increasing the quantity and scope of remunerated work for women is expected to augment household income and consequently, the welfare of household members. Moreover, increasing women's employment through public works programs or credit schemes has been considered a tool for improving women's status within the household and the community. Economists have argued that higher female labour force participation rates and enhanced female earnings elicit a household response towards more egalitarian investment in girls and reduced gender differentials in child mortality (Rosenzweig and Schultz 1982). Various indicators of women's status such as sex ratios, control of assets, access to communal resources and access to kin networks have also been associated with regional patterns in access to employment (Agarwal 1990).

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The benefits attributed to women's employment have been hypothesized to positively affect child welfare. By augmenting household resources available for food, medical care, education and other basic necessities, women's earnings can directly improve child welfare through increases in total household consumption. Of course, such consumption changes are mediated by intra-household distribution patterns. Recent research has explored the appealing hypothesis of 'maternal altruism': that children may benefit more than other household members from additional household earnings contributed by women, since women would be more likely than men to spend such income on food and health services for children rather than on their own consumption (Mencher 1986; Thomas 1990). To date, empirical evidence on this is limited. Mencher (1986) reports a female spending bias towards children, based on a village study in southern India. Thomas (1990) analyses a large household data set from Brazil and reports that women's income use favours health producing inputs for children. Thomas's analysis focuses on unearned income, controlling for the confounding effect from household earnings patterns being jointly decided by husband and wife and not independent of consumption behaviour, such as spending on child health.

A number of factors have been hypothesized as possible explanations for differential consumption patterns related to women's earnings. In addition to the 'altruism' hypothesis based on women's direct use of their own earnings, employment outside the household may reinforce women's bargaining power within the household by giving women more appealing options or threat points outside marriage and the family (Manser and Brown 1980; McElroy 1990). Strengthening women's bargaining or decision-making capacity could result in greater attention to child needs, if women have differential preferences for spending on children. Outside employment for women may also affect their own consumption preferences and abilities, making them more aware of the need for and benefits from modern medical care and reducing the social constraints to consumption. Thus, these different mechanisms through which women's employment may positively affect child welfare include both individual and household-level effects.

These positive effects of additional income and autonomy are counterbalanced by the potentially negative effects of women's work which result from a heavier work burden. Numerous studies have shown that household work and child care are done predominantly by women even when they are involved in income-generating work (e. g. Jain 1985). Time spent in other employment erodes time available for child feeding, child care, and treatment seeking which can be critical for good health and nutrition. The nature and conditions of employment, as well as household support available to the working mother, determine the amount of conflict between income-generating work, household work and child care.

This paper focuses on the effect of maternal employment on resources allocated to young children during 1006 episodes of illness reported from a sample of 276 lower-income households in Haryana state in northern India. We try to test empirically for the expected positive effect of maternal earnings on treatment-seeking behaviour for sick children. The following hypotheses about women's work and expenditures on curative services are examined.

1. Increased household income increases health expenditures for children. This first hypothesis tests that health care for children is a normal good and that an increase in household income enhances resources allocated to children, as measured by a greater demand for health services.

2. Households with employed mothers have different spending patterns for child health from those of households in which mothers are not paid workers. This hypothesis is tested by separating household income into maternal and other household members' earnings and testing for the effect of these different sources of household earnings on spending on

children's illnesses. Our null hypothesis is that there will be no difference related to the source of earnings that affects the household's propensity to spend on a child's illness episode.

3. The share of women's earnings in total household earnings positively influences spending on child health. Starting with the assumption of women's bias towards children's welfare, if women's decision-making power within the household increases with a greater relative contribution of earnings, this would be expected to increase the resources devoted to children when they are ill. Given equivalent budget constraints, we expect that households in which women contribute more of total income allocate more resources towards child health.

4. Women's labour force participation raises the opportunity cost of women's time and thus increases the shadow price of curative and preventive care when the mother must accompany the child to a health care provider. The opportunity cost of women's time should be the same for similar jobs regardless of whether the woman was paid directly or an unpaid household worker: for example, agricultural wage labour versus crop cultivation on own or leased-in land. The negative effects of women's employment would be most acute for jobs which were incompatible with child care, for example, jobs far away from home which increase the cost of taking the child for care.

The characteristics of women's income-generating activities in these rural villages in Haryana make it possible to separate out the time and income effects of women's employment. Women work as agricultural and non-agricultural wage labourers who earn income for labour performed outside the home; as remunerated dairy workers, who identify themselves as owners and managers of dairy animals and directly receive substantial earnings from the sale of ghee (clarified butter), but who work within their home; and as unpaid family workers, who do not report themselves as directly receiving their own earnings, but who can either be home-based workers or agricultural labourers on household-owned or leased-in land.

The first part of this paper provides some descriptive detail on the overall study design, the types and attributes of women's employment in the study area, and the characteristics of children's illness patterns and health care utilization. Quantitative and qualitative data on women's work over a year are used to consider the relevant elements of work available to women in the sample and to classify women according to a typology of work groups. In the second part, we propose and test the hypotheses that maternal employment and earnings will differentially affect spending on child health care using econometric analysis. The final part, the discussion section, brings together these approaches in interpreting the findings and linking them to the current policy debate.

Study description

This paper reports on analysis of data collected as part of a study of women's employment and child health and development carried out in 1989-1990 in six field sites in India by the Women's Work and Child Development Research Network¹. The data presented below are from one of these sites, a group of villages in the state of Haryana in northern India, approximately 100 miles from Delhi. The villages are located in a predominantly rural area, with the nearest town approximately ten miles away. Household economic activities include dry and irrigated farming, small-scale dairying, petty trading and business, and a variety of handicrafts and home-based industries. The four sample villages in this area were selected from villages which had a minimum level of infrastructure and health facilities.

¹ The WWCD Network was a consortium of six Indian research organizations which carried out comparable studies in a mix of rural and urban areas in Haryana, Gujarat, Karnataka, and Andhra Pradesh. Network members produced individual research reports and a joint report (WWCD Network 1995).

After complete enumeration of the households in these four villages, 'eligible' households were identified. Eligibility criteria were the presence of a child under the age of six and an income below the poverty line as defined by India's national sample survey criteria. Using these criteria, a sample of 276 households was selected stratified by the type of employment mothers reported in an initial interview, in order to obtain a broad representation of women's employment. This sample was followed over a one-year period². Data were collected in the winter, summer, and monsoon seasons on women's multiple work occupations, their time allocation and earnings, household income and consumption, and child diets and anthropometry. Data on illness were collected during two-week morbidity recalls at semi-monthly intervals over the survey period. The sample used for this analysis consists of the 1006 episodes of illness among children under six reported by 276 households during the six recall periods.

Table 1 presents the background characteristics of the households. Households in this sample are poor, with an average per capita annual income of 2500 rupees (under US \$200), and over two-thirds are landless. Both landless and marginal landowners depend primarily on agriculture for their income, which results in a large variability in income from season to season. About 70 per cent of the sample belong to Scheduled or Backward castes. Three-quarters of the mothers have not had any schooling. Households are composed of seven persons on average and about half of households are nuclear.

² About 17% of the original sample dropped out because of reluctance to be involved in the study. Other mother-child pairs were excluded at the beginning of the study because they migrated or because they did not fit initial income criteria. Comparisons between households that dropped out of the study with the 276 households followed throughout the year study period revealed no significant differences in social or economic characteristics.

Table 1
Background characteristics of sample (s. d. in brackets)

Socio-demographic and economic variables	Sample statistics (N'6)
Average age of children reporting an illness (years)	2.33 (1.52) ^a
% of all illness episodes for male children	55 ^a
Mother's age	27.7 (6.0)
Number of children alive now	3.3 (1.6)
Total household size	7.0 (2.7)
% of nuclear households	53
Mothers with some education (%)	25
Backward Caste (%)	29.7
Scheduled Caste (%)	39.5
Land ownership (%)	32.4
Mean household p. c. annual income (rupees)	2533.6 (1227.1)
Household per capita seasonal income (rupees)	
season1	mean (sd)
	622.3 (481.2)
season2	mean (sd)
	1042.3 (645.0)
season3	mean (sd)
	820.0 (494.3)

^aN_06 illness episodes

Women's work patterns: measurement and interpretation

From its inception, the WWCD Network was interested in both qualitative and quantitative characteristics of women's work and its effects. Surveys often rely on simple measures of women's work, such as 'working' or 'non-working' responses and one-dimensional occupational role measures. The network sought to develop richer measures of women's work, within an overall classification framework. This effort only partly succeeded, as is shown below. This section presents some results based on classification of work types. Ultimately, we were not satisfied that this classification adequately captured key work characteristics of interest. Later sections of this paper use specific measures of employment attributes in multivariate analysis.

Before the start of the study, criteria were developed for classifying types of work. These criteria included not only occupation type or labour force participation in an economic sense, but also qualitative aspects of mothers' work. For example; mothers' ownership of the means of production; direct and individual control over the earnings from economic activity; control over own time; and having an identifiable economic work role were considered. Four general types of women's work were formulated, as shown in the leftmost column of Table 2. The table displays the main characteristics through which the different work-types were defined.

These characteristics combine to form a hierarchy of work types, ranked in terms of hypothesized degrees of women's autonomy or empowerment. For example, according to the criteria used, 'self-employment' affords women the highest degree of autonomy. Wage labour and unpaid family work offer less autonomy. A residual category was allowed for those for whom no defined economic role was identified.

Applying this structure to the empirical realities of mothers' work in Haryana posed several problems. First, mothers had multiple work roles during the study period, responding to seasonal, household, and other factors. Second, these work characteristics are to some

degree subjective judgements and may vary over time and across households. Third, actual work patterns do not always fit neatly into these work types.

These problems were addressed in several ways. To account for women's changing work patterns over the year, the hierarchy was used to produce an annual and a seasonal classification. In the annual classification, if a mother engaged in work associated with a more autonomous level, 'higher' as in Table 2, she was classified in that higher group. That is, if a mother did some wage labour and unpaid family work, but no self-employed work, she was put in the wage labour category. It is expected that other things being equal, mothers in the self-employed and wage labour category have greater autonomy than those in the unpaid family worker category. This autonomy is expected to be associated with differences in intra-household allocation processes or differences in the households-preference function, through the mechanisms specified in the introduction.

Table 2
Work-type classifications and the characteristics of mothers' work

Work type	Ownership of assets and inputs	Control over choice of work	Time control	Own earnings control	Economic role
Self-employment	Yes	Yes, given skills	Greater	Yes	Yes
Wage labour	No	Yes, given employment offerings	Less, depending on household demand	Yes	Yes
Unpaid family worker	No	No	No	No	Yes
Residual	No	NA	NA	NA	No

Adjusting the scheme to local work patterns and the potentially subjective nature of characterization was addressed through combining qualitative research on work attributes with key village informants into typical characterizations of work for each study site. In Haryana, almost no women could be classified in the 'residual' category. All women did some income-generating work over the year. Secondly, self-employment, as defined by working in businesses in which women controlled inputs, money and time, was infrequent³. Six women worked as tailors, bangle sellers and small flour-mill operators. Most women who reported being self-employed were dairy workers who reported earnings which they kept for themselves from the sale of milk products. To reflect these patterns, women were classified as self-employed, remunerated dairy workers and wage labourers. Women who did both wage labour and remunerated dairy work were classified in a separate group.

Two other characteristics of women's income-generating activities in this sample were the mobility of women in and out of paid labour and the fact that almost all women working for income also worked as unpaid family workers in the home. One hundred and eighty-two women were involved in paid employment over the year, but not consistently over all three

³ Lower levels of 'self-employment' than expected were reported in all the WWCD Network's rural sites, and levels were lower in northern India than in southern India. This suggested that the image of 'self-employed women' that has emerged from urban India may be different from the situation in much of rural India. Women in rural India may also be more constrained in the work opportunities available to them than women in rural areas of southeast Asia.

seasons, as shown in Table 3. While half the women were engaged in wage labour at some point over the season, only 12 per cent were wage labourers in every season. In part, this mobility in and out of the labour force reflects women's dependence on agricultural wage labour, which is highly seasonal. The seasonal nature of work is even more pronounced for remunerated dairy workers; one-fifth of the sample earned income from the sale of milk or ghee over the year, but less than one per cent did so in every season. The availability of surplus ghee or milk to sell is dependent on the supply of milk which varies by season. Regardless of their paid employment, almost all women participated in some form of unpaid income-generating work within their household. Unpaid family work includes agricultural labour on own or leased-in land, animal husbandry or participation in a family enterprise such as tailoring or vending.

Table 3
Women's work patterns

Percentage of women engaging in (N'6):	Ever worked (%)	% working		
		Only 1 season	Only 2 seasons	All 3 seasons
Unpaid income-generating work	93.1	9.4	15.2	68.5
Any paid labour	65.9	28.3	21.0	16.7
Wage labour	51.4	25.4	13.8	12.3
Remunerated dairy work	20.7	12.5	6.5	0.7
Other self-employed	2.2	0.0	0.7	1.4

Average earnings, shares of total family income and hours of work are presented for each type of work in Table 4. Earnings of women who work for wages in this sample accounted for 9.4 per cent of total household income on average. Earnings and contributions to the household differed by work category, with wage labourers earning the least money, but contributing the same amounts of income to the household as women only engaged in dairy work. Women who did both remunerated dairy work and wage labour earned the most and contributed the largest proportion of household income. Among the work groups, average paid work time ranges from 111 hours per year to 880 hours per year (2.1 and 19 hours per week, respectively). However, remunerated dairy work time only includes the time when women reported working on the sale of ghee. Data limitations prevented us from calculating the share of total home-based work that was attributable only to the relevant dairy production. Thus it can be seen that dairy workers do much larger amounts of unpaid family work, reflecting the time spent in animal husbandry. Wage labourers and self-employed women do the least unpaid family work. Unpaid family work time does not include time spent in agricultural labour on the family or leased-in land because of the difficulty of measuring time spent on this very seasonal activity. The patterns of work on family agriculture, represented by the percentage of women who ever did this activity, follows that of other unpaid family work activities.

Table 4
Attributes of work by type of work

Attributes of work by type of work	Mothers' average annual earnings	Average % of household income	Mothers' average hours of paid work per year	% in agric. labour on own farm	Mothers' average hours of unpaid work per year
Unpaid (N')	0	0	0	48	571 (410)
Paid (N_2)	1214 (1311)	9.4	367 (431)	38	614 (395)
SE (6)	2203 (1374)	13.2	889 (280)	0	375 (428)
RDW (35)	1331 (1261)	7.6	111 (112)	71	877 (345)
RDW/WL (20)	2062 (1556)	15.9	404 (278)	60	825 (291)
WL (121)	991 (1206)	8.6	409 (476)	27	515 (374)

Illness and treatment patterns

At the start of the study, 476 children under six were in the 276 households and an additional 80 children were born during the year. Households reported a total of 1006 illness episodes for children under six or a mean of 3.85 episodes of illness per household (sd2). Fifteen households reported no episodes and two households reported ten episodes of illness. There were an estimated 2961 two-week recall periods for children under six yielding a morbidity rate of 34 per 100 recall periods. For each illness episode, data were collected on symptoms, duration of illness, use of health care services (traditional, private and public) and expenditures. The measures of morbidity in this study are based on reported symptoms and not on clinical diagnoses⁴.

The profile of reported symptoms describes the common illnesses which affect children in this age group (see Table 5). Skin infections, upper respiratory infections (URI) and diarrhoea constituted over 60 per cent of cases. About one-quarter of illness episodes were described as 'fever'.⁵ The intensity and profile of morbidity varied with season, as would be expected since climatic factors determine exposure to environmental pathogens. The heaviest overall morbidity among children was in September during the rainy season and the lightest in January and May. Diarrhoea was most frequently reported in May, a hot summer month, while upper respiratory infections were common in January during the winter season.

⁴ The shortcomings of using reported morbidity are widely known (Behrman and Deolalikar 1988). Recognition and identification of disease are correlated with socio-economic characteristics, such as mother's education. Some illnesses may also be underreported if they are not defined by the community as a disease. For example, diarrhoea at some ages is considered a normal part of the growth process. Since this paper focuses on parental action during a recognized illness episode and expenditures on curative care, the perception of illness and not actual health status is our focus. It is possible, however, that overreporting of relatively mild illnesses could decrease average expenditures for some groups.

⁵ This symptom is difficult to interpret since it can be associated with many potential diagnoses. Most of these episodes (161/280) occurred in the last two recall periods when episodes of fever increased for all age groups. The term 'fever' is often used to describe viral respiratory infections with high seasonal incidence in this area.

Table 5
Symptom groups

Symptom group	Episodes	Per cent	Rate (per 100 recall periods)
URI	185	18.4	6.2
Fever	280	27.8	9.5
Diarrhoea	186	18.5	6.3
Skin infection	238	23.7	8.0
Other	117	11.6	4.0
Total	1006	100	34.0

Reported morbidity varied with age and sex, with high rates around 40 per 1000 for children aged 6-36 months. Diarrhoeal episodes were most frequent in the high-morbidity period from 6 to 36 months and decreased in importance with increasing age. Skin infections made up a larger share of all illness episodes in older children. Fevers also were a more commonly reported illness in older than younger children. Girls had lower overall rates of reported morbidity; whether this is due to better health among girls or a greater propensity to report or recognize episodes of illness in boys is impossible to distinguish. There were no significant differences in reported symptoms between girls and boys.

In one-fifth of all cases no action was taken to treat the episode of illness (20.3% or 204 episodes). Table 6 presents data on health care providers used by the households who reported some treatment. Registered medical practitioners were most frequently consulted (51.1% of episodes) followed by private doctors (19.7%). Children were taken to government facilities in less than four per cent of cases. Home medication, a category covering use of herbal medicine or consultation of a neighbour or village health providers was used in 6.7 per cent of cases and chemists in five per cent. In most cases only one type of health care provider was used. In 2.2 per cent of cases, allopathic medical services were used along with home remedies or consultation with village health providers. Registered medical practitioners and private doctors were both consulted in 3.6 per cent of the episodes. Other combinations were infrequent. Overall, three-quarters of the sample used modern sources of treatment: either private or public practitioners or chemists.

Severity of illness is measured by the type and duration of the illness, including whether it is continuing at the time of interview. The decision to seek treatment and expenditure on care were related to all these factors. For example, children who were sick for fewer than two days were most likely not to have been taken for treatment. The percentage of those not taking any action decreases with duration, except for those with very long illnesses. However, the profile of illnesses in this last category differs from those of shorter duration, with a higher percentage of skin infection. The type of illness also influenced the expenditures on care. For episodes of similar duration, more was spent on fever and less on skin infections. About two-thirds (67.8%) of the illness episodes were continuing at the interview. Expenditure on completed treated episodes was consistently higher than for incomplete episodes of similar duration. Among both incomplete and completed episodes expenditures rise with duration of illness, although among chronic continuing illnesses, expenditures appear to reach a plateau.

Table 6
Treatment patterns for episodes of child illness

Provider type	Number of episodes	% of episodes	Average cost per episode, Rs. mean (sd)	Average visits per episode mean (sd)
Home medication	64	6.4	0.7 (4)	n/a
Village health provider	3	0.3	20.0 (20)	n/a
Govt. facilities	39	3.9	2.8 (7)	2.9 (2)
Registered medical practitioner	514	51.1	37.5 (43)	2.3 (2)
Chemist	50	5.0	6.1 (7)	1.5 (1)
Private doctor	198	19.7	72.4 (87)	1.9 (1)
Hospitalization	1	0.1	--	--
Any medical visit: govt, RMP, chemist, private MD, hospital	759	75.4	46.6 (70)	2.3 (2)

Cost data are missing in 21 per cent of cases. Data were missing either because the respondent did not know how much was spent when the child was taken for treatment or because care was provided on credit and the full amount was not yet known. Missing cost data were highest when children were taken to registered medical practitioners: 33 per cent compared to less than 20 per cent for other providers. Households commonly have credit accounts with registered medical practitioners in their villages. Expenditure data were missing more frequently in episodes of illness among older children. It is possible that other family members took the child to the doctor and the respondent was unaware of the cost. To check for a selection bias, the following variables were compared in households with and without missing data: total family size, number of children, mother's or father's education, land ownership, type of work group, and duration of illness. No significant differences were found.

Does maternal work augment spending for children's health care?

Methods

We test the hypotheses underlying the central question of this paper using a reduced-form approach derived from household economics. We posit a simple utility-maximizing framework in which households select between health care services and other goods subject to an income constraint. The demand for medical care can be expressed as a function:

$$\text{MED} (I, C, E, H, Y, W)$$

where

- I = Illness characteristics (duration, type of illness)
- C = Child characteristics (age, sex)
- E = Environmental factors (season, village)
- H = Household characteristics (maternal age and literacy, parity, caste, household type, land ownership)
- Y = Income (annual household income, food expenditures)
- W = Women's employment (income earned, time worked, type of work, income as % of household earnings)

The demand for health care is expressed as total expenditures per episode of illness, including provider fees, transport fees and the costs of medication. To use this measure we must make the following assumptions:

1. All households face the same prices and therefore greater consumption, or better-quality consumption, is reflected in higher total expenditure (Akin et al. 1985).

2. Quality is expressed in the price of the care. If parents spend more, they are purchasing improved health care for their child. This assumption must be examined carefully, especially in relation to government services which are provided at very low fees or free of charge. However, if households are also unable to accurately measure quality and base their evaluations on price, then total expenditures are an accurate reflection of the household intent to purchase quality services.

3. Households decide in some real sense on total expenditures in an episode and they can choose these levels. Reported expenditures are *ex-post* figures while decisions are based on *ex-ante* expectations of price. If prices are fairly uniform and known to the people of the community, using reported expenditures as a measure of demand for services can be justified (Bitran 1987). Moreover, since parents make several visits during a single episode of care, the decision to continue treatment will be linked to awareness of the price of further care. Parents also decide whether to purchase prescribed medication. However, to the extent that medical providers control the types of drugs they prescribe and the number of visits required, total expenditure may not be in the choice domain of the household.

Although unrealistic in an urban setting characterized by a varied choice of medical care providers, the first and third assumptions can be justified in the present context where available health care options are limited and village-specific. Households have access to one or two registered medical practitioners within one kilometre of their village: these are paramedics, chemists or other paramedical health personnel who have set up private clinics to diagnose common ailments and to dispense drugs. Households in this area also have the option of seeking care from qualified physicians in towns which are between 12 and 30 kilometres from the villages. The transport costs differ by village, but are the same within each village. Prices for visits to providers can be assumed to be fairly constant within villages and these inter-village differences in access and price can be controlled by inclusion of village dummies in analyses. It is reasonable to assume that village members are aware of the price of services given the limited services availability and the high illness burdens in these communities. The second assumption concerning quality is most problematic for government services. However, in this sample government services are used infrequently (< 4% of illness episodes). Qualitative data collected during the study revealed that villagers consider that government centres provide less than optimal care.

The estimated coefficients on the variables representing the different attributes of women's employment and earnings provide the test of our hypotheses. If women's work and earnings positively and differentially affect spending on children's illness care, we would expect to see positive and statistically significant coefficients on these variables.

Results

Table 7 presents the results of the multivariate analysis of the determinants of health expenditures before inclusion of the women's employment and earnings variables. The estimation procedure is a Tobit model using logged health expenditures. This censored regression model takes into account the large proportion of individuals with no expenditures while the log transformation corrects for the skewed distribution characteristic of health care expenditures. The standard errors of the Tobit model are adjusted to reflect correlation between episodes from the same household. These adjustment coefficients were computed using a random effects model.

Models 1a and 1b confirm the first hypothesis that increases in household income are positively linked to greater expenditures on child health care. In Model 1a, increases in household income result in higher expenditures on health, adjusting for variation in income

over the three seasons. Controlling for the variation in income is important since large increases in income during harvesting seasons cannot be equated with an increase in disposable income. Model 1b includes food expenditures in the season in which the illness episode occurred. Expenditures are often used as a measure of permanent income since they are less vulnerable to temporary fluctuation. This variable is also significantly related to higher health expenditures. In both models, land ownership is associated with significantly higher health expenditures for child illness.

Table 7
Determinants of total expenditures on curative health care during episodes of illness among children under 6

Variables	Model 1a β (se)	Model 1b β (se)
Constant	-1.940 (.905)	-2.037 (.828)
Child		
Age (years)	-.093 (.067)	-.109 (.064)
Sex (1le)	.772 (.187)	.687 (.198)
Illness		
Diarrhoea (1s)	.149 (.302)	.208 (.284)
Fever (1s)	1.149 (.296)	1.054 (.285)
Other (1s)	.232 (.342)	.230 (.332)
Skin (URI) (1s)	-.379 (.314)	-.467 (.307)
Dursick (days)	.604 (.071)	.615 (.068)
Sicknow (1s)	-1.206 (.211)	-1.173 (.204)
Environment		
Season 2 (1s)	.403 (.285)	.559 (.272)
Season 3 (1s)	.195 (.286)	.383 (.272)
Village 1 (1s)	-.053 (.347)	-.042 (.337)
Village 2 (1s)	.704 (.337)	.535 (.318)
Village 3 (1s)	-.114 (.359)	-.096 (.351)
Household		
Mother's age (years)	-.025 (.028)	-.026 (.026)
Children alive now	.211 (.103)	.123 (.095)
Mother's educ (1me)	.300 (.267)	.389 (.259)
Nuclear household	-.243 (.248)	.019 (.234)
Land owning household	.676 (.293)	.565 (.280)
Scheduled caste (1s)	.634 (.300)	.584 (.293)
Backward caste (1s)	.349 (.314)	.374 (.311)
Child illness burden ^a	.157 (.106)	.163 (.094)
Income		
Yearly per capita income	.0003 (.000)	
Income variance	-2.15 E-8 (8.91E-9)	
Seasonal food expenditure	-----	.0034 (.0015)

^a Episodes of illness observed among children under 6 in household over year

Other child, illness and household factors determine spending on health. More is spent on curative health care for boys, a finding confirmed by many other studies of northern India (Chatterjee 1993) and there is some indication of higher spending for younger children. As expected, illness characteristics have a highly significant effect on care-seeking behaviour. Expenditures are greater for illnesses of longer duration and less for continuing illnesses.

Demand for care is greater for fever episodes than for other symptom groups. Younger mothers are more likely to seek care for their children, although this factor is only marginally significant. Higher parity positively affects health care decisions, suggesting that past experience may be an important determinant of the use of services. Mothers with some education also consume more health care services for sick children, although this is not significant. The limited effect of women's education is not surprising given the low levels of education in this area; the majority of educated women receive only a few years of schooling as young girls. Both Scheduled Castes and Backward Castes appear to have a greater demand for health services during episodes of illness, after controlling for income, assets and other household factors. In the second season, health expenditures were higher than in the first season. Village 2 had significantly greater health expenditures than Village 4.

Child illness burden, the number of episodes of child illness observed over the year, is included in the model to adjust for the overall health of children in the family. This variable is not significant, although it is positively associated with expenditures. It is important to include some measure of child health because if women's labour-force participation were linked to the health of their children, as would be expected if women stay at home to take care of sick children, the coefficients of the effect of women's work would be biased. The health status of the child at the beginning of the year, as measured anthropometrically, was also tried in the model. However, this variable does not measure household-level illness burdens.

Effect of women's earnings

Several different models were run to test the three hypotheses about the effect of women's work and earnings. These models are presented in Table 8. Only the coefficients of the women's work variables are presented, although these are adjusted for all covariates included in Table 7. The inclusion of the women's work variables did not substantially alter the magnitude or direction of the parameter estimates for the other determinants of health spending.

Table 8
The effect of women's work and earnings on spending for children's health care: regression results

	β	(se)
Model 2		
Mother's income	-.001001	(.000619)
Other household members' income	.000278	(.000115)
Income variance	-1.97 E-8	(8.6 E-9)
Model 3		
% of income earned by mother	-4.084	(1.621)
Household income	.000218	(.000111)
Income variance	-1.98 E-8	(8.19 E-9)
Model 4a		
Mother's income from wage labour	-.001148	(.00075)
Mother's income from dairy	-.000836	(.00101)
Mother's income from other	.001142	(.00376)
Other household members' income	.000273	(.00012)
Income variance	-1.932 E-8	(9.81E-9)
Model 4b		
Total hours of income generating work	-.00070**	(.00034)**
Dummy for family agricultural work	-.266 NS	(.2475)
Household income	.00025*	(.00016)
Income variance	-1.736 E-9 NS	(2.7868)

NS not significant; * < .1 ; ** < .051

Model 2 separates household income into two components, income earned by women and income earned by other household members, to test the hypothesis that women's income is spent preferentially on child welfare. The coefficients on each component of income represent the per cent increase in health expenditures which results from one additional rupee of income from that component. If the source of income were inconsequential, we would expect these two coefficients to be equal. Conversely, if households in which women work have distinct spending patterns, these coefficients should be different. As seen in Table 8, these coefficients are not equal⁶. Unexpectedly, the coefficient of women's income, holding other household income constant, is negative and not positive, although this effect is not statistically different from zero, while the coefficient on other household members is positive and statistically significant.

Model 3 measures a woman's participation in paid employment by the proportion of her contribution to total household income. We hypothesized that households in which women contribute a greater percentage of total income would allocate more resources to child health. The results of this model also go against our initial expectations. The greater the percentage of income earned by the mother, the lower the expenditures on health services during episodes of child illness.

Effect of women's work type and time

⁶ We reject the null hypothesis of equality using a Chi² test, results not presented.

Model 4a separates women's earnings by source to test whether the type of employment has an effect on household spending on health. Women's income is divided into income from dairy work, wage labour and other self-employed activities to capture the different constraints imposed by these types of work. When separated from other types of income-generating activities, women's wage-labour income appears to have a stronger negative effect. However, none of these coefficients was significantly different from zero. To test more directly the opportunity-cost hypothesis, time spent in all income-generating work, including unpaid family work, was included in Model 4b with a dummy variable for whether the woman did unpaid agricultural work on her own farm⁷. Time was entered as hours worked in the season when the illness occurred. This measure was preferred to a yearly average because of the mobility of women in the labour force. Income was more difficult to analyse on a seasonal basis because of variability, and a permanent-income approach would argue against doing so. As shown in Model 4b, time spent in income-generating work does have a negative, but insignificant, effect.

Discussion

Our results indicate that women's earnings and labour-force participation do not lead to increased expenditures for curative health care for young children. In fact, households where women are employed may spend less on curative health services for children, on average, than households where women are not paid workers, since women's earnings consistently had a negative coefficient in the estimated equations, although this was not significantly different from zero. One model provided evidence that the amount of working time of women, both paid and unpaid income-generating work, contributes to this negative result, possibly through increasing the opportunity cost of seeking child health care.

These findings run counter to the expected results from the WWCD network studies, although tabular analysis of results from other WWCD centres were similar in direction to our findings in Haryana (WWCD Network 1995).

Since these results do confirm the importance of total household income in promoting child welfare, we conclude that in the study area women's employment contributes to child welfare mainly by augmenting resources available at the household level and not through changes in the pattern of intra-household resource allocation. This does not necessarily mean that changes at the individual level related to women's work do not occur, either through women's direct control over earnings, increases in their decision making power, or changes in their knowledge and ability to manipulate the external environment. It does mean, however, that if such changes occur and affect child health care behaviour, their influence is still insufficient to outweigh the stronger patterns of household resource allocation.

To interpret these findings, we can either question the validity of the initial hypotheses of the network; posit alternative, stronger effects masking the individual changes; or identify methodological problems in the analysis.

The initial hypotheses were based on the expected individual empowering effects on women of employment, own-earnings, maternal altruism and differential preference of maternal earners for expenditure on child well-being. These 'individual' effects were expected to influence 'household' resource allocation behaviour through enhanced women's bargaining power, resulting in greater spending on child health care.

⁷ Because of the instrument design, we cannot accurately measure hours worked on family agriculture, although we know that a woman did work on the family farm during the season.

The expected results of this causal chain of change did not appear. Unfortunately, the quantitative data do not allow us to untangle this chain more explicitly into its component parts. However, we can draw on the qualitative research and the field data experience to proffer some plausible explanations.

One explanation is that, in this rural Haryana setting, maternal employment and own-earnings are either not, or not sufficiently, an empowering element in poor mothers' lives. This explanation could be linked to the types of employment available to women, in this case largely wage labour and dairy work. Other network sites reported much lower levels of 'self-employment', defined to include significant autonomy in the work decision as well as control over earnings, in rural sites than in urban ones. Wage labour offers little opportunity for autonomous behaviour, while dairy work is largely a home-based occupation embedded in a larger environment of unpaid family work. While the research detected differences in our indicators of empowerment for these work types, such as control over time, and earnings, these differences may not be sufficient at either the individual or household level to cause the changes in behaviour for which we were looking.

Another explanation, not unrelated to the first, is that the social and cultural environment restricts the empowerment that is possible from women's work in this setting. This could be through restricting the types of work available to women or through imposing constraints on women's behaviour that are stronger than the individual empowering effects of employment and own-earnings. With either explanation, one could conclude that employment and own-earnings may not be a sufficient condition for achieving the desired individually-driven effects on child welfare.

While the preceding posits an insufficient effect, an alternative explanation is that women's employment and earnings may be an indicator of household poverty and indeed, a marker of women's lack of power and status. Despite the selection of the sample from the poorer households in the study villages, within our sample, households with working women are the poorest of the poor. In this case, the negative coefficient on women's earnings would represent a residual effect of poverty. Although we include land ownership, current income and variation in income to adjust for income and wealth differences between households, labour-allocation decisions take into account a range of factors such as debt levels, previous income, and anticipation of future income and expenditures which may more accurately define the household's permanent income. The fact that the woman in the household is working may be a measure of poverty not captured by these other variables. It was certainly noted during field work that maternal employment was perceived by respondents as something resulting from the greater economic need of the poorest households. Those even a little better off were usually eager to abandon such employment.

If mothers in our sample work because they are in the poorest households, our findings are consistent with the notion that a household allocation rule takes precedence over the presumed individual preferences of mothers for differential spending towards child health care: it should be noted that we have not demonstrated such preferences, only assumed them. Total household income is positively associated with spending on child health, while maternal earnings are not. If maternal earnings mainly represent greater household poverty, the negative coefficients on the women's work variables represent an income effect related to household poverty.

It is important to recall that this does not mean that maternal earnings do not benefit children. These earnings raise household income, which is positively associated with spending on child health. But there was not evidence that these earnings preferentially benefited children.

This study also suffered from a variety of limitations, which should be considered by future researchers. Our measures of income also exclude services which the mother provides

within the home that are not directly linked to income generation. Households that attain a given income level without using women's labour outside the home may have a higher 'full income' level because of these services. This interpretation is consistent with Model 3, in which the percentage of income contributed by the woman had a significantly negative effect controlling for total household income. In other words, households with women in earnings-generating activities do not capture the full benefit of women's earnings, since they sacrifice to some extent women's unremunerated services in the household. Our way of estimating household income underestimates the true differences in our sample of poor households.

Another factor not adequately addressed in our analysis is the endogeneity of the work decision. Recent studies which have looked at the effect of women's resources on household expenditure patterns have focused on women's unearned income, such as pensions or earnings on assets, because it has been argued that women's earned income represents a joint decision within the household (Thomas 1990; Haddad, Hoddinott and Alderman 1994). The mother's decision to work is not exogenous to household decisions related to resource allocation, unlike asset ownership which precedes allocation decisions. While we were unable to address this issue in the analysis, another possible source of endogeneity, that a woman is less likely to work if her child is sick, was incorporated into the model, albeit with a less than ideal measure of the household illness burden. However, analyses which explored women's seasonal labour-supply decisions did not reveal any significant effect due to the number of episodes of illness in the preceding season (not presented here).

In this study, spending on children's health care was measured as spending per episode of illness, not total household spending. Information on the latter was not available, as illness events and response were measured during six sample periods throughout the year. If illness events are concentrated in some households, total spending could be high and per-episode spending low, hence our dependent variable may not measure the true household expenditure pattern.

The link between work and health inputs to children may not be fully represented by this analysis of expenditures on child illness episodes or may omit important confounding factors. For example, if women's labour-force participation has other effects on child health such as increasing use of preventive care or promoting efficient home-based care of sick children, then employment may be associated with a decreased need for expensive curative health services. In this situation, the variable omitted from the model is efficiency in producing and managing child health. Data were collected on preventive services for mothers (antenatal care) and children (immunization, well-child visits). There was no evidence of increased use of these services by women in the 'employed' work groups. The same argument could be applied to household preferences for boys, who receive substantially greater investments in curative care controlling for income and labour force participation.

Overall, our findings suggest that the general assumption that women's employment and own-earnings will differentially improve child welfare should be tempered. While this study does not show that the hypothesized individual effects did not occur, it did not produce evidence of their expected benefits for children. The type of employment, including a variety of work attributes and the economic and socio-cultural conditions in which it occurs, are likely to determine such benefits as much as employment or earnings *per se*. The household, as the meeting point of individual behaviour and social and cultural determinants, is a complex locus of change which confounds simplistic notions of intervention.

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