The Relation between Child Labour and Mothers' Work:

The Case of India

by

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Abstract

The paper deals with child labour in developing countries. We address a problem that has recently drawn much attention at the international level, that is, how to invest in women's rights to advance the rights of both women and children. We study the problem from a new perspective. In our theoretical model we assume that the child's time is an extension of her/his mother's time, and that she has to decide how to allocate it. We estimate two empirical specifications, both multinomial logit. The first one, in line with the standard approach in the literature, estimates a model of the probability of the different child's states, conditional on her/his mother's states. The second empirical specification, in line with our theoretical model, estimates the mother-child states jointly. Using a unique, rich and representative data survey for all Indian states and for urban and rural India (NFHS-2, 1998/9), we select our sample drawing information from the household data set and the women's data set.

Our results show that the presence of the mother in the family increases children welfare, in terms of educational opportunities and protection from work activities. All our results indicate that the mother tends to stay home and send her children to school the better is the father's employment position and the wealthier is the family. However, we observe a perverse effect. If the mother works, since female job quality and wage levels are very low, also her children have a higher probability to work.

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1 Introduction

This study is inspired by the belief that child labour is an obstacle to the process of human development. In order to draw attention on the crucial role of education, we assign a negative value judgement to any state of the child that does not include at least some time spent in school.

We address the issue of child labour from a new perspective. A problem that has recently attracted much attention at the international level is how to invest in women's rights to advance the rights of both women and children (UNICEF, 2007). The paper intends to contribute to this question, examining the relation between children's and their mothers' condition in developing countries.

Mothers generally look after their children from birth to adulthood, taking care of their nutrition, health, education and other needs. Their contribution to children's welfare depends on their influence in the household decision-making, and this power is very much affected by the level of mothers' education. Various studies have shown the positive effect of maternal education on child health and survival (see, among these, Dreze and Murthi, 2001). Other evidence shows that children with a more educated mother are less likely to be enrolled in economic activities and have a higher probability to attend school (estimates that exploit the extended structure of Indian households, indicate significantly higher levels of study hours among children with literate mothers; see, for example, Behrman, Foster, Rosenzweig, Vashishtha, 1999).

Another source of mothers' empowerment is indeed paid employment. It is generally thought that women who contribute to household resources have a higher command on them, since earnings from their own work should represent an easy resource to control (Desai and Jain, 1994).

Moreover, the degree of control on labour income is assumed to be positively related to children's welfare. Evidence supporting this hypothesis, largely available for developed countries, is, however, rather scarce for the developing world (Folbre, 1987; Haddad Hoddinott and Alderman 1997).[1] Our special focus on the relation between mothers' work and child labour is thus induced by the lack of evidence on the relation between the labour market status of mothers and their children activities.

We study the case of India. Descriptive statistics of the work engagement of mothers and children give the guts of the issue at stake. As to female employment, according to the National Family Health Survey (NFHS) the employment rate of ever-married Indian women rose from 32 per cent in 1992-1993 to 37 per cent in 1998-1999. A sizeable heterogeneity of women's participation exists between urban and rural areas, the employment rate in urban areas amounting to 26 per cent and in rural areas to 44 per cent. Although an increasing number of women are entering the workforce, a

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[1] The role of mothers' employment on children development is a hot topic also for developed countries. Many studies show that mothers' full time employment might have detrimental effects on children's cognitive development (see, for example, Ruhm, 2004; Ermisch and Francesconi, 2002).

higher participation to the labour market is not always an indicator of an improved women's condition. In India, a great number of women are engaged in agricultural and household activities that are often unpaid, or paid in kind. Women participation to the labour market is more often dictated by necessity rather than an expression of women's autonomy. In rural areas, women mostly work as agricultural employees or self-employed labourers, being often exploited in terms of earnings and working times. Women living in urban areas are involved in more diversified activities and the percentages of unpaid and occasional work is lower as compared to that of rural areas. Even if less general than in rural areas, the poverty condition of women at work is an issue also in urban areas where one woman in ten is unpaid and two women in ten are engaged in seasonal or occasional work (Giannelli and Francavilla, 2007).

As to the participation of children to the labour market, data drawn from NFHS show that among children aged 6 to 14 about 4,5 per cent are engaged in economic activities and about 80 per cent are attending school.[2]

Even if the proportion of children involved in economic activities in India does not appear particularly alarming compared to those of other developing countries, the large country population makes the phenomenon of child labour of huge dimension. Statistics on the more recent household survey account for about 210 millions of children at work in 1999[3], around the 3.6 per cent of the total labour force in India.

Even if the focus is on child labour, the paper approaches the topic in a wide setting, considering the different child activities, like studying, working for the market, working for the family or staying inactive. The theoretical section of the paper develops a model in which we assume that the child's time is an extension of her/his mother's time, and that she has to decide how to allocate it. This way, the state of the mother and the child are determined jointly. In the empirical section we first study the problem in a standard way, conditioning the child's state on her/his mother's activity. In particular, we focus on the relation of mothers' position in the labour market with children's activities. We then estimate the empirical specification drawn from our theoretical model, with the aim of establishing what are the determinants of the joint probabilities of the mother-child states.

Our results show that the presence of the mother in the family increases children welfare, in terms of educational opportunities and protection from work activities. Estimates of the joint model indicate that the mother tends to stay home and send her children to school the higher is her educational level, the better is father's employment position and the wealthier is the family. However, we observe a perverse effect. If the mother works, since female job quality and wage

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[2] These numbers refer to official statistics reported by the UCW Project (2007). The percentages reported in the data section of this paper diverge because of differences in the definition of children's states. See also footnote 9.
[3] Elaboration of UCW Project, (2007).

levels are very low, also her children have a higher probability to work. Mother's illiteracy, too many siblings and poverty largely determine the joint probability that both the mother and the child work.

The Government of India declared to be determined to eradicate child labour in the country. The world's largest child labour elimination program is being implemented at the grass roots level in India. A large number of non-governmental and voluntary organizations are involved in this project especially to enforce existing laws banning child employment in hazardous industries.[4] In the scenario we have depicted, however, we find that mothers' involvement in the labour market is largely induced by necessity, and that children labour is positively correlated with their mothers' participation. The Government of India, should then give the same priority to policies that, ameliorating the labour market opportunities of women, would then generate positive spill over effects for children's condition.

The paper is organized as follows. Section 2 discusses the concept of children activity in developing countries. Section 3 presents the theoretical model of the joint mother-child states, section 4 presents the empirical specification, section 5 illustrates the data and defines the sample and the variables and section 6 discusses the results. Section 7 concludes.

2 Children activities

Time is an important resource and how children and adolescents spend their time during the first period of their life will not only affect the quality of present life but also have significant consequences for their educational achievements and the development of gendered roles within the family. Parents' decisions on the allocation of their child's time will affect the child quality of life during adulthood in developed countries as well as in developing countries. However, in low income countries poor life conditions, imperfections in the labour and land market, low returns on investment in education, but also parents' culture and education, may lead to decisions that undervalue the role of education and leisure for child development. Ideally, a child should spend all his/her daily time going to school, studying at home and playing. In many poor countries, however, children are expected to become economically productive at an early age in order to contribute to the satisfaction of household's needs. Some studies show that in some cases children labour competes with schooling whereas in others, work is combined with schooling.[5] These studies suggest that the relationship between work and schooling differs across country contexts as well as across families and individuals.

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[4] We are referring to the International Program on Elimination of Child Labour (IPEC) guided by the International Labour Organization, whose world's largest international initiative on child labour is based in India.
[5] See for example Ravallion and Wodon, 2000; Arends-Kuenning and Amin, 2004.

Child labour and children 's right to education are closely linked. Parents may involve their children in labour rather than school because the school is inaccessible, or is of poor quality and therefore not seen as being worth the investment of their children's time. The UN Convention on the Rights of the Child (CRC) of 20 November 1989, at the article 32, asserts that "States Parties recognize the right of the child to be protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development". *Child* is defined at the article 1 as "every human being below the age of eighteen years unless under the law applicable to the child, majority is attained earlier". The International Labour Organisation (ILO) Conventions No. 138 (Minimum Age) and No. 182 (Worst Forms of Child Labour) are no doubt the most important instruments to ensure the enforcement of the CRC convention. The Minimum Age convention was adopted on 26 June 1973 by the General Conference of the ILO and was enforced on 19 June 1976. The article 2 of Minimum Age convention asserts that "each member which ratifies this Convention shall specify, in a declaration appended to its ratification, a minimum age for admission to employment or work within its territory (…) no one under that age shall be admitted to employment or work in any occupation". The same article also asserts that: "The Minimum age (…) shall not be less than the age of completion of compulsory school and, in any case, shall not be less than 15 years."

The Convention No. 182 calls for immediate actions against the worst form of child labour.[6] The Article 1 of the convention asserts: "Each member which ratifies this Convention shall take immediate and effective measures to secure the prohibition and elimination of the worst forms of child labour as a matter of urgency".

Some studies (see, for example, Cigno, Guarcello, Lyon, Noguchi and Rosati, 2003) argue that not all work done by children (that is, boys and girls under 18 years of age) needs abolition. In certain cases work performed by children or adolescents would give an essential contribution to the welfare of the children and their families. In conditions where the quality of school is low, child work may help children to acquire skills to participate as productive members to the social life during adulthood. Obviously, in order to regard child labour as something that can be positive for the child and their relatives it is essential that the child is not involved in the worst form of child labour and

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[6] The convention also specifies the interpretation of the words *child* and *worst form of child labour*. Article 2, as already defined in the CRC convention, states that: "*Child* shall apply to all persons under the age of 18." In the article 3 the convention clarifies that the term "the worst forms of child labour" comprises: (a) all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict; (b) the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances; (c) the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs as defined in the relevant international treaties; (d) work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of children."

that work activities do not affect child's health and personal development or interfere with his schooling.[7]

It appears evident that, according to the international conventions, the child labour to be banned is all activities, paid or unpaid, carried out by the child that obstacle the child human development.

It is in this direction that the CRC convention stresses the necessity to protect children from any activity that may interfere with the their education. Convention No 138, more explicitly, recommends that the minimum age for carrying out economic activities shall not be less than the age of completion of compulsory school. With these recommendations, the international organizations aim to reaffirm the role of compulsory education for the children's physical and mental development. Child labour has to be eliminated if it is an obstacle to the child's human capital accumulation.

Even if in principle children may allocate some of their daily time to study and the remaining time to work, many studies show that child labour adversely affects the educational achievement of children who combine work and school, often resulting in their premature leaving of school (Guarcello, Lyon, and Rosati, 2006; Heady, 2000).

However, compared to children who combine work and study a worse off category of children is undoubtedly those of children who are out of school. They are children who are non-school entrants (that is, children never entering school) or children who are early school leavers. Children in this category are often involved in economic or domestic activities but can also be inactive. These children are denied the benefit of formal education and therefore constitute a prior policy target.

In may cases, in fact, schooling and work activities also compete with housework carried out by the children for his/her family. There is a growing consensus among international agencies on the necessity to consider household chores as "child labour". More recent studies, in fact, expand the traditional definition of child labour to include both market oriented labour and household chores. This interpretation is consistent with the UN Convention on the Rights of the Child and ILO Convention No. 182 (Worst Forms), if household chores are harmful to the child, even if domestic activities are not economic in nature. However, it is not yet clear if housework activities should be considered as injurious for children human development. While the impact of economic activity on children's physical and moral development (that is, attendance to compulsory education, performance at school, health condition during childhood and adulthood) has been subject of a

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[7] Conventions No. 138 and No. 182 show that the identification of the child labour that have to be eliminated depend on the interaction between the type of work and the age of the child involved in the economic activity. Thus is considered as child labour all forms of work carried out by children below 15 years (14 years in less developed countries), the light work carried out by children below 13 years (12 years in less developed countries) and all the worst form of child labour carried out by children of any age under 18 (ILO, Geneva, 2002).

number of recent studies[8], almost no research has been undertaken on the relationship between household chores and children's development. A recent research reveals no clear correlation between household chores and health in six developing countries (Francavilla and Lyon, 2003). However, the available evidence indicates that the negative effect of child work on school attendance and school survival is also extended to household chores (Guarcello L., Lyon S., Rosati F. C., 2006). In fact, it is reasonable to expect that household chores performed for long hours during a day can become an obstacle to child attendance and affect the performance of child at school reducing the time children can devoted to homework. More research is needed to improve understanding of the relationship between economic and non-economic activity on school attendance and health condition of children during adulthood.

Descriptive statistics on child work and school attendance also report the existence of a group of children that neither attends school nor performs economic activity. These children are often identified in the literature of child labour as "idle". Drawing on datasets from six countries, a recent research (Biggeri, Luarcello, Lyon, Rosati, 2003) suggests that children who are not fully enrolled in household chores can be absent form both school and economic activity because of their health or because they are unable to find work after having left school. This research stresses the impossibility to classify a large proportion of children neither as workers nor as students. Indeed, in several of these countries where data are available, the magnitude of this category outstrips that of economically-active children, often by a substantial margin.[9] These children also constitute an important policy concern – they not only do not go to school but are also the category of children most at risk of entering work when households are exposed to individual or collective shocks.[10]

3 A theoretical model of parents' allocation of children's time

The family consists of parents and one child. The family consumes a bundle of home produced goods (X_d) and market (X_m) goods. The total household time T consists of parents' and child's time. Parents decide how to allocate their own and their child's time, so that child's time might be considered an extension of his/her parent's time. We assume that the father always works in the market, so that the distribution of father's total time, T_F, is exogenous to the model. The father gives

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[8] See, for example, O'Donnel and Rosati, 2002; O'Donnel, Rosati, and van Doorslaer, 2003; Fassa, Facchini, Dall'Agnol and Christiani, 2000; Rosati and Straub, 2003, on the impact of child labour on health.

[9] According to UCW Project calculations based on NFHS-2, 1998/9 16 per cent of children aged 6 to 14 are inactive, while just five per cent are involved in economic activities. According to our calculations based on the same data survey, around 12 per cent of children in the same age class are inactive and more than 6 per cent work for their family or for the market. The different percentages are due to the use of our definition of inactive children that does not include children involved in household chores. The latter are accounted for in a separate category. See Section 5.

[10] See, for example, Mealli, Pudney and Rosati (2004).

the family the labour income Y.[11] Parents decide on the allocation of the remaining time. Mother's time will be distributed between hours of domestic activities, $H_{M,d}$, market work, $H_{M,m}$, and leisure, L. Child's time will be distributed between study and work. We start with the simplifying hypothesis that each family has one child (C), relaxing it later in the exposition.

The household maximises a utility function U (X, L, S), where L is hours of mother's leisure and S is hours of child's study. S necessarily includes going to school, but does not exclude hours of all those extra activities (including play time) useful to develop child's capabilities. The inclusion of S as an argument of parents' utility can have a double interpretation. First, an altruistic interpretation, according to which, parents derive utility from the fact that the child attends school. The second interpretation is egoistic, since parents may guarantee themselves future consumption through child support[12], investing in her/his education. This implies the reasonable assumption that child's future earnings will be higher if the child accumulates at least some education instead of only work experience.

Under these hypotheses the household utility to be maximized is:

Max U=U (X, L, S)   (1)

$$\frac{\delta U}{\delta X} > 0 \, , \frac{\delta U}{\delta L} > 0 \, , \frac{\delta U}{\delta S} > 0$$

The utility maximization is subject to the consumption constraint:

$X = X_d + X_m$ (2)

The time constraint, with child's time considered as an extension of her/his parents' time, is the following:

$T = T_M + T_F + T_C$ (3)

$T_M = H_{M,d} + H_{M,m} + L$ (4)

$T_F = H_{F,m}$ (5)

$T_C = H_{C,d} + H_{C,m} + S$ (6)

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[11] The empirical evidence justifies this simplifying assumption. In our sample drawn from NFHS-2, 97 per cent of fathers work.

[12] For the theory of family constitutions, according to which parents invest in their children's education in order to guarantee themselves consumption when their are old, see Cigno (2006) and Cigno and Rosati (2000). This theory is especially applicable to developing countries, where social security is often insufficient.

where child's time (T_C) can be allocated to domestic production ($H_{C,d}$), market work ($H_{C,m}$) and study (S). The mother and the child produce a homogeneous domestic good X_d according to the following household production constraint:

$$X_d = f(H_{M,d}) + g(H_{C,d}) \qquad (7)$$

where $f'(H_d) > g'(H_d)$, that is, the mother is more productive than her child. The budget constraint is:

$$X_m = W_M H_{Mm} + W_C H_{Cm} + Y \qquad (8)$$

$$Y = W_F H_{F,m} \qquad (9)$$

where W_M, W_C and W_F are mother's, child's and father's wage respectively.

To begin with, imagine a situation of poverty where all family members are forced to allocate all their time to work. The father's time is already totally devoted to market labour. The mother is also obliged to employ all her time to produce goods for her family survival. If her activity is not enough to achieve the household subsistence level, parents will have to employ their child in domestic activities and/or send the child to the labour market.[13]

Beyond subsistence, when producing at least the subsistence level does not involve all household time, parents will be able to choose how to allocate mother's and child's time according to household preferences. This case is represented in Figure 1.

The vertical X-axis divides T in two parts, T_M in the left panel with the mother's production frontier, and T_C in the right panel with the child's production frontier. The intersection of the X-axis with the L,S-axis is positive and equal to Y market goods (bought with the father's earnings). The dashed line intersects the subsistence consumption level of the family. All combinations of mother and child work could be represented varying the level of wages, the form of the home production functions and household preferences.

In the case represented in Figure 1, with no children, at the equilibrium point E_M, the woman works in the market, is engaged in home production and enjoys some leisure time (see the left panel). With one child, household utility can be increased at the equilibrium E_C, where the child is engaged in full time education and $S = T_C$ (see the right panel).

This equilibrium derived from the maximization of (1) with respect to X, L, and S subject to (2)-(9) is expressed by the following first order conditions:

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[13] This case is similar to Basu's "Luxury axiom" (1998). This axiom states that: "A family will send the children to the labour market only if the family's income from non-child labour sources drop very low." (p. 416).

$$\frac{U_L}{U_X} = W_{Mm} = f'(H_{Md}), \frac{U_S}{U_X} > g'(H_{Cd}) > W_{Cm} \quad (8)$$

Fig. 1. Mother participates to the labour market and child studies all time
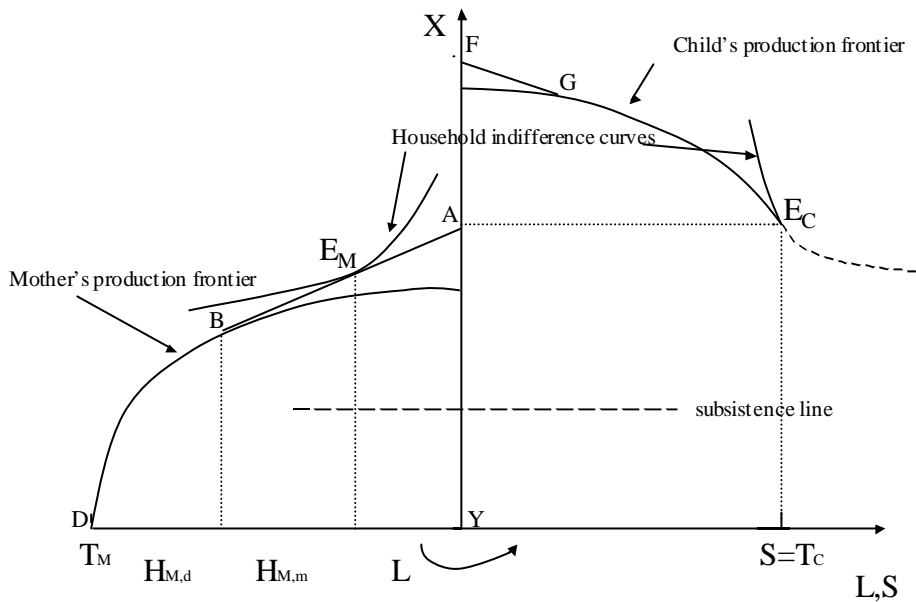
Other cases could be represented. For example, if a child spends her/his time in all kind of activities, including study, the child's equilibrium occurs at any point between F and G where g'(H_{Cd})=W_C. This allocation of child's time is jointly determined with her/his mother's equilibrium. The latter may occur either between A and B where the mother participates (f'(H_{Md})=W_M), or between B and D where the mother specializes in domestic work (f'(H_{Md})>W_M).

The special case in which the mother chooses to allocate the total time T to work would take place at the corner solutions A and F.

In conclusion, all the possible mother-child equilibrium states, including the corner solutions, derived from the maximization of (1) with respect to X, L, and S subject to (2)-(9) are expressed by combinations of the following first order conditions:

$$\frac{U_L}{U_X} \geq W_{Mm}, \frac{U_S}{U_X} \geq W_{Cm}, \frac{U_L}{U_X} \geq f'(H_{Md}), \frac{U_S}{U_X} \geq g'(H_{Cd}) \quad (9)$$

In this context, a public policy improving the household production technology, would release time from domestic activities[14] and give the mother the opportunity to work in the market.

Relaxing the one-child hypothesis does not change the results substantially. Assuming that the n children are identical for their parents, the parents' time is extended to the sum of all their children's time. (1) then becomes

Max U=U (X, L, nS) (1')

and the constraints (3), (7) and (8)

T= T_M + T_F + nT_C (3')

X_d = f($H_{M,d}$) + ng($H_{C,d}$)   (7')

X_m=$W_M H_{Mm}$+ $nW_C H_{Cm}$ + Y   (8')

Fig. 1 would then have L and nS on the horizontal axis. Any equilibrium will divide children between those that work for the market, those engaged in domestic work, those who study up to a certain number of hours or all the time.

4 The econometric model

The following empirical discrete choice model emerges from our utility maximisation framework. Household *i* gains utility from choosing state *j* represented by the utility latent indicator:

$$u_{ij} = \underline{x}_{ij}' \beta_j + \varepsilon_{ij}$$

i=1,...,N, j=1,...,J, where *N* is the total number of households in the sample, and *J* is the number of states the household can choose. x_{ij} is a vector of observed explanatory variables describing household and family members' characteristics which are assumed to determine the household choice. We are interested in deducing what the unknown parameter vectors β_j, *j=1,...,J*, are. The

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[14] See, on this, Giannelli and Francavilla (2007).

utility indicator u_{ij} is latent, but we observe the realisation: $I_i = j$ iff $u_{ij} > u_{ik} \; \forall k \neq j$, i.e. we observe household i in state j if the household acquires the greatest utility from this state.

We use a multinomial logit formulation (MNL), which follows from the assumption that $\underline{\varepsilon}_i$ has type 1 extreme value distribution. In the logit model the distributional assumption forces the covariances across the error components of the utility indicators attached to different alternatives to be equal to zero. This pattern is known in the literature as the Independence of the Irrelevant Alternative (IIA) hypothesis.[15] Alternatives to the MNL that do not rely on IIA are available. If choices could be ranked and ordered, a nested logit might be feasible. However, given the joint nature of time allocation decisions, this seems problematic. A natural alternative might be the multinomial probit that does not require a hierarchy of choices, nor does it require IIA. However, it is used less frequently for several reasons. First, the model needs to estimate the entire covariance structure. Hence, the number of parameters that need to be estimated can be extreme, and computational problems may arise, especially as number of alternative states increases. Second, the probit model is formally identified, only if the regressors of u_{ij}^{*}, the unobservable level of utility, include an alternative-specific attribute (Keane, 1992)[16].

Following our theoretical model, we represent the mother and child states as:

M = (0 ,1) where 0 means that the mother does not work,

C= (0,1) where 0 means that the child does not go to school,

We then may observe the following mother-child combinations of states:

M=(0,1) and C=0 or

M=(0,1) and C=1

We estimate two joint specifications.

The first derives from the one-child theoretical model, where we estimate the mother-one child states, conditional on the states of the father and of the other siblings.

The second specification, models jointly the mother-n children assumption.

In the first specification, we also distinguish between the child states alternative to going to school, that is, working for the family, working in the market and being inactive.

This amounts to modelling eight states (we indicate the acronyms used in the section of results):

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[15] IIA means that the utility obtained from a given choice is not correlated with the utility obtained from any other choice. This is a very strong statement. The unobservable components of different alternative utility functions could contain common terms which, for example, could make two states more similar to each other than another state for an individual with given observed attributes. The probit model does not impose the IIA assumption a priori, but greater generality is achieved at the cost of a more complicated setting for the estimation of its parameters.

[16] This means that the data must contain some variables - observed for all individuals - which should only enter the utility associated with one state and not the others. Such alternative-specific variables are usually available in studies concerning brand or transportation mode choices, where, for example, the price or a quality indicator faced by the individual in each alternative can be observed. In our case, the choice-specific regressors seem very difficult to find.

1) the mother works in the market and the child goes to school, MW-CS, (full-time, or at least some hours);

2) the mother does not work in the market and the child goes to school, MNW-CS, (full-time, or at least some hours);

3) the mother works in the market and the child does not go to school, but is engaged in domestic work, MW-CD;

4) the mother does not work and the child does not go to school, but is engaged in domestic work, MNW-CD;

5) the mother works in the market and the child does not go to school, but works in the market, MW-CW;

6) the mother does not work and the child does not go to school, but works in the market, MNW-CW;

7) the mother works in the market and the child does not go to school, but is inactive[17], MW-CI;

8) the mother does not work and the child does not go to school, but is inactive, MNW-CI.

The second model of mother-n children can be described by the following four states:

1) the mother works in the market and all her children go to school, MW-CS;

2) the mother does not work in the market and all her children go to school, MNW-CS;

3) the mother works in the market and at least one of her children does not go to school, MW-CNS;

4) the mother does not work in the market and at least one of her children does not go to school, MNW-CNS.

5 Data and variables

The micro data we use are drawn from the National Health Family Survey (NFHS-2) 1998-1999, India (IIPS and ORC Macro, 2000). The NFHS-2 is a household survey with two different samples: the first one consists of around 92,500 households (who answer the Household Questionnaire, HQ) and the second of 90,300 ever-married women in the age group 15–49 who are members of the household sample[18] (who answer the Woman's Questionnaire, WQ). The sample covers more than 99 per cent of India's population living in all 26 Indian states. The sample size for each state was drawn separately for urban and rural samples proportionally to the size of the urban and rural populations of each state. This survey is designed to provide state and national estimates of fertility, the practice of family planning, infant and child mortality, maternal and child health, and the

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[17] We assume that the state of being "inactive" is theoretically the same as that of staying at home doing domestic work. However, this state is usually separated from the others in the empirical literature on child labour, for the reasons discussed in section 2.

[18] So that, for them, we draw information also from the HQ.

utilization of health services provided to mothers and children. In addition, the survey includes information on women's education, work and standard of living and provides indicators of the quality of health and family welfare services, women's reproductive health problems, and domestic violence.

From this survey we draw two samples on which we conduct two separate analyses. The first sample (S1) consists of about 110,000 observations on children aged 6 to 14, for whom we have information drawn exclusively from the HQ. We then create a second sample (S2) merging S1 with the sample of married women form the WQ, in order to link children's to mothers' variables.[19] S2 consists of about 90,000 children aged 6 to 14.

From S1 to S2 we loose observations for two main reasons. First, some mothers are not present in the household (around 6 per cent; they might be away[20] or dead[21], or the child might be fostered). Second, the children might have mothers whose age is out of the age range 15-49, that is, mothers who are not eligible for the WQ[22]. This second reason might generate a sample selection bias, since we are loosing observations on children that were born when their mothers' age ranged from 36 to the natural end-of-fertility age.[23] The descriptive statistics, however, show that characteristics of children in S1 and S2 do not change significantly (see the Appendix).[24]

Indian households are often composed by more than one family nucleus. 34 per cent of all households of the survey belong to this category.[25] Given the relevance of extended families in the Indian society, we need some terminology to indicate the members of a household. We define as "household member" any member residing in the same house, as "family"[26] parents and their children, as "adults" members aged more than 14, as "siblings" the brother and sisters of the observed child and as "other children" the children that were not born from the mother of the observed child.

About 18 per cent of children aged 6 to 14 in the survey is not attending school because they are either working for the market or for the family, or because they are "inactive". According to the

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[19] We do this using a specific identification code present in the survey. A similar identification code is not available for the father-child relation.

[20] Some household members do not usually live in the household (for example, 1400 women who are wives or daughters of the head of household).

[21] The maternal mortality rate was 407 per 100,000 live births in 1998 (India, Registrar General, 2000). This rate is one of the highest in the developing world. In developed countries the average rate is 20.

[22] In the sample drawn from HQ, there are about 7000 women aged 50-54. These women might well have children in the 6-14 age range.

[23] The structure of the data set does not allow a precise identification of the specific reason of the drop out.

[24] For example, the 51.61 per cent are males in the larger sample against 51.82 per cent in the smaller sample; average age is 9.89 in the larger sample against 9.80 in the smaller sample.

[25] Nuclear family households consist of an unmarried adult living alone or a married person or a couple and their unmarried children, if any.

[26] In the theoretical model of section 3, instead, we have use the term "household" to indicate a family nucleus.

survey definition, "inactive" children are not attending school for some reasons not related to work, like school distance, schooling costs, or because they are not interested in studying.

The dependent variable is multinomial. We define the following child states: student, work for the family, work for the market, inactive.

Student: includes full-time students and children who study and work for the market (0.26 per cent of all students). At variance with most studies on child labour, we do not specify a category for work and study, in line with the focus of our paper, according to which this state is not entirely harmful if the children manage to reconcile study with work. Moreover this category is relatively small (6.5 per cent of all children working outside). The state of "student" includes also children who study and are employed in occupations for the family (either domestic work and/or work for the family farm), whose number cannot be drawn from the survey, due to the structure of the questionnaire.[27] Anyway, we reckon that, in a developing country like India, the percentage of children who go to school and perform some domestic activities or work for the family farm or business is presumably quite high. Students are 83 per cent of our sample.

Work for the family: children who are not in school and do household work, or are required for work on farm or family business (3.4 per cent).

Work for the market: children who are not in school and work for the market (3 per cent).[28]

Inactive: children who are in no one of the preceding categories, but that can be assumed to do some work, most probably domestic (12 per cent).[29]

In the joint models the four child states are combined with their mother's state of "working" or "not working", then we need to define mother's work. Precisely, a mother is defined to participate if she has worked in the last twelve months.[30] If the woman participates, we also know in which professional position. Of 44,000 women, who are the mothers of the 90,000 children aged 6 to 14 in S2, 40 per cent participate to the labour market.

Among the explanatory variables we include, together with children's and parents' background characteristics, information on the head of household religion, on caste or tribe, on the average

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[27] The respondent, who is in charge of answering the questions for all the household members, is asked for each member older than 5 if he/she has ever attended school. If the answer is yes, it is asked if he/she is still in school. If the answer is yes to both questions, then there is no further question on domestic work or work for the family. If the answer is no to the first question and no to the second (or yes to the first and no to the second), it is asked the reason why the member has never attended (or is no more attending) school. Among these reasons, there are the following possibilities: required for household work, required for work on farm or family business, required for outside work for payment in cash or kind.

[28] These are children who are not in school because either they are required for outside work for payment in cash or kind (see the preceding footnote) or have a valid value to the question "what kind of work do you do most of the time" in the household questionnaire.

[29] See section 2.

[30] We prefer to use this variable instead of that one indicating if the woman is currently employed. For our present purposes, this variable is more suitable to study the woman's long-run attachment to the labour market in conjunction with the long-run decision of sending her children to school.

education level of the household, on the number and age of siblings and other children, on the occupational and professional status of parents, on household wealth[31], on acres of land and livestock owned by the household.

Although the relation between mothers' decision power in the household and children's welfare would require a specific analysis,[32] we also include two indicators of mothers' power in the household, the first one recording if mothers have the possibility of setting aside some money (61 per cent have the permission)[33], the second one recording if their husbands use to beat them (19 per cent have been beaten).[34] For the present study, we simply test the correlation between these indicators and the probability that children go to school or have other activities. The underlying hypothesis is that the higher the degree of the mother's power, the higher the probability that her children study.

6 Results

We estimate two empirical specifications, both multinomial logit.

The first one, in line with the standard approach in the literature, estimates a model of the probability of the different child's states, conditional on her/his mother's state. We introduce the mother's (but also the father's) variables (see section 6.2) after having estimated a baseline model of the child's states that leaves out all parental variables except a dummy for the presence of the mother in the family (see section 6.1).

The second empirical specification, in line with the theoretical model of section 3, estimates the mother-child states jointly (see section 6.3).

6.1 A standard probability model of the child's states: does the presence of the mother in the household matter?

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[31] The selection of indicator variables to be included in the wealth index is relatively straightforward. Almost all household assets and utility services are to be included, including country-specific items. The reason for using a broad criterion rather than selected items is that the greater the number of indicator variables, the better the distribution of households with fewer households being concentrated on certain index scores. Generally, any item that will reflect economic status is used. Two additional indicators are considered: whether there is a domestic servant and whether the household owns agricultural land. The first is constructed by examining the occupation of interviewed members who are not related to the head of the household. If the respondent or spouse works as a domestic servant and is not related to the head, then the household is considered to have a domestic servant. The second is also based on interviewed members. If any interviewed member (related to the head or not) or interviewed member's spouse works his or her own or his or her family's land, then the household is considered to own agricultural land (Rutstein and Johnson, 2004, p.17).

[32] For a simple theoretical model of the effect of mother's bargaining power on child's consumption see, for example, Basu (2006).

[33] The question is the following: "Are you allowed to have some money set aside that you can use as you wish?".

[34] The question is the following: "Since you completed 15 years of age have you been beaten or mistreated physically by any person?" In 90 per cent of the cases it is the husband who beats the woman.

This model estimates the marginal effects of child's characteristics, household's wealth and residence variables on the four states of the child. Since our main objective is to measure the impact of the presence of the mother, we add this dummy to the other variables.[35] Several studies analyse the relation between the presence of parents in the household and children activities, all of them documenting the negative impact on schooling of parental absence.[36] In our sample, around 6 per cent of children did not have their mothers present at the time of the interview, of which 10 per cent are foster children.

The model is estimated on S1 and the results are presented in Table 1. The presence of the mother increases the probability that the child studies by about ten percentage points, reduces the probability that the child works in the market by about 3 percentage points, that the child works for the family by about 2 and that the child is inactive by about 5. Comparing the magnitude of these coefficients with that of the coefficients of the other variables, we find that the presence of the mother has the largest impact. The positive impact on the probability of studying is larger in rural areas than in urban areas, while the reduction of the probability of child labour is approximately equal in the two areas. The probability that the child is in all other states, including working in the market, decreases, with a larger effect on the probability of being inactive in rural areas.[37]

This result represents our baseline evidence on the essential role of the presence of the mother for children's welfare.

As to gender differences, we find that males have a higher probability to study than females, and this gender discrimination is very concentrated in rural areas, where being males increases the probability that the child studies by about ten percentage points.[38] Age increases the probability of studying and working in the market, whereas it reduces that of family work and inactivity. Again this effect is larger in rural areas.

Religion matters as well,[39] especially in rural areas. Muslims and Christians show opposite behaviours: with respect to Hindus, the former send more frequently their children to work in the market, whereas the opposite is true for Christians. If the child is part of a scheduled caste or tribe, she/he will have a higher probability to work, especially in scheduled tribes.[40]

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[35] As already mentioned, due to structure of the HQ data set, we cannot do the same thing for the presence of the father.
[36] For example, Moehling (2004) studies the relation between family structure and child labour and schooling in the American South at the start of the twentieth century. Living apart from one or both parents is associated with lower school attendance and greater market work participation, especially for black children. Other studies find differences in school attendance among orphan and non orphan children (see e.g. Case, Paxon and Ableidinger, 2004).
[37] We have also run the model with a dummy for foster children. The marginal effects are: -0.71 Study, 0.17 Work for the family, 0.41 Work outside and 0.13 Inactive. The effect for Work outside in urban areas is 0.41 and in rural areas 0.37. We thank K. Basu for this suggestion.
[38] Similar evidence is reported, for example, for Nepal using the Nepal Labour Force Survey 1998-1999, see UCW Project country statistics.
[39] On the role of religion for demography in India, see Iyer (2002).
[40] This is in line with the descriptive evidence given by Thorat (1999).

Average education of adult members in the household increases the probability of studying and reduces that of working.

The number of other children aged 0 to 17 in the household reduces the probability of studying, especially male children aged 15 to 17 that, in rural areas, increase the probability of inactivity by three percentage points. We interpret this result with the need of more domestic goods to be consumed within the family, especially by older male children that are still in school more probably than females. This need might compel younger children to supply more domestic work. If the number of adult members increases, the probability that children work decreases.

Wealth increases the probability of studying in a non-linear way, both in rural and urban areas. Acres of owned land have also a non linear effect but opposite in sign. In urban areas, however, land ownership has the same role of wealth. In rural areas, instead, children work increases non-linearly with land property. This is consistent with some studies that show that in some developing countries the amount that the children of a household work increases with the amount of land possessed by the household. This phenomenon, known as wealth paradox, is due to imperfections in land and labour market.[41] However, in line with Basu (2007), our results suggest that this perverse effect arises only if household holds a small portion of land. As the household's land-ownership continues to rise the household will be so well-off that it will not want to make her/his children work.

As far as residence is concerned, residing in the South and in the North East, increases the probability of studying. Even if we have already controlled for wealth, the pattern of these coefficients seems to capture the effects of unobserved characteristics positively related to a higher standard of living.

For all India, residing in urban areas decreases the probability of studying and increases that of working in the market and being inactive. This result, to our knowledge new in the literature[42], would suggest that, in India, the worse off children reside in urban areas. In this country, educational, social and economic policies have always been targeted to reduce the poverty level of rural areas. As far as children welfare is concerned, however, urban areas may need more public attention.

INSERT TABLE 1 AROUND HERE

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[41] See Cigno, Rosati, Tzannatos (2002) for an application on India and Bhalotra and Heady (2003) for a study on Peru and Pakistan.

[42] Evidence in other studies shows that children tend to work more and for longer hours in rural than urban areas. See, for example, Edmonds and Pavcnik (2005).

6.2 The relation between the work of mothers and children: are they complements or substitutes?

We now turn to the effect of mothers participation to the labour market on their children's condition, and, in particular, on the correlation with their children's labour. A positive correlation might be interpreted as evidence of complementarity of the two forms of labour. A negative one can be interpreted as an evidence of substitution.

For this purpose we use S2, the sample of children whose mothers are present in the household and are eligible for WQ. The results are presented in Table 2.

Let's start with the role of parents' education. Indeed, as expected, the level of parental education is positively related with their children going to school. Moreover, the positive effect of mothers' education is bigger than that of fathers, the positive differential amounting to a half percentage point increase in the probability for studying per year of education. Also, the negative effect of education on all other labour activities of children is always larger for mothers. The parental education effect is bigger in rural areas, probably due to the lower level of education and the decreasing marginal effect of an additional year of education.

Turning now to the role of parents' occupation, we find that if the mother is working the child has a lower probability of going to school and a higher probability of working, for all types of mother's professional positions, except the white collar ones. Fathers' occupation is instead positively related to the probability of going to school and negatively to labour activities. Consistently with our definition, we can say that mother and child work are complements, whereas father and child work are substitute. Mothers' marginal effects are again larger, in such a way that, if the parents hold the same professional position, the mother's effect dominates. Fathers in white-collar positions exert the largest effect in term of schooling of children, while unskilled manual the lowest. This is an indication that this variable is capturing the father's income effect (Y in our theoretical model). The pattern of mother's effects is rather homogeneous, thus indicating that it's the participation state that matters, notwithstanding the occupational position. The urban/rural distinction reveals that, in the urban context, mothers' participation to the labour market, other things equal, seems to have no effect on children's condition (except if the mother works in sales). In urban areas, the better the father's professional position the higher the probability that the child studies and the lower the probability that the child is inactive. Father's occupation has no effect either on child market work or on child family work. In rural areas mother's occupation decreases the probability of studying, and increases significantly the probability that the child works. Father's occupation has only a significant negative effect on child market work. So, the complementarity between mothers' and children's market work is essentially a rural phenomenon. This might indicate that job quality and

female wages tend to be low and homogeneous across occupational categories, thus inducing only poor families to send mothers to work. In a subsistence context, child labour becomes complementary to that of mothers.

As to mother's power, we find that some control over money reduces the probability of child labour, but the coefficient is just significant (the urbal/rural distinction shows that a small effect is present in rural India only). As to mother's mistreatment, this is negatively related to the probability of studying and positively to the probability of the child being inactive and working, an effect that is substantially present in rural India only (where the effect on child labour disappears). One could argue that these variables are still capturing some unobserved effects linked to education and wealth, but the correlation between these two indicators and education and wealth is quite low, thus suggesting that the practice of beating wives, for example, is not exclusively confined to poor and illiterate families. These very approximate results would encourage a more structured study on the relation of the degree of mothers' power in the household with children welfare.

As to household composition, we aim to study how sibling composition affects child activity looking at sibling age and sex composition.[43] We do that distinguishing between child's brothers and sisters by sex. The presence of smaller siblings aged 0 to 5 reduces the probability of studying by a substantial amount (around two percentage points in all India, three percentage points un rural and nearly one in urban areas) mainly in favour of inactivity and family work. The negative impact decreases for siblings of the same age category and increases again for older siblings. As to gender differences, we find that sisters have a smaller impact than brothers for all age categories, especially in rural India. To be precise, brothers aged more than 14 have a higher impact than siblings aged 6 to 14, whereas sisters older than 14 have no impact at all in rural areas. The household size coefficient, then, captures the effect of the number of adults in the household[44], which is positive, since adult members most probably contribute to household income and domestic production. This evidence confirms our hypothesis on the need of more domestic tasks to be performed within the family the higher the number of small siblings to take care of, and the higher the number of older brothers that are still in school more probably than sisters. This need might compel children to supply more domestic work, often perceived as inactivity by the member in charge of answering the HQ. In conclusion, it would seem that birth order and sex are relevant factors for the probability of studying especially in rural areas.

INSERT TABLE 2 AROUND HERE

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[43] The evidence emerging from the rich literature on this issue is mixed. For a survey, see Edmonds (2007).
[44] We have controlled also for the effect of other children in the household. They also reduce the probability of child study. Results available on request.

6.3 Joint models of mother-children states: when children's time is an extension of their mother's time

The standard approach discloses a positive correlation between the work of mothers and children. We now study this correlation in a different way. If child's time is an extension of mother's time, as assumed in the theoretical model, mothers decide on the allocation of their and their children's time jointly. The questions we investigate now are the following: 1) what is the most probable state chosen by the mother in conjunction with the decision to send her child to work in the market? 2) To what extent do the factors discussed so far affect mother's joint time allocation decisions? In other words, what is the additional evidence emerging from the joint approach?

We first estimate a model of eight mother-child states and then a model of four mother-children states, according to our "one child" and "n-children" assumptions.[45]

The results of the eight-states model are presented in Table 3.[46]

As far as household composition is concerned, the presence of siblings increases the probability of all states except MW-CS. So it is less probable that the mother decides to work and send her child to school when she has to take care of more than one child. In the presence of more than one child the most probable state is to stay home and send the child to school; even more so if the siblings are aged 0 to 5.

The states of the mother not working and the child not going to school (MNW and child CD or CW or CI) are systematically more probable than the states in which the mother works and the child does not go to school in the presence of siblings of any age category. In the presence of siblings, when the mother chooses to work outside home she will prefer to allocate her child time to work activities in less cases than when she chooses to stay home. In other words, when the child does not go to school she will get a higher utility if she stays home. This leads to a first set of answers to our two questions: 1) If the number of siblings increases by one, other things equal, the mother's first choice will be to stay home and send the child to school, the second choice will be to stay home and make the child work (or stay inactive), the third choice will be to work and make the child work. 2) The standard approach has shown that the presence of siblings reduces the probability of studying mainly in favour of inactivity and family work. The joint approach, while confirming this result[47], reveals that an additional sibling makes more probable that the mother chooses to stay home and let the child work with respect to the choice of both working.

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[45] See section 4.

[46] Even if in Table 3 we present some selected results, we have controlled for all variables included in the preceding models.

[47] The reduction in MW-CS outweighs the increase in MNW-CS, thus implying an increase in the probability that the child does not study.

It is to be noted that this is true for the presence of all siblings except sisters older than 5. Their presence does not have a significant impact on the decision to send a child to school, especially if they are older than 15.

Mother's education is negatively correlated to all states except the MNW-CS. An additional year of education increases (non-linearly) the probability to stay home and send the child to school by about 4 percentage points and decreases the MW-CS probability by about 3 percentage points. In accordance with the results of Table 2, the father's education marginal effects have the same sign but a much smaller size (about one fourth) than those of mothers.

So, if the mother is more educated her first choice will be to stay home and send her child to school, whereas her last choice will be to work and send her child to school. The joint approach, while confirming that a more educated mother increases the child's chances to attend school, reveals again that educated mothers prefer to combine all child's states with non participation[48].

All father's professional positions negatively affect mother's employment and all the child's states combined with it. By converse, father's occupation is positively associated with a non-working mother and a child going to school. Note that the marginal effects of father's occupations on MW-CS and MNW-CS are similar in absolute value (the former are somewhat smaller). As to the other mother-child states, that is, mother not working with child either working, or doing domestic work or being inactive, they are not significantly correlated with father's occupation. This might mean that the mother chooses not to work and to send her child to school, other things equal, if her husband is employed. On the contrary, the mother is not affected, other things equal, by father's occupation in her decision to let her child work and either stay home or work (in this last case she is negatively affected but to a very small extent).

So the mother has more probability to choose not to work and to send her child to school, other things equal, for any professional position of her husband. On the contrary, the father's professional position does not affect, other things equal, the mother's decision to either stay home or work and let her child work.

Also wealth[49] is positively and significantly correlated to the state MNW-CS, and negatively with all other states. The property of land, instead, has a different impact: if the household owns some acres of land the probability of MW-CS increases. This means that, other things equal, the mother maximizes her utility working on her family land and sending children to school.

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[48] This is an unusual results if compared to the available evidence for developed countries. However, we find the same result in Giannelli and Francavilla, 2007.
[49] This result is available on request.

Richer women choose to stay home and send their children to school. Increasing wealth decreases participation of women and children. Land property is the only factor that is positively associated with female participation in conjunction with children schooling.

INSERT TABLE 3 AROUND HERE

The last specification tests if the results obtained so far continue to hold when we relax the assumption that each observed mother-child state is independent of the others, quite a strong assumption when a mother has many children. It also gives some insight into the conditions under which a mother does not discriminate between children and send them all to school.

In this case the sample consists of about 44000 observations, one for each woman in the sample that has at least one child aged 0 to 14.

Table 4 presents the results for selected variables and for urban and rural areas. As far as education is concerned, it is mother's education that counts more in the determination of mother-children states. A higher level of education is correlated with MNW-CS in both areas. The effect of household's average level of education on MNW-CS is double in rural areas than in urban areas. Father's occupation has a similar effect to the preceding specification: in urban areas all types of father's occupation increase the probability of MNW-CS, and decrease the probability of MW-CS, whereas in rural areas these effects are weaker, and act more as disincentives to the MW-CNS state. Wealth has a larger positive effect in rural areas on MNW-CS, and the property of acres of land on MW-CS. In sum, the results found for the mother-one child model seem to be overall confirmed.

INSERT TABLE 4 AROUND HERE

7 Conclusions

Our results show that the presence of the mother in the family increases children welfare, in terms of educational opportunities and protection from work activities. A large body of literature has shown that the mother is the fundamental subject for the development of children capabilities. Our evidence is in line with this literature, confirming the mother's major role in determining her children condition. In fact, under the assumption that the mother considers her children's time like her time, it emerges that mothers' characteristics have a larger effect on children state than father's characteristics.

The welfare improving mother-child link, however, depends on maternal conditions. In fact, if a mother works for the market, her children are at risk of not attending school, since mother and child work may become complementary. This seems to conflict with much evidence, not only for developed countries, that the greater the mothers' control over family resources, the greater their children welfare level. The joint approach, while confirming the results obtained with the standard approach, reveals that all the explanatory factors considered make more probable that the mother prefers to combine her non-participation with each child state. Property of land is the only factor that has a positive influence on maternal participation and child schooling.

Our evidence may suggest that the hearth of the matter lies in the quality of labour market opportunities for mothers. When job quality and wage levels are very low, the mother-child relation produces the perverse effect of increasing child labour. All our results indicate that the mother tends to stay home and send her children to school the better is father's employment position and the wealthier is the family. Mothers' work, in sum, indicates a condition of poverty.

The distinction between rural and urban areas reveals some controversial issues. A positive aspect of residing in urban areas is that mothers' participation to the labour market does not sort out the perverse effect we have just discussed. In these areas mothers' participation to the labour market seems to have no effect on children condition. This might indicate a higher degree of development in terms of better job and earning opportunities for mothers. The negative aspect lies in the observation that children residing in urban areas are more at risk of working or being in the unqualified state of inactivity that might hide a problematic condition. This result is perhaps specific to a country like India, where social, educational and economic policies have traditionally been targeted to rural areas. As far as children welfare is concerned, urban areas may now need more public attention.

Turning to policy aspects, the UNICEF appeal to nations to focus on the mother-child relation seems to go in the right direction. If we believe that children's condition is closely related to mother's earning capacity stemming from a permanent paid job, public employment policies should be directed to improve female labour market conditions. In this light, general employment policies should be carefully studied with an eye to intra-household dynamics, in order to avoid disincentive effects on female participation that could counterbalance the positive effects of specific measures for female employment.

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Table 1: MARGINAL EFFECTS ON THE CHILD'S STATES - All India

Multinomial logit

Marginal effects * 100	All India			
	Study	Family work	Market work	Inactive
Child's variables				
sex (male=1)	6.89***	-1.82***	0.09*	-5.16***
age	6.68***	-0.07	0.40***	-7.00***
age2	-0.39***	0.02***	0.006	0.36***
never married	5.21***	-0.45	-0.68*	-4.07***
Mother present	9.76***	-2.24***	-2.74***	-4.78***
Household's variables				
Muslim (base is Hindu)	-5.21***	0.08	0.68***	04.45***
Christian	2.25***	-0.65***	-0.45***	-1.15***
scheduled caste	-1.11***	0.16***	0.24***	0.71***
scheduled tribe	-3.41***	1.16***	0.85***	1.40***
sex of the head	0.45	-0.20**	0.14**	-0.39
age of the head	0.003	-0.002	-0.0007	-0.0003
household size (adults)	0.59***	-0.16***	-0.07***	-0.36***
mean hh education (years)	1.69***	-0.24***	-0.25***	-1.19***
children 0-5 male	-1.99***	0.45***	0.19***	1.35***
children 0-5 female	-1.82***	0.45***	0.24***	1.12***
children 6-14 male	-1.38***	0.28***	0.16***	0.94***
children 6-14 female	-0.90***	0.14***	0.12***	0.64***
children15-17 male	-3.46***	0.53***	0.39***	2.54***
children15-17 female	-1.72***	0.23***	0.21***	1.28***
Wealth				
wealth index	7.63***	-1.14***	-0.67***	-5.83***
wealth index sq	-1.69***	0.31***	0.50***	0.88***
acres/100 of land	-0.23**	0.16***	0.02	0.04
acres/100 of land sq	0.003**	-0.002***	-0.0003	-0.0006
livestock (dummy)	1.77***	0.11**	-0.06	-1.82***
Residence				
urban	-3.22***	0.14	0.32***	2.76***
North	-3.75	-0.04	-0.77***	4.57***
Central	-3.87***	-0.51***	-0.89***	5.27***
East	-6.49***	-0.55***	-0.82***	7.85***
Northwest	-0.36	-0.67***	-0.87***	1.90***
West	-1.56***	-0.22***	-0.37***	2.14***
Observations 101714 of which	83198	3384	3051	12081
R-squared	0.218			

*Note: *** p<0.01, ** p<0.05, * p<0.1.*
Data source: NFHS-2, 1998-99

Table 1 continued: MARGINAL EFFECTS ON THE CHILD'S STATES - Urban and rural areas

Multinomial logt								
	Urban				Rural			
Marginal effects * 100	Study	Family work	Market work	Inactive	Study	Family work	Market work	Inactive
Child's variables								
sex (male=1)	1.12***	-0.50***	0.36***	-0.98***	10.40***	-2.73***	-0.04	-7.68***
age	2.64***	-0.04	0.29**	-2.89***	8.87***	-0.03	0.49***	-9.33***
age2	-0.16***	0.008**	-0.0007	0.15***	-0.52***	0.03***	0.006	0.48***
never married	5.22*	-0.28	-0.91	-4-03*	5.93***	-0.57	-0.64	-4.72**
Mother present	7.42***	-1.55***	-2.63***	-3.24***	10.50***	-2.68***	-2.53***	-5.29***
Household's variables								
Muslim (base is Hindu)	-1.85***	0.17**	0.53***	1.16***	-7.02***	-0.005	0.72***	6.30***
Christian	0.73*	-0.01	-0.43***	-0.29	2.94***	-1.04***	-0.39***	-1.51***
scheduled caste	-0.36*	0.12*	0.05	0.19	-1.49***	0.20**	0.33***	0.97***
scheduled tribe	-0.17	-0.002	0.18	-0.008	-4.84***	1.79***	1.10***	1.95***
sex of the head	-0.57**	0.03	0.27***	0.26	1.40***	-0.39***	0.01	-1.02***
age of the head	0.0004	-0.002	-0.002	0.005	0.006	-0.002	-0.0001	-0.004
household size (adults)	0.26***	-0.05***	-0.06***	-0.15***	0.78***	-0.23***	-0.06***	-0.49***
mean hh education (years)	0.61***	-0.05***	-0.06***	-0.50***	2.29***	-0.39***	-0.36***	-1.54***
children 0-5 male	-0.84***	0.10***	0.12***	0.61***	-2.63***	0.68***	0.19***	1.76***
children 0-5 female	-1.03***	0.20***	0.18***	0.65***	-2.25***	0.64***	0.25***	1.36***
children 6-14 male	-0.54***	0.09***	0.10***	0.34***	-1.88***	0.42***	0.17***	1.30***
children 6-14 female	-0.57***	0.04	0.14***	0.39***	-1.07***	0.21***	0.09**	0.76***
children15-17 male	-1.32***	0.15***	0.22***	0.96***	-4.70***	0.80***	0.47***	3.44***
children15-17 female	-0.81***	0.07	0.15***	0.59***	-2.22***	0.35***	0.22***	1.65***
Wealth								
wealth index	2.97***	-0.41***	-0.52***	-2.04***	10.00***	-1.85***	-0.52***	-7.64***
wealth index sq	-0.39***	0.12***	0.25***	0.02	-2.65***	0.24**	0.65***	1.76***
acres/100 of land	1.28***	0.03	-0.002	-1.30***	-0.49***	0.25***	0.01	0.23*
acres/100 of land sq	-0.01***	-0.0003	0.00003	0.01***	0.005***	-0.003***	-0.0002	-0.003**
livestock (dummy)	0.79***	0.04	-0.12**	-0.72***	2.19***	0.17**	-0.03	-2.34***
Residence								
North	-2.30***	0.15*	-0.20***	2.35***	-4.34***	-0.20*	-1.02***	5.55***
Central	-1.88***	-0.12**	-0.33***	2.33***	-4.78***	-0.84***	-1.13***	6.75***
East	-2.89***	0.02	-0.09	2.96***	-8.08***	-0.95***	-1.13***	10.20***
Northwest	-0.38	-0.02	-0.03	0.43	-0.41	-1.11***	-1.19***	2.72***
West	-1.21***	-0.07	-0.21***	1.50***	-1.17*	-0.27*	-0.34***	1.77***
Observations	25812	342	552	1933	57386	3042	2499	10148
	Total urban: 28639				Total rural: 73075			
R-squared	0.253				0.1994			

*Note: *** p<0.01, ** p<0.05, * p<0.1.*
Data source: NFHS-2, 1998-99

Table 2: MARGINAL EFFECTS ON THE CHILD'S STATUS: PARENTS' VARIABLES AMONG THE REGRESSORS - All India

Multinomial logit

Marginal effects * 100	All India			
	Study	Family work	Market work	Inactive
Household composition				
household size	0.34***	-0.09***	-0.04***	-0.21***
brothers aged 0-5	-2.30***	0.37***	0.17***	1.76***
sisters aged 0-5	-1.95***	0.37***	0.16***	1.42***
brothers aged 6-14	-1.62***	0.22***	0.16***	1.23***
sisters aged 6-14	-0.97***	0.14***	0.10**	0.74***
brothers aged 15 or more	-1.74***	0.23***	0.16***	1.35***
sisters aged 15 or more	-0.191	0.008	0.02	0.11
Education				
mother's years of education	1.14***	-0.10***	-0.07***	-0.97***
mother's years of education sq.	-0.07***	0.005	0.005**	0.06***
father's years of education	0.60***	-0.03**	-0.03***	-0.54***
father's years of education sq.	-0.03***	-0.0005	0.0005	0.03***
average years of education of adulsts in hh	0.80***	-0.11***	-0.10	-0.58***
Mother's power				
mother has some money set aside that she can use as she wish	0.30**	-0.071**	-0.08***	-0.15
mother has been beaten or mistreated physically	-0.88***	0.08**	0.07**	0.74***
Mother's occupation				
white collar	-0.23	-0.04	0.29	-0.02
salesman	-2.96***	0.14	0.43***	2.39***
self-empl. in agriculture	-0.96***	0.50***	0.22***	0.24
skilled manual	-2.10***	0.40***	0.56***	1.14***
unskilled manual	-1.88***	0.44***	0.55***	0.89**
other	-2.56***	0.51***	0.60***	1.45***
Father's occupation				
white collar	2.80***	-0.27**	-0.34***	-2.20***
salesman	2.00***	-0.17*	-0.26***	-1.57***
self-empl. in agriculture	1.34**	-0.16	-0.22***	-0.95*
skilled manual	1.60***	-0.21**	-0.23***	-1.16**
unskilled manual	1.12**	-0.16*	-0.22***	-0.74
other	1.35**	-0.11	-0.27***	-0.96*
Observations		85127		

*Note: *** p<0.01, ** p<0.05, * p<0.1*
Other controls are: age, religion, caste, other children in the household, wealth, residence.
Data source: NFHS-2, 1998-99

Table 2 continued: MARGINAL EFFECTS ON THE CHILD'S STATUS: PARENTS' VARIABLES AMONG THE REGRESSORS - Urban and rural areas

Multinomial logit	Urban				Rural			
Marginal effects * 100	Study	Family work	Market work	Inactive	Study	Family work	Market work	Inactive
Household composition								
household size	0.18*	-0.02	-0.01	-0.15**	0.46***	-0.15***	-0.05**	-0.28**
brothers aged 0-5	-0.90***	0.06	0.05	0.79***	-3.16***	0.61***	0.21***	2.33***
sisters aged 0-5	-0.85***	0.06	0.06	0.73***	-2.63***	0.62***	0.19***	1.82***
brothers aged 6-14	-0.62***	0.04	0.05	0.53***	-2.24***	0.37***	0.20***	1.67***
sisters aged 6-14	-0.57***	0.03	0.05	0.49***	-1.20***	0.21***	0.10***	0.89***
brothers aged 15 or more	-0.85***	0.04	0.04	0.77***	-2.27***	0.37***	0.21***	1.69***
sisters aged 15 or more	-0.37***	0.0005	0.01	0.36***	-0.04	0.01	0.009	0.02
Education								
mother's years of education	0.22***	0.0008	-0.02	-0.21***	1.90***	-0.19***	-0.08*	-1.63***
mother's years of education sq.	-0.02***	-0.0007	0.001	0.02***	-0.12***	0.01*	0.0008	0.11***
father's years of education	0.09*	-0.006	-0.005	-0.08*	0.95***	-0.04	-0.04*	-0.88***
father's years of education sq.	-0.004	0.0002	-0.0003	0.004	-0.04***	-0.001	0.0003	0.05***
average years of education of adulsts in hh	0.43***	-0.008	-0.007	-0.42***	0.99***	-0.21***	-0.17***	-0.62***
Mother's power								
mother has some money set aside that she can use as she wish	0.20	-0.005	-0.04	-0.16	0.33	-0.12**	-0.09**	-0.13
mother has been beaten or mistreated physically	-0.36**	0.003	0.07	0.29**	-1.15***	0.14**	0.04	0.98***
Mother's occupation								
white collar	-0.51	0.02	-0.02	0.52	0.53	-0.11	0.8	-1.23
salesman	-1.47***	-0.04	0.05	1.46***	-3.54***	0.59*	0.79***	2.16**
self-empl. in agriculture	-0.83*	0.03	-0.03	0.83*	-1.47***	0.83***	0.30***	0.35
skilled manual	-0.52	0.05	0.21	0.27	-3.07***	0.65***	0.71***	1.71***
unskilled manual	-0.42	0.09	0.12	0.21	-2.74***	0.55**	0.76***	1.43**
other	-0.41	0.07	0.13	0.22	-4.05***	0.85***	0.83***	2.37***
Father's occupation								
white collar	1.60***	-0.05	-0.06	-1.48***	2.59***	-0.33	-0.47***	-1.79*
salesman	1.40***	-0.01	-0.03	-1.36***	9.17	-0.31	-0.40***	-0.61
self-empl. in agriculture	1.28***	-0.01	-0.04	-1.23***	0.48	-0.35*	-0.40***	0.28
skilled manual	1.25***	0.01	-0.02	-1.25***	7.43	-0.46***	-0.38***	-0.24
unskilled manual	1.02***	0.004	-0.03	-1.00***	0.06	-0.34**	-0.33***	0.61
other	1.01***	-0.02	-0.04	-0.95***	0.72	-0.13	-0.40***	-0.19
Observations	24075				61052			

*Note: *** p<0.01, ** p<0.05, * p<0.1*
Other controls are: age, religion, caste, other children in the household, wealth, residence.
Data source: NFHS-2, 1998-99

Table 3: MARGINAL EFFECTS ON THE JOINT PROBABILITY OF MOTHER-CHILD STATUS - All India

Multinomial logit

					All India			
Marginal effects * 100	MW-CS	MW-CD	MW-CW	MW-CI	MNW-CS	MNW-CD	MNW-CW	MNW-CI
Household composition								
household size	0.29*	-0.03***	-0.01	-0.05	0.05	-0.05***	-0.03***	-0.17***
brothers aged 0-5	-5.69***	0.13***	0.05***	0.42***	3.51***	0.18***	0.10***	1.31***
sisters aged 0-5	-5.04***	0.13***	0.04**	0.29***	3.22***	0.18***	0.10***	1.09***
brothers aged 6-14	-2.68***	0.07**	0.07***	0.38***	1.11***	0.12***	0.09***	0.84***
sisters aged 6-14	-0.45	0.05***	0.05***	0.29***	-0.53*	0.07***	0.05***	0.46***
brothers aged 15 or more	-3.42***	0.08***	0.07***	0.53***	1.77***	0.12***	0.08***	0.77***
sisters aged 15 or more	0.54	0.01	0.003	0.13	-0.74*	-0.02	0.03*	0.04
Education								
mother's years of education	-3.54***	-0.06***	-0.07***	-0.65***	4.70***	-0.03*	-0.02	-0.34***
mother's years of education sq.	0.36***	0.003	0.004**	0.05***	-0.43***	0.001	0.001	0.008
father's years of education	-0.29**	-0.01*	-0.02**	-0.26***	0.89***	-0.007	-0.01	-0.29***
father's years of education sq.	-0.02**	-0.0002	-0.00008	0.01***	-0.00007	-0.0008	0.0003	0.01***
average years of education of adulsts in hh	-0.02	-0.05***	-0.07***	-0.36***	0.81***	-0.04***	-0.04***	-0.22***
Mother's power								
mother has some money set aside that she can use as she wish	5.11***	0.005	-0.0006	0.32***	-4.90***	-0.06**	-0.06***	-0.42***
mother has been beaten or mistreated physically	8.78***	0.11***	0.08***	0.95***	-9.81***	-0.05*	0.04*	-0.11
Father's occupation								
white collar	-7.66***	-0.14***	-0.27***	-1.56***	10.50***	-0.14*	-0.04	-0.67
salesman	-13.30***	-0.18***	-0.26***	-1.40***	15.30***	-0.03	0.04	-0.17
self-empl. in agriculture	-2.87*	-0.05	-0.21***	-0.78***	4.30***	-0.14*	0.006	-0.26
skilled manual	-11.60***	-0.14***	-0.23***	-1.31***	13.30***	-0.09	0.02	0.05
unskilled manual	-14.00***	-0.17***	-0.21***	-1.25***	15.20***	-0.10	0.005	0.48
other	-14.30***	-0.11**	-0.24***	-1.54***	15.60***	-0.04	-0.009	0.61
Wealth								
wealth index	-10.90***	-0.40***	-0.30***	-2.81***	16.90***	-0.28***	-0.15***	-2.05***
wealth index sq.	0.86***	-0.05**	0.07***	0.38***	-1.57***	0.07***	0.001	0.24***
acres/100 of land	1.33***	0.04***	0.01	0.19***	-1.48***	0.04***	0.007	-0.15
acres/ 100 of land sq.	-0.01***	-0.0005**	-0.0002	-0.002***	0.02***	-0.0004**	-0.00008	0.001
livestock (dummy)	-0.39	0.03*	-0.05**	-0.93***	2.25***	-0.01	-0.06***	-0.84***
Observations					85303			

Note: *** p<0.01, ** p<0.05, * p<0.1.

M: mother; C: child; W: works; NW: does not work; S: studies; D: does domestic work or works in the family business; I: is inactive.

Other controls are: age, religion, caste, other children in the household, wealth, residence, urban/rural.

Data source: NFHS-2, 1998-99

Table 4: MARGINAL EFFECTS ON THE JOINT PROBBABILITY OF MOTHER-CHILDREN STATUS - All India

Multinomial logit

Marginal effects * 100	All India			
	MW-CS	MNW-CS	MW-CNS	MNW-CNS
Education				
mother's years of education	-3.18***	4.97***	-1.32***	-0.47***
mother's years of education sq.	0.33***	-0.43***	0.09***	0.001
father's years of education	-0.24	1.13***	-0.45***	-0.43***
father's years of education sq.	-0.02	-0.01	0.02**	0.013*
average years of education of adulsts in hh	0.13	0.86***	-0.64***	-0.34***
Mother's power				
mother has some money set aside that she can use as she wish	0.05***	-4.57***	0.27*	-0.87***
mother has been beaten or mistreated physically	7.85***	-9.84***	2.10***	-0.11
Father's occupation				
white collar	-4.03**	8.98***	-3.55***	-1.4
salesman	-10.2***	13.4***	-3.11***	-0.11
self-empl. in agriculture	0.57	1.78	-1.74***	-0.62
skilled manual	-0.09***	11.2***	-2.63***	0.36
unskilled manual	-11.00***	13.0***	-2.54***	0.57
other	-10.70***	13.00***	-2.93***	0.69
Wealth				
wealth index	-8.46***	17.9***	-5.46***	-4.02***
wealth index sq.	0.37	-1.44***	0.59***	0.48**
acres/ 100 of land	1.04***	-1.62***	0.51***	0.07
acres/ 100 of land sq.	-0.01***	0.0172***	-0.006***	-0.0008
livestock (dummy)	-0.55	2.57***	-0.96***	-1.06***
Observations	43914			

*Note: *** p<0.01, ** p<0.05, * p<0.1.*

school.

Other controls are: age, religion, caste, siblings and other children in the household, wealth, residence.
Data source: NFHS-2, 1998-99

Table 4 continued: MARGINAL EFFECTS ON THE JOINT PROBBABILITY OF MOTHER-CHILDREN STATUS - Urban and rural areas

Multinomial logit

Marginal effects * 100	Urban				Rural			
	MW-CS	MNW-CS	MW-CNS	MNW-CNS	MW-CS	MNW-CS	MW-CNS	MNW-CNS
Education								
mother's years of education	-2.82***	3.19***	-0.24***	-0.12	-2.26***	5.26***	-2.28***	-0.73***
mother's years of education sq.	0.30***	-0.32***	0.02***	0.003	0.23***	-0.40***	0.16***	0.02
father's years of education	-0.49	0.63**	-0.07	-0.07	-0.05	1.47***	-0.77***	-0.65***
father's years of education sq.	-0.02	0.02	0.002	-0.0008	-0.01	-0.04**	0.03**	0.02**
average years of education of adulsts in hh	0.02	0.50***	-0.21***	-0.31***	0.27**	1.04***	-1.01***	-0.30***
Mother's power								
mother has some money set aside that she can use as she wish	6.85***	-6.61***	0.41***	-0.65***	4.40***	-3.56***	0.12	-0.96***
mother has been beaten or mistreated physically	7.70***	-8.74***	0.84***	0.21	7.01***	-9.52***	3.00***	-0.49
Father's occupation								
white collar	-7.70***	10.5***	-1.36***	-1.42***	-1.13	6.40**	-4.93***	-0.34
salesman	-12.20***	14.60***	-1.22***	-1.09**	-7.64***	9.96***	-4.03***	1.71
self-empl. in agriculture	0.76	1.25	-0.47**	-1.54***	1.43	0.53	-2.36***	0.92
skilled manual	-12.20***	14.10***	-1.10***	-0.75	-5.11**	6.92**	-3.34***	1.53
unskilled manual	-7.47***	8.94***	-0.70***	-0.76	-11.20***	12.3***	-3.72***	2.56
other	-11.00***	12.60***	-0.85***	-0.77	-8.69***	10.50***	-4.52***	2.68
Wealth								
wealth index	-11.70***	14.60***	-1.47***	-1.45***	-4.81***	19.10***	-9.53***	-4.77***
wealth index sq.	0.76	-0.88*	0.13	-0.02	0.41	-1.61***	0.27	0.93**
acres/ 100 of land	-0.30	1.31	-0.15	-0.86*	1.12***	-2.19***	0.94***	0.13
acres/ 100 of land sq.	0.002	-0.01	0.001	0.009*	-0.01***	0.02***	-0.01***	-0.001
livestock (dummy)	-3.38***	4.25***	-0.39***	-0.49**	1.74**	0.65	-1.16***	-1.23***
Observations		13056				30858		

*Note: *** p<0.01, ** p<0.05, * p<0.1.*
M: mother; C: child; W: work; NW: does not work; S: all children at school; NS: at least one child does not go to school.
Other controls are: age, religion, caste, siblings and other children in the household, wealth, residence.
Data source: NFHS-2, 1998-99