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# THE DILEMMA OF MATERNAL EMPLOYMENT: A BOON OR BANE FOR CHILD HEALTH

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***Abstract:*** As the rate of employment among women has increased over the last decades in India, many have expressed their concern about its association with child health. The objective of this paper is to examine whether maternal employment status is a boon or bane for the infant and child health in India? To answer this question, this paper examines the independent and relative impacts of maternal employment on child health. This study also proposed to evaluate separately by whether mother employed at home, outside the home, work for whom and types of earnings. Estimated results clearly indicate that the effects of maternal employment is depend on the nature of indicators that we chosen. If an indicator depends on availability of time, then maternal employment has disadvantages for child health. While, if it depends on income, then it have advantages. Thereby we conclude that maternal employment status has not homogenous and independent effects on all indicators of child health.

***Key words :*** Child Health, Maternal Employment, Socio-economic Status, Binary Logistic Regression, India.

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***Introduction***

Child health is vital for the country's present and future as it has long lasting effects (Ettinger, 2004; Shin, 2007). It is considered to be a foundation for human capital for a country as it transforms into adolescent and adult health, and it helps to produce better health outcomes in the form of next generation. Child health conditions are often used to reflect the state of public health, quality of life and socioeconomic development situation of a country (Barr, 1993; Desai and Jain, 1994; Regina et al, 2010; Conti et al, 2013). Good health is a basic requirement and essential for the survival and overall development of all human beings, and better child health are the key sources for the survival of children as well as for all human beings (Ali, 2000; Som et al, 2007; Patra, 2008; Regina et al, 2010).

The best method to measure the child health status is the condition of child health care and child health outcomes. Hence, to study the child health status, we must specifically focus on the child health in the form of child health care practices and child health outcomes separately (William Joe et al, 2008; Sen and Dreze, 2013). The extent of the child health problem is enormous in India. Approximately 50%, 20% and 43% of the children under age five are stunted, wasted and underweight, respectively. Anemia is a major problem among children in India; there are almost 70% children are anemic.[2] In addition, under age of five years, 15%, 9% children reported to suffer from fever, diarrhea in last two weeks before the survey and only around half of them were taken to a health facility. Regarding the child health care, less than half of the children under the age of 23 months are fully vaccinated. Only 46% children under the age of 6 months are exclusively breastfed, and most of them are not continuously get breastfeeding till recommended age (NFHS-3 survey report IIPS, 2007).

The need for this study arises from the facts that provision of health care (especially postnatal) is inadequate in India. The demand and practices of child health care are multilateral, i. e, there are many factors involved in the demand and practices of this health care (Kanjilal et al, 2010; Fenske et al, 2013). Hence, status of child health care is not identical in the whole country, but it varies with demographic and socioeconomic characteristics of child and mother (Murthi et al, 1995; Joe et al, 2008; Arnold, 2009). Thus, the inefficient demand and practice of health care is the result of multiple behavioral and practical factors, and most importantly maternal employment status and maternal education. Thus, this study seeks to explore that how maternal employment status, including the maternal education and other individual, household and place of residence level characteristics of child and mother. Regarding child health care, special attention is placed on immunization coverage, breastfeeding, and nutritional foods in this study.

Poor child health care is responsible for poor child health outcomes and poor nutritional status of surviving children. Whereas, for child health outcomes, nutritional deficiency among children in terms of stunting, wasting, underweight and iron deficiency (anemia) are extremely important. Since, these are directly related to the short-term as well as long-term child health, and have a wider range of fluctuation across the demographic and socioeconomic characteristics of child and mother (Jatrana, 2003; Som et al, 2007; Shin, 2007; Joe et al, 2008). Hence, apart from child health care, the degree of association between maternal employment status including other same characteristics of child and mothers with child health outcomes also calls for

[2] Which includes 26% is mildly, 40% are moderately, and 3% are severely anemic.

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investigation. Stunting, underweight and anemia are the main indicators chosen for child health outcomes.

Parents, particularly mother, with other family members are generally committed to providing every possible advantage of health care to their children and ensuring they have better health status and fulfill their potential needs (Ettinger, 2004; Bhagowalia, 2010). Moreover, with respect to the child health, mother has been generally considered as a health care worker (Lee and Choi, 2006; Regina et al, 2010). Thus, there are certain reasons to expect the individual characteristics of women, particularly her employment status, including education, health and standard of living to have an independent and predominant influence on their child health. Thus, as the title suggests, this paper attempted to explore and discuss the effect of maternal employment, along with maternal education and other demographic and socioeconomic indicators, on child health, in the form of different indicators of child health care and child health outcomes.

**Statement Of The Problems**

Most of the time researchers explains the relationship between the explanatory variables with any single indicator of child health, but there are no studies that present the explanation of the effects of explanatory variables on the type and timing of child health care and incidence and severity of child health outcomes. So firstly, here we categorize child health status into child health care and child health outcome. Then we must take more than one indicator of both categories and assess the association with considered explanatory variables.

As the rate of employment among women has increased over the last decade, many have expressed their concern and need to research about reducing the maternal child care time with employed status can have an effect on child health. Therefore, the impact of maternal employment on child health should be examined. However, there is a kind of dilemma; maternal employment status is a boon or bane for child health, which is a matter of empirical question. This may ask a question; why maternal employment leads to reduce the health care and increase the likelihood of the odds of poor health among children, even she employed as wage earner.

In addition, the type of work that mother are engaged, a place where mother worked and salary of the mother will also mediate the effect of maternal employment status on health of their children (Kishor and Parasuraman, 1998). There are very few studies that really focus on this issue. With this background, we also propose to evaluate the effects of whether mother employed at the home, outside the home, work for whom, with or without cash earning, separately.

Moreover, this is also an issue that the maternal employment status would affect differently on child health in rural and urban areas. Thus, the next question which is raised here that why child health affected differently by maternal employment status when they lived in different area (rural or urban). This problem is addressed by some researchers, but the decisive evidence behind this is still vague. Hence, we will try to find out the vital and powerful empirical evidence for maternal employment status really produces the different effect on health of rural and urban resident children.

Although, given the fact that child health is widely modified and affected by maternal education and maternal employment status. After estimating the effect of these variables independently, then further investigation is required to investigate the interaction effect. Because it is, obviously, true that maternal education has not only a powerful effect on child health, but it also has potential influence

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on her employment status. If education has positive effects on her employment status, then we assume that employed women should have better child health than unemployed. In this regards, not sufficient attempts have made to evaluate the simultaneous contribution of such status on child health. Hence, we will require to attempt to fill this gap by analyzing child health associated with these factors simultaneously in present day in India.

**Literature Review**

The proximate factors that influence child health are usually categorized as; demographic factors (gender of child, maternal age, birth order, birth interval), socioeconomic factors (maternal education, maternal employment, housing condition, income level), environmental sanitation and hygiene factors (nutrition, availability of safe drinking water, toilet facility), medical care factors (antenatal care, postnatal care, vaccination coverage), and other factors (urban and rural differentials, region, religion and caste) (Broeck et al, 1996; Ali, 2000; Pande, 2003; Som et al, 2007; Kanjilal et al, 2010).

Kanjilal et al (2010), by using NFHS data, measured the nutritional status of children that explained by the socioeconomic condition as contextual determinants of child nutritional status. They found that there was a positive relation between poor socioeconomic status and malnutrition status among children. Empirical results of this analysis demonstrated that children from lowest socioeconomic quintile posses 50% poor nutritional status than those from highest quintile. They also consider the individual and household level factor of child and mothers and found that these were appeared to be important determinants of the response variable.

Fenske, et al (2013) attempt to understands child stunting problem in India, and estimate the socioeconomic and environmental determinants of the child stunting. They classified all proximate determinants into three broad categories: underlying, intermediate and immediate determinants. Results in this analysis confirmed that stunting is a multi-factorial nature, and at least one variable in each group of determinant is significantly associated with child stunting. It emphasizes that out of all group of determinants, maternal education, maternal health and household wealth showed the largest adverse effects on child stunting in India.

Borooah (2004) examined the impact of maternal education, household income and region on the gender discrimination of children in their diet and immunization in India. This study uses the data of 4000 children aged 0-2 years. The important result is that no gender discrimination between children of literate mother, while with illiterate mother, girl child were 5% point, less likely to be fully vaccinated and 3% point, less likely to be well-fed relative to their brother.

Maternal education contribute to the welfare of the next generation by reducing risk of child survival, gender discrimination, improving the nutritional status of children and lowering the fertility and mortality (Desai and Alva, 1998; Currie and Moretti, 2003; Choi and Lee, 2006). According to Okojie (2002) and Ali (2000), education plays a key role to improve the child health status. The reason is that education increases the freedom and power to act and works as an instrument of health. Lack of education is one of the root causes which prevent women from equal participation that adversely affects the child health (Echávarri and Ezcurra, 2010).

Sharma (2005) studied the child health condition and its determinants in Haryana state. For this analysis, NFHS-2 data and logistic regression method were used. He

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observed that including sex of the child, maternal education has an important and strong influence on child health. The estimated odds ratios indicated that, after controlling other factors, child from educated mothers less likely to underweight (0.659) and stunted (0.776) than child from uneducated mothers.

Shin (2007) studied the regional and community variation in the effect of maternal education on child health. This study supported the hypothesis that effects of maternal education are not independent, but it moderated by regional, communities, and socioeconomic differences. Results suggested that maternal education is more important in rural areas than in urban areas. Hence, he emphasized that the reallocation of resources in order to enhance the child health through maternal education, should be considered and enlarge within the regional context.

Now take maternal employment, there is evidence to suggest that it has prominent effects on health of their children. On the one hand, many economists suggested that the employment of mother has a positive impact on their child's health. [3] Quisumbing et al (2005) has concluded that modernization and urbanization lead to expanding the level of female employment and higher maternal employment status improves the child's health condition through decreasing the burden of child care cost (Kabeer, 2005).

Huston and Aronson (2005) addressed the question, how is maternal employment related to the amount of time mothers spend with their infants? Firstly, they argued that the employed mother spend less time with their infant than the unemployed mother. Employed women almost 67% to 74% much time spends in non-child care activities. But employed mothers are more sensitive, interactive and positive attitude towards her children, provide the best food and medical services, improve the home environment, able to arrange the other proxy for care. Employed women spend most of their available free time and weekday with her children than unemployed women that are 58% and 44% respectively. The quality of time that spent with the children is also different for employed and unemployed women. All these characteristics of employed mothers are good for child health, and hence it tends to remove the negative effects and contribute some positive benefit to child survival.

On the other hand, many researchers also argued that maternal employment adversely associated with child health. They suggest that maternal employment, despite all positive impacts, leads to worsening the child health and increases the probability of dying among children. When we accept that maternal employment adversely affect the child health, then the most important reason for this, shortage of time for their children and breastfeeding, because we believe that one cannot be in two places at same time (Kishor and Parasuraman, 1998).

Ali (2000), measures the influence of geographical, demographic and socioeconomic factors including maternal employment status on health care and immunization of children in Pakistan. In this analysis, he found that a maternal employment status has largest and statistically significant negative impact on response variables. He provides the explanation that the Pakistan is a poor country, majority of people, particularly women is below the poverty line. Hence, employment of women was not provided the opportunities to them to bring the positive change in child health care utilization due to the lack of resource availability and low rate of earnings.

[3] For instance, when women work for wage, then they are able to get income, social respect, women can make their economic position much precarious and less vulnerable, improving the women's position within the family and be a part of household decision and hence improve the child health status (Kabeer, 2005).

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Sivakami (1997) investigated the relation between maternal employment and child health in rural Tamil Nadu. On the basis of a primary survey of 75 working and 75 non-working women, found that the working women had spent 2.4 hours on childcare on average less than non-working women. As a result, the child morbidity rate among working women was higher than non-working women. In addition, comparatively fewer numbers of child of non-working women suffering from any diseases and get more nutritional foods than working women. Employed women are less able to provide milk, eggs and other nutritional food to their children.

Jatrana (2003), using NFHS-2 data, studied the child health condition and its determinants in Haryana. In this study, he found that maternal employment status inversely associated with the child health. The odds ratios indicated that, after controlling the effects of the number of other socioeconomic characteristics, child from employed mothers are more likely to underweight (1.161) and stunted (1.291) than child from unemployed mothers.

**Conceptual Framework**

Now it is necessary to specify the structure and to lay out the conceptual framework first to guide the research. The purpose of this section is to provide a conceptual framework.

This framework is intended for research on the influence of individual status of mothers, particularly education and employment, including other demographic and socioeconomic factors on child health. I set a modified standard conceptual framework by using standard proximate determinants framework (Mosley and Chen, 2003; Pande, 2003; Kanjilal et al, 2010). Thus, this standard conceptual framework helps to study the empirical association between dependent variables with explanatory variables.

The channel of the effects of these explanatory variables on child health can be understood easily by the given Figure 1. In the given figure, child health outcomes refer by stunting, underweight and anemia that is quantifying the nutrient deficiency and iron deficiency among surviving children. Child health care is a preventive measure of diseases and takes care of children like immunization coverage, breastfeeding, and supplementary nutritional foods. These two categories of the indicators of child health were taken as dependent variables in this analysis.

The given figure illustrates the complete model that shows the path of the determinants of child health care and child health outcome. Thus, here it is required to an empirical study that provides the empirical based explanation of all possible determinants of response variables. The arrow lines from one variable to another variable indicate the explanatory variables (starting point of the arrow) can affect on the response variables (moving toward point).

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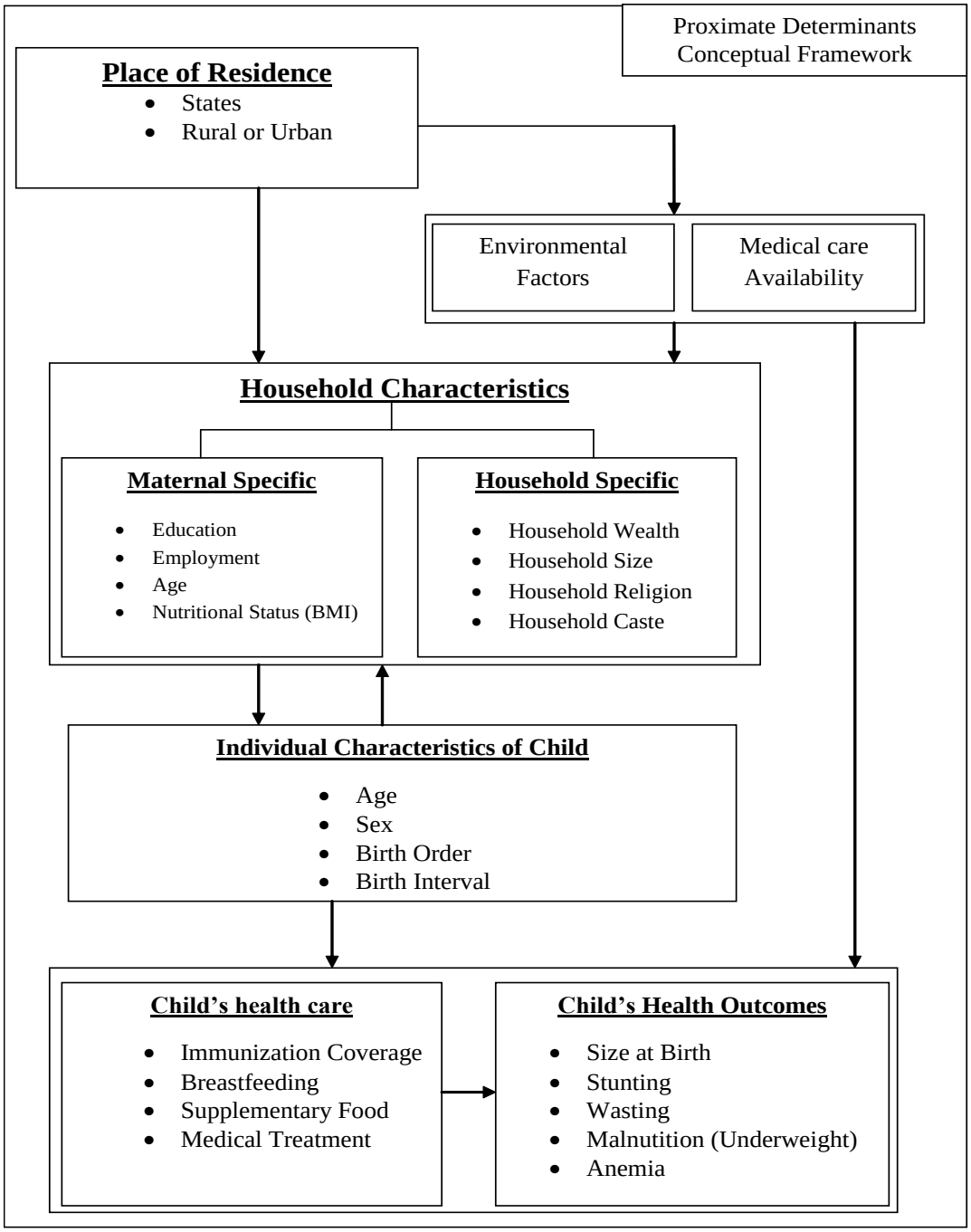
**Figure 1: Proximate determinants of child health, a conceptual framework.**




This is a modified standard conceptual framework diagram (Prepared by Author).

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**Data and Variables**

To articulate the given objectives the present study will mainly rely on Secondary sources of data, National Family Health Survey round three (NFHS-3, 2004-05) data. The NFHS was designed to provide the estimates of important health indicators including nutritional status for young children and it also provide the information about other characteristics of respondents and household.[4] This survey covered a representative national sample of 109041 households and 124385 ever married women aged 15-49 years that provides the data on health parameters as well as on demographic and socioeconomic factors.

This study focuses only on all live children born to these women in the age of 0-59 months preceding the survey. So this analysis used the sub-sample of 48679 all live children aged 0-59 months. This sample of children is used because it is the best age to measure the health care and health outcomes among the children. In this study, we accommodate the variables like vaccination coverage, breastfeeding, and supplementary nutritional foods to reflect child health care or health seeking behavior. Moreover, to measure the status of child health outcomes, stunting, underweight and level of anemia will be preferred to use.

For the immunization, children aged 12 months and older are requiring to choose so that every child had adequate time for a full range of vaccination. This is chosen because both international and government of India guidelines specify that children should be fully immunized by the time they complete their first year of life (Mishra et al, 2004; Lee and Mason, 2005). Information on breastfeeding was collected as if child received breastfeeding currently or not. The variable of nutritional foods generated on the basis of information of different food intakes as if child get at least number of three food intakes out of all ten considered food items (powder or fresh milk, baby formula, baby cereal, other milk products, vitamin a fruits like mango and papaya, food made from grains, any solid or semi-solid food, any juice, other porridge or gruel, and food made with oil, fat, ghee and butter).

The most important measures of child health outcomes are anthropometric measurements: weight-for-age, weight-for-height, and height-for-age. The measure is uttered in the form of Z-scores standard deviation (SD) from the median of the 2006 WHO International Reference Population (Kanjilal et al, 2010). Stunting defined as height-for-age measurement more than 2 standard deviations below the international reference population (< -2 SD). Similarly, wasting and underweight also measured. Here we used only stunting and underweight because the prevalence of wasting is very low as compared to other indices. Moreover, the other important indicator of the child nutritional is the prevalence of anemia. Anemia is a result of hemoglobin or iron deficiency in the blood. Anemia is a serious problem among children, whose hemoglobin level is less than 10 g/dl.[5] In this analysis, all the dependent variables are used as dichotomous variable (1 for yes and 0 for no).

The explanatory variables are classified into the child's individual characteristics, maternal, household and place of residence characteristics. Under the child's individual characteristics, sex, age, and birth order and

[4] For more information see at International Institute for Population Science (IIPS) & ORC MACRO: National Family Health Survey (NFHS-3), 2005-06: India Mumbai: IIPS 2007, 1.

[5] There are different forms of anemia that includes mildly anemic (10.0-10.9 g/dl), moderately anemic (7.0-9.9 g/dl), and severely anemic (less than 7.0 g/dl).

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birth interval of child are used. Under the maternal characteristics, age, education, employment and health of the mother are chosen. Maternal education categorized in four levels; and coded 0, 1, 2 and 3, for no education, primary, secondary and higher level education. NFHS-3 asked women several questions regarding their labor force participation. On the basis of this information, maternal employment variable was categorized as mothers were currently employed or not. Then it further classified on the basis of place of work, work for whom and types of earnings, and coded accordingly. Under the household characteristics, household income, number of family members, household religion and caste are taken. To measure the accurate effect of place of residence characteristic, this study was grouped all the states into five regions as well as urban and rural categories.[6]

**Methodology**

To explore the influence of explanatory variables on child health in India, best method to estimate it by using the multivariate model with the help of logistic regression model. Since dependent variables are binary in nature under this study so that we will prefer to use a binary logistic regression model with the values of the odds ratio.

Thus, the effects of explanatory variables on response variables can be easily estimated by the following equation,

$$\text{Logit } p = Y = \log [p/(1-p)] = b_0 + b_1X_1 + b_2X_2 + \ldots\ldots + b_mX_m + e$$

The coefficient value bi represents an additive effect of one unit change in predictor variable xi on the logistic odds of the response/dependent variable. The regression specification is given below,

$$Y = \beta_0 + \beta_1 GC + \beta_2 CA + \beta_3 BO + \beta_4 BI + \beta_5 MA + \beta_6 ME + \beta_7 ML + \beta_8 MH + \beta_9 HW + \beta_{10} HS + \beta_{11} HR + \beta_{12} HC + \beta_{13} RR + \beta_{14} AR + \varepsilon$$

Where Y representing the measurements of probability of child being fully immunized or receiving breastfeeding, nutritious diet, and for the child health outcomes, it is the probability of child were being stunted, underweighted or anemia, separately.

Where Y = 1 when the child was fully immunized, and 0 otherwise, and similarly for other dependent variables.

Where GC represents gender of child, CA is child age, BO is birth order, BI is birth interval; MA represents maternal age, ME represents the maternal education, ML is maternal employment, MH is maternal health; HW is household wealth or household income, HS is household size, HR is household religion, HC is household caste; RR is region of residence, AR is area of residence and ε is the error term.

**Results and Explanation**

For the multivariate analysis, we use logistic regression. So, here we are going to measure the influences of the demographic and socioeconomic factors, particularly maternal education and maternal employment, on child health care and child health outcomes.[7]

**Child Health Care**

The summary of the results of the logistic regression analysis with the odds ratio for child health care is given in table 1. These results estimated with the controlling for child's individual, maternal, household and place of residence characteristics. The odds ratio (for the fully vaccinated) is 1 for mothers with no educated as omitted category, and it increases sharply to 1.74 with primary level, 2.45 with secondary level to 3.48 with higher level educated mothers. This trend clearly verified

[6] Regions were classified on the basis of kinship pattern, community of cultural and linguistic differences, named as Northern, North-central, and Eastern, Western and Southern states and coded from 1 to 5.

[7] Results are estimated by using the proximate determinants framework that explained in section 3.

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that the children with secondary level educated mothers have more than double probability, and with higher level educated mothers have more than three times probability to get fully vaccination coverage as compared to the children with not educated mothers. Similarly, the odds ratio for the nutritional foods continuously increases from 1 with no educated mother to 2.46 with the higher level educated mothers. So, the odds ratio values for fully vaccinated and for nutritional foods increases gradually with additional level of maternal education, which implies that mothers with comparatively higher level of education provide more health care to their children in terms of vaccination and nutritional foods (Jain, 1994; Pande, 2003; Desai and Alva, 1998; Ali, 2000; Mishra et al, 2004).

But for the breastfeeding, comparatively higher level educated mother provide less breastfeeding to her children. The reason for that the educated mothers have more likely to provide the supplementary foods instead of breastfeeding to her children. This analysis supported the existing literature findings that maternal education is facilitate the health seeking behavior that have a great positive and significant influence, except breastfeeding, on child health care of the surviving children (Shariff and Ahn, 1995; Jatrana, 2003; Sharma, 2005).

Regarding the effect of maternal employment status, this study provides the evidence that maternal employment is a positive influence on fully immunized (not statistically significant) and allocation of foods (statically significant). The positive association between maternal employment and child health care can be possible by augmenting the available resources at the household level (Berman, 1997). So, children of employed mothers are more likely to be fully immunized and get nutritional foods than children of unemployed mothers. But it has negative influence on breastfeeding (statically significant) particularly through lack of time for child care.

This finding challenge the existing growing body of literatures that suggested that maternal employment status has universally negative effects on all indicators of child health care (Shariff and Ahn, 1995; Ali, 2000; Jatrana, 2003). Research by Basu and Basu (1991) and Kishor and Parasuraman (1998) suggest that maternal employment status, except positive income effects, may have at least one disadvantage in the form of shortened breastfeeding. The main reasons for shortened breastfeeding of employed mothers are reduced the availability of time for child.

Table 1: Results from the Logistic Regression Analysis with the odds ratio of Child Health Care and Child Health Outcomes as a function of Selected Explanatory Variables. #

| | | **Child Health Care** | | | **Child Health Outcomes** | | |
|---|---|---|---|---|---|---|---|
| | | **Fully Vaccinated** | **Breast-feeding** | **Nutritional Food** | **Stunting** | **Under-weight** | **Anemia** |
| | | | | | | | |
| **Maternal Education** | | | | | | | |
| | No (Omitted) | | | | | | |
| | Primary | 1.741*** (0.0704) | 0.819*** (0.0367) | 1.238*** (0.0642) | 0.881*** | 0.905*** | 0.919** |
| | Secondary | 2.451*** (0.0882) | 0.727*** (0.0291) | 1.631*** (0.0730) | (0.0324) | (0.0333) | (0.0374) |
| | Higher | 3.486*** (0.217) | 0.546*** (0.0369) | 2.460*** (0.185) | 0.733*** (0.0243) | 0.803*** (0.0265) | 0.815*** (0.0292) |

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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Maternal Employment** | | | | | | | |
| | No (Omitted) | | | | | | |
| | Yes | 1.036<br>(0.0309) | 0.851***<br>(0.0269) | 1.085**<br>(0.0417) | 1.043<br>(0.0284) | 1.055**<br>(0.0286) | 0.927***<br>(0.0268) |
| **Maternal employment status** | | | | | | | |
| **Work for** | | | | | | | |
| | Family member | | | | | | |
| | Someone else | 1.087<br>(0.0628) | 0.758***<br>(0.0483) | 1.125<br>(0.0888) | 1.018<br>(0.0532) | 1.119**<br>(0.0599) | 0.984<br>(0.0551) |
| | Self-employed | 0.848**<br>(0.0568) | 0.813***<br>(0.0591) | 1.024<br>(0.0892) | 0.953<br>(0.0580) | 1.030<br>(0.0638) | 1.012<br>(0.0650) |
| **Work at** | | | | | | | |
| | At Home | | | | | | |
| | Away from home | 1.054<br>(0.0588) | 0.944<br>(0.0596) | 1.115<br>(0.0841) | 1.026<br>(0.0534) | 1.042<br>(0.0547) | 1.114**<br>(0.0607) |
| **Types of Earnings** | | | | | | | |
| | Not paid | | | | | | |
| | Cash only | 1.126*<br>(0.0745) | 0.978<br>(0.0722) | 0.869<br>(0.0771) | 1.042<br>(0.0615) | 0.930<br>(0.0564) | 0.944<br>(0.0606) |
| | Cash and kind | 0.924<br>(0.0735) | 0.881<br>(0.0761) | 0.825*<br>(0.0858) | 1.050<br>(0.0732) | 0.989<br>(0.0714) | 0.983<br>(0.0765) |
| | Kind only | 0.827**<br>(0.0643) | 1.055<br>(0.0892) | 0.920<br>(0.0888) | 0.962<br>(0.0631) | 0.843**<br>(0.0569) | 0.857**<br>(0.0626) |
| | | | | | | | |
| Robust standard error in parentheses, *** p<0.01, ** p<0.05, * p<0.1 | | | | | | | |

# estimated results of the effects of maternal education and maternal employment on child health care while the effect of other maternal, child's individual, household and place of residence characteristics are not shown in this table that used as control variables.

Maternal employment status further classified on the basis of work for whom (either work for family member, for someone else or work as self-employed), place of work (work at the home or away from the home), and most importantly types of earnings (either work without any payment, for cash only, for cash and kind or for kind only). For the child health care, after controlling other individual and household characteristics of child and mother, mother work for someone else has bring positive effects on the child health care in terms of vaccination and nutritional foods as compared to the work for family member. It means that if mothers work for others, then there is a possibility to get more income and autonomy than work for a family member and able to consume and assess more health care. On the other hand, if mothers were work for someone else or self-employed, then the children of these mothers less likely to get breastfeeding. The reason for this disadvantage may be if mothers work for someone else or self-employed would require to spend more time for their employment activities with more responsibilities and left with less time for their child. Hence, due to the shortage of time for child, mothers working for others or self-employed mothers are

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less efficient to provide breastfeeding to their children.

Additionally, with the next maternal employment classification (work at home or away from home), the odds ratio for breastfeeding with the employed mother away from the home is less than if mother work at home. It is possible that if mother work at home has more time to spend with her child and hence able to provide more breastfeeding as compared to if the mother works away from home. Similarly, the odds ratio for vaccination and nutritional foods with the employed mother away from the home is greater than if she works at home. If she works away from home, it is possible that she can earn more and able to spend for the vaccination coverage and nutritional foods. Another reason for this if the mother works away from home, she can interact with some more individual and able to access more information about vaccination and nutritional foods.

**Child Health Outcomes**

The next set of results relates to the nutritional status of children. The summary of the results of the logistic regression analysis with the odds ratio for child health outcomes is given in table 1. In this table, child health outcomes were reflected by nutritional deficiency among children such as stunting, underweight and anemia and these are used as dependent variables.[8]

The additional higher level of maternal education strongly and significantly leads to reduce the probability of stunting, underweight and anemia among children. In the present study children from comparatively higher educated mothers had a lower risk of chronic malnutrition of children. This finding is consistent with those of Som et al (2007); they concluded that the nutritional status of children increased as the level of maternal education increases. Whereas, maternal employment status produces a negative effect on child health outcomes except for anemia, for instance, more stunted and underweight children belong to the employed mother than unemployed mothers.

Regarding categories of employment, children with self-employed mothers have better health outcomes than mothers who work for someone else or work for the family member. Furthermore, here one thing very clear and conceivable that child with mothers who work at the home has more nutritional status than children whose mother works away from home. This is possible because if mother work at or around the home then possibly give the more time and provide sufficient level of attention and care particularly breastfeeding, treatment and supplementary foods to their children as compared to mothers who work away from the home.

For a third category of maternal employment status, type of earnings, estimated result indicates that mother who works for payment as kind only has a better nutrient child than a mother who work for cash only and cash and kind both. Except stunting, if mother work for payment in any form inflicts a positive advantage on health of her children, particularly in the form of poor chance of underweight and anemia.

**The Interaction Effects**

Here we are going to examine the interaction effects of area of residence and maternal education with maternal employment on child health care and child health outcomes. The estimated result of the interaction effects of these variables on child health care and child health outcomes is given in table 2.

Regarding the child health care, employed mothers create some positive advantage in terms of vaccination coverage and nutritional foods as given in the above table (in

[8] For Further Explanation About Stunting, Wasting And Underweight Please Look At The Data And Variable Section.

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Table 1). Estimated result with interaction term (area and employment) exhibits that the children from employed mothers get the some health care advantage only in urban areas, whereas, in rural areas, children from employed mother get health care disadvantages as compared to children from unemployed women. It means that the positive effects of the employed mother are not unanimous.

For the breastfeeding, as we discussed earlier employed mother are less likely to breastfed to her children. Results of interacted term cleared that employed mother are less likely to provide breastfed to her children in both the areas. It is also cleared that employed and unemployed mothers in rural areas more likely to breastfed as compared to their counterpart in urban areas implies that rural mothers provide more breastfed as compared to urban mothers.

For the child health outcomes, it is already discussed that children with employed mothers are more likely to have nutritional deficiency than children with unemployed mothers, particularly in terms of stunting and underweight. The interaction (area and maternal employment) result further clarified that children with employed mothers in rural areas are more at risk of nutritional deficiency than a child with employed mothers in urban areas.

Aside from the positive effects of maternal education and employment on child health care, which are analyzed above, the estimation with interaction terms clearly makes three important conclusions. First, an additional level of maternal education positively and strongly related to child health care. Second, employed and educated mothers bring more positive effect than unemployed and uneducated mothers; it means that with more level of education, maternal employment is good for child health care. Third, as the level of maternal education increases, the positive affect of maternal employment increases; it means that with the additional level of maternal education, maternal employment creates more positive advantages.

Table-2: Interaction effect of explanatory variables on Child Health.

| | **Child Health Care** | | | **Child Health Outcomes** | | |
|---|---|---|---|---|---|---|
| | **Fully Vaccinated** | **Breast-feeding** | **Nutritional Foods** | **Stunting** | **Underweight** | **Anemia** |
| **Area # Employment** | | | | | | |
| Unemployed, Rural (omitted) | | | | | | |
| Employed, Rural | 0.910<br>(0.0258) | 0.815**<br>(0.0259) | 0.936*<br>(0.0363) | 1.33<br>(0.0366) | 1.302**<br>(0.0359) | 0.947*<br>(0.0287) |
| Unemployed, Urban | 1.761*<br>(0.0432) | 0.519<br>(0.0145) | 1.647*<br>(0.0534) | 0.683***<br>(0.0181) | 0.645<br>(0.0168) | 0.724<br>(0.0199) |
| Employed, Urban | 1.926***<br>(0.0788) | 0.332**<br>(0.0148) | 1.830<br>(0.106) | 0.809<br>(0.0363) | 0.758**<br>(0.0332) | 0.652**<br>(0.0291) |
| **Education # Employment** | | | | | | |
| Uneducated, Unemployed (omitted) | | | | | | |
| Uneducated, Employed | 1.068**<br>(0.0403) | 0.856<br>(0.0343) | 1.079*<br>(0.0555) | 1.109<br>(0.0374) | 1.178**<br>(0.0404) | 0.861<br>(0.0332) |
| Primary, Unemployed | 1.938*<br>(0.0771) | 0.821***<br>(0.0373) | 1.493**<br>(0.0806) | 0.702**<br>(0.0273) | 0.712***<br>(0.0276) | 0.722***<br>(0.0315) |
| Primary, Employed | 1.957 | 0.592 | 1.483* | 0.860*** | 0.828*** | 0.710*** |

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| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.107) | (0.0355) | (0.116) | (0.0466) | (0.0445) | (0.0418) |
| Secondary, Unemployed | 3.513*** (0.103) | 0.584* (0.0191) | 2.590 (0.100) | 0.414 (0.0122) | 0.445 (0.0129) | 0.554 (0.0176) |
| Secondary, Employed | 3.584 (0.157) | 0.451 (0.0212) | 2.447** (0.145) | 0.627*** (0.0272) | 0.610 (0.0265) | 0.530* (0.0248) |
| Higher, Unemployed | 6.452** (0.312) | 0.364 (0.0184) | 4.949*** (0.309) | 0.176 (0.0113) | 0.194** (0.0118) | 0.404 (0.0216) |
| Higher, Employed | 7.124*** (0.532) | 0.239*** (0.0180) | 6.038 (0.635) | 0.185 (0.0185) | 0.208* (0.0191) | 0.291** (0.0234) |
| Robust standard error in parentheses. *** p<0.01, ** p<0.05, * p<0.1 | | | | | | |

As we mentioned earlier that maternal education has positive effects, but maternal employment has a negative association with the stunting and underweight problem among children. The assessment of the negative effects of maternal employment with each level of maternal education can be shown by the higher odd ratio value for employed women as compared to unemployed women at the same level of maternal education. But the differences of this negative advantage minimized with the additional higher level of education. For instance, the odds ratio for the stunting with unemployed mothers is 1 and for the employed women it is 1.11 at zero level of maternal education, and similarly, the odds ratio for the stunting with unemployed mothers is 0.70 and for the employed women it is 0.86 at the primary level of maternal education. This pattern is the same for other level of education as well as for the underweight child.

**Conclusion**

In this paper, we measured the extent at which child health is strongly and significantly influenced by child's individual, maternal, household and place of residence characteristics, in general, maternal employment and maternal education, in particular. Estimated results in this study demonstrated that health of surviving children in terms of child health care and child health outcomes are multi-factorial nature and some variables in each considered groups of determinants are significantly associated with child health. After empirical estimation, we found that maternal education, birth order, sex of child, wealth index of household, and place of residence has a strong and significant influence on child health. Whereas, the number of family members, the age of children and mothers, maternal health, religion and caste, and maternal employment does explained some variation in child health status.

Regarding the influences maternal education; it has strong and significant, but dependent, effects on child health. Results clearly indicate that the increase in the level of maternal education leads to increase the chance of the demand for better child health care and better child health outcomes. It also found that comparatively higher level educated mothers tend to reduce the amount of breastfeeding to their children.

For child health care, except breastfeeding, we can conclude that maternal employment contributes a positive advantage by increase the income level. But for the breastfeeding and nutritional status, it affects through shortage of time, and hence it leads to negative effects on these indicators. Thus, in this case maternal employments has a negative advantage for health of surviving children particularly in rural areas, where level of earning is very low with poor and long working condition, and have less control over household resources. With the help of results of interaction effects, we can conclude that children with employed mothers in rural areas are less likely

to receive better health care and at higher risk of poor health outcomes as compared to children with employed mothers in urban areas. Similarly, additional higher level of maternal education is positively related to child health for both employed and unemployed mothers, and comparatively higher level of education creates higher benefit for health of surviving children and reduces the maternal employment disadvantages.

The one most important conclusion of this study is the effects of maternal employment is not unanimous and as much as strong for all indicators of child health (indicators of child health care and child health outcomes), but it get altered according to types and timing of care and severity of health outcomes. Thus, estimated results clearly indicate that the effects of maternal employment on child health is depend on the nature of indicators that we chosen. If an indicator depends on availability of time, for instance breastfeeding, then maternal employment has disadvantages for child health. On the other hand, if it depends on income, for instance foods, then maternal employment status have advantages for child health. Thereby we conclude that maternal employment status has not homogenous and independent effects on all indicators of child health. This study provided the strong empirical evidence for this conclusion.

**References:**

1. *Arnold, F. et al. (2009). Nutrition in India. National Family Health Survey (NFHS-3), India 2005-06. International Institute for Population Sciences, Mumbai, 43: 59.*
2. *Barr, N. A. (1993). The economics of the welfare state. Stanford University Press.*
3. *Basu, A. M., & Basu, K. (1991). Women's economic roles and child survival: the case of India. Health Transition Review, 1(1): 83-103.*
4. *Berman, P., Zeitlin, J., Roy, P., & Khumtakar, S. (1997). Does maternal employment augment spending for children's health care? A test from Haryana, India. Health transition review, 7(2): 187-204.*
5. *Bhagowalia, P., Menon, P., Quisumbing, A. R., & Soundararajan, V. (2010). Unpacking the links between women's empowerment and child nutrition: evidence using nationally representative data from Bangladesh. Selected paper prepared for presentation at the Agricultural & Applied Economics Association 2010, 25-27.*
6. *Borooah, V. K. (2004). Gender Bias among Children in India in their Diet and Immunization against Disease. Social Science and Medicine, 58: 1719-1731.*
7. *Broeck, J. V. D., Eeckels, R., & Massa, G. (1996). Maternal determinants of child survival in a rural African community. International Journal of Epidemiology, 25(5): 998-1004.*
8. *Choi, J. Y. & Lee, S. H. (2006). Does prenatal care increase access to child immunization? Gender bias among children in India. Social Science & Medicine, 63(1): 107-117.*
9. *Conti, G. & Heckman, J. J. (2013). The developmental approach to child and adult health. Pediatrics, 131(Supplement 2): S133-S141.*
10. *Currie, J. & Moretti, E. (2003). Mother's education and the intergenerational transmission of human capital: Evidence from college openings. The Quarterly Journal of Economics, 118(4): 1495-1532.*
11. *Desai, S. & Alva, S. (1998). Maternal education and child health: Is there a strong causal relationship. Demography, 35(1): 71-81.*

**12.** *Desai, S. & Jain, D. (1994). Maternal employment and changes in family dynamics: the social context of women's work in rural South India. Population and Development Review, 20(1): 115-136.*
**13.** *Dreze, J. & Sen, A. (2013). An uncertain glory: India and its contradictions. Princeton University Press.*
**14.** *Ettinger, A. S. (2004). Children's Health, the Nation's Wealth: Assessing and Improving Child Health. EHP J, 112(14): 844*
**15.** *Fenske, N., Burns, J., Hothorn, T., & Rehfuess, E. A. (2013). Understanding child stunting in India: a comprehensive analysis of socio-economic, nutritional and environmental determinants using additive quantile regression. PloS ONE, 8(11): e78692*
**16.** *Govindasamy, P. & Ramesh, B. M. (1997). Maternal education and the utilization of maternal and child health services in India. International Institute for Population Sciences, Mumbai. NFHS Subject Reports Number 5: 1-28*
**17.** *Hallman, K., Quisumbing, A. R., Ruel, M., & Brière, B. D. L. (2005). Mothers' work and child care: findings from the urban slums of Guatemala City. Economic development and cultural change, 53(4): 855-885.*
**18.** *Hobcraft, J. (1993). Women's education, child welfare and child survival: a review of the evidence. Health Transition Review, 3(2): 159-175.*
**19.** *Huston, A. C. & Aronson, R. S. (2005). Mothers' time with infant and time in employment as predictors of mother–child relationships and children's early development. Child Development, 76(2): 467-482.*
**20.** *IIPS, (2007). India National Family Health Survey (NFHS-3), 2005-06 (Vol. 1). International Institute for Population Sciences.*
**21.** *Jain, A. K. (1994). Maternal education and childcare. Health Transition Review, 4(2): 199-206.*
**22.** *Jatrana, S. (2003). Explaining gender disparity in child health in Haryana state of India. Asian Meta Centre for Population and Sustainable Development Analysis. Paper Series No. 16*
**23.** *Kishor, S. & Parasuraman S. (1998). Mother's Employment and infant and child Mortality. International institute of population sciences Mumbai, India. National Family Health Survey Subject Reports no. 8: 1-40.*
**24.** *Lee, S. H. & Mason, A. (2005). Mother's education, learning-by-doing, and child health care in rural India. Comparative education review, 49(4), 534-551.*
**25.** *Leslie, J. (1988). Women's work and child nutrition in the Third World. World Development, 16(11): 1341-1362.*
**26.** *Mosley, W. H. & Chen, L. C. (1984). An analytical framework for the study of child survival in developing countries. Population and development review, 10(suppl): 25-45.*
**27.** *Mosley, W. H. & Chen, L. C. (2003). An analytical framework for the study of child survival in developing countries. Bulletin of the World Health Organization, 81(2): 140-145.*
**28.** *Pande, R. P. & Astone, N. M. (2007). Explaining son preference in rural India: the independent role of structural versus individual factors. Population Research and Policy Review, 26(1): 1-29.*
**29.** *Rajan, S. I. & James, K. S. (2008). Third national family health survey in India: issues, problems and prospects. Economic and Political Weekly, November 29: 33-38.*
**30.** *Sen, A. (1990). More than 100 million Women are missing. The New York Review of Books, 37(20): 61-66.*

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**31.** *Shariff, A. & Ahn, N. (1995). Mother's Education Effect on Child Health: An Econometric Analysis of Child Anthropometry in Uganda. Indian Economic Review, 30(2): 203-222.*

**32.** *Sharma, S. (2005). Child health and nutritional status of children: the role of sex differentials. paper presented at the XXVII Annual Conference of the Indian association for the Study of Population (IASP) on Poverty, Reproductive & Child Health and Population Stabilization held at the Population Research Centre, Punjab University, Chandigarh.*

**33.** *Shehzad, S. (2006). The determinants of child health in Pakistan: an economic analysis. Social indicators research, 78(3): 531-556.*

**34.** *Shin, H. (2007). Child health in Peru: importance of regional variation and community effects on children's height and weight. Journal of health and social behavior, 48(4): 418-433.*

**35.** *Sivakami, M. (1997). Female work participation and child health: An investigation in rural Tamil Nadu, India. Health Transition Review, 7: 21-32.*

**36.** *Som, S., Pal, M., & Bharati, P. (2007). Role of individual and household level factors on stunting: A comparative study in three Indian states. Annals of Human Biology, 34(6): 632-646.*

**37.** *Tulasidhar, V. B. (1993). Maternal education, female labor force participation and child mortality: evidence from the Indian census. Health Transition Review, 3: 177-190.*