

Effect of maternal time use on food intake of young children in Bangladesh*

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Abstract

Complementary child feeding practices are poor in Bangladesh and they have improved minimally over time, especially for children 6-23 months. We test if this is partly due to the lack of time the mothers have to prepare food and feed the children. We use panel data on time use of women across three agricultural seasons in 1996-97 to test this hypothesis. We find that women spend around two hours per day on exclusive child care time, which does not vary significantly by income, education, or agricultural season, although boys are favored. In the higher intensity agricultural seasons the majority of women reduce their cooking time. Women also combine child care with their other work for more than two hours every day; the extent of multi-tasking does not differ by education level of women or gender composition of children. Married women 15-49 years old themselves eat less when they spend less time on cooking, and the effect is stronger for those with children 0-5 years. For the male head in these households the effect is smaller in magnitude and less robust. The women's cooking time does not affect the food consumption of their children either 6-23 or 24-59 months old, but there is some evidence of discrimination in favor of boys. The exclusive child care time has no effect on food consumption of children 6-23 months old, but there is some evidence of negative effect on food consumption of children 24-59 months and on girls. Multi-tasking child care time has no consistent effect on food intake of children either by age or gender. Maternal time on work outside home has a positive effect on their own and somewhat on their sons' food consumption.

1 Introduction

According to WHO (2008), appropriate complementary feeding is among the most effective interventions to promote child health, growth and development. According to the latest Bangladesh Demographic Health Survey only 21 percent of children age 6-23 months are fed appropriately based on recommended infant and young child feeding practices (BDHS (2011)). Moreover, the complementary feeding has improved

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minimally over time for children of this age group (Jain (2014)). While there could be several reasons for poor complementary feeding practices, one of the hypotheses regularly proposed is the lack of time mothers have to prepare age-appropriate food and feed it to the children with the required frequency. The data is generally not available to test this hypothesis. As far as we are aware, there are only two studies for developing countries, that analyze the impact of a mother's work force participation or the value of her time on the food consumption of children (Popkin (1980), Senauer and Garcia (1991)). Both studies are for the rural Philippines, where feeding practices are significantly better than in Bangladesh (PDHS (2008) and economy, geography, and population characteristics are quite different from those in Bangladesh. Also, they either do not analyze the impact on children age 6-23 months, or do not do so separately from that on older preschool children. In addition, in a country like Bangladesh, where the majority of women work on their own farms or in a family enterprise and do most of the household chores, the more important question is not how maternal labor force participation impacts food consumption, but how the distribution of the mother's time use impacts it. Given multiple demands on women's time, how much time do they have to cook food and take care of their children? Do the children of mothers who spend more time preparing food or taking care of children eat more and better? Do mothers give more and better food to their sons than daughters? When women are seriously time constrained, such as during high intensity agricultural seasons, what activities do they give up? How does the resulting change in time allocation effect the food consumption of children?

To answer these questions, we analyze the unique panel data on time use of women and men in Bangladesh, collected in the period 1996-97 in three different agricultural seasons. The survey area is geographically dispersed and covers four districts: Mymensingh, Manikganj (Saturia), Kishoreganj, and Jessore. We first document the time use patterns of married women 15-49 years old and examine how they differ by education, agricultural season, income, gender, and the presence of young children. Then we analyze the effect of time allocation of women on their own food consumption and on that of the male household head. Then we analyze the effect of maternal time allocation on the food consumption of children 6-23 months and 24-49 months. We also do the analysis separately for boys and girls, but because of small sample size we do it for the 6-59 months combined. We exploit the change in time use of mothers across agricultural seasons to identify its effect on the food intake of various household members using a women and child fixed effects model. With the fixed effects model we are able to control for time unvarying child, maternal, and community characteristics, such as children's genetic endowment, maternal motivation and nutrition knowledge levels, household composition, and prevailing social norms. In addition, we are able to control for change in food availability across agricultural seasons by the prices of five widely consumed food items. We also control for change in the resource constraints of households across agricultural seasons by household consumption expenditure. While we are able to control for a lot of confounding factors, there could be residual endogeneity due to omitted time varying factors, measurement error, or simultaneity. We experimented with various instruments to control it, but were unsuccessful in finding strong ones.

To our knowledge, our study is the first to provide a thorough analysis of time use of women with children 0-5 years for a developing country, especially child care patterns by income, education, agricultural season, and gender composition of children. Using the Bangladesh Bureau of Statistics definition of work (BLFS (2010) pg 230) as when "a person ... either working one or more hour for pay or profit or working without pay in own farm or enterprise or organization during the reference period...",¹ we find that on average more than 60% of women with children 0-5 years are working. This figure goes up to more than 70% during the Aman harvest in December, and if we make the definition more inclusive, and remove the

¹In the Bangladesh Bureau of Statistics definition the reference period is one week before the interview date, and in the survey used in this paper the reference period is the last 24 hours.

lower bound on work hours as per the official definition, the percentage of women working increases to more than 80%. Our study finds that even in the “hungry lean season” of October, when the labor demand is the lowest, on average women work more than an hour every day. In the Aman harvest season in December, during which demand for labor is high, their work time rises to around three hours. In addition to work outside home, women on average spend six hours every day on household chores. The biggest component of housework for women is cooking and washing utensils, on which women spend on average four hours. To compensate for the increase in work outside home in the high agricultural seasons, the majority of women reduce their cooking time. Levinson et al. (2002) also find that when women are most time constrained in Bangladesh, their cooking time suffers, but they did not collect information on actual time spent on cooking across agricultural seasons.

In addition to the work outside and inside the house, the women spend around two hours exclusively looking after their young children 0-5 years. They feed, bathe, teach, play with them and also take care of them in sickness. This exclusive child care time does not vary significantly by income or education level. Also, women do not cut down on this exclusive child care time in the high agricultural season - even poor and illiterate women do not compromise on child care time. However, younger children and boys get more child care time. Besides the exclusive child care time, women also combine child care with other tasks, such as their own farm work, cooking, and cleaning, for more than two hours every day. This multitasking time does not differ between literate and illiterate women. Child care is also provided by other household members and hired help, especially when the mother is busy. Of alternative child care providers, we have information on time spent on child care only by men (mostly fathers) and find that they hardly spend any time on it.

The empirical analysis indicates that married women 15-49 years old who spend more time on cooking, eat more and better. The effect is stronger for those with children 0-5 years. In higher intensity agricultural seasons, when women spend less time on cooking, this could mean a decrease in food consumption of 1-4%. However, we do not find that it has a negative effect on the nutritional status of women, as measured by BMI. For male household heads, also the less time the women spend cooking, the less their food consumption, but the effect is less robust and smaller in magnitude. We do not find support for the hypothesis that the food consumption of children is constrained by the time mothers have for preparing food for children in either the 6-23 or 24-59 months age groups. However, there is some evidence that mothers positively discriminate in favor of boys in food consumption. Discrimination in favor of sons in food consumption is also reported by other studies for Bangladesh and other countries (Brown et al. (1985), (Senauer and Garcia (1991)), but not in relation to time use of mothers.

We also do not find evidence that the food consumption of children 6-23 months is constrained by the time mothers spend on their exclusive care; however, we do find that it is a constraint in the food consumption of older children 24-59 months and also of girls. We find that the more time mothers spend on child care, the less food consumption there is for children 24-59 months and for girls. As one-third of children 24-59 months have a younger sibling, and child care time decreases with the increasing age of preschool children, this negative effect could be reflecting the crowding out of care of older children in the presence of a younger sibling. The negative effect on girls could be indicating the gender discrimination in child care time against girls. Multi-tasking child care time does not have any consistent effect on food intake of children either by age or gender.

We also do not find that maternal work time outside home constrains food consumption of children of either age-group. In fact we find that it has a positive effect on the mother’s own food consumption and on that of her sons. This finding falls in between those of two previously mentioned studies in the rural Philippines, in which one finds a positive impact of maternal employment on protein and calorie

consumption of children 1-71 months (Popkin (1980)), and the other finds no significant impact of the mother's value of time on the calorie consumption of children 25-83 months (Senauer and Garcia (1991)). Our study finds no impact on the mother's work time on food consumption of children by age, but finds a positive impact on the calorie consumption of boys. Our result on the mother's food consumption increasing with her work time is generally consistent with the finding from Senauer et al. (1988) that the estimated wage rate of the mother in the Philippines has a positive effect on her own calorie consumption.

The remainder of the paper is organized as follows. Section 2 discusses the literature on time use of women and its determinants and impact. Section 3 presents the data. Section 4 lays down the empirical strategy. Section 5 reports the descriptive statistics on time use of women. Section 6 reports the empirical results on the effects of time allocation of women on their own food consumption, on that of the male household head, and on that of children. Section 7 describes the robustness checks and Section 8 concludes.

2 Literature survey on time use of women and nutrition

The literature examining the linkages between time use of women and nutrition of children in developing countries is scarce. To our knowledge, there are only a handful of studies that have looked at either the impact of maternal work status or the mother's opportunity cost of time on the children's diet and the nutritional status of children in developing countries. Popkin (1980) for the rural Philippines² finds that mothers' labor force participation reduces the child care time of children 1-71 months and increases their percentage of recommended protein and calorie consumption, but negatively impacts their nutritional status (weight-for-age z score). There is another study, also for the rural Philippines³ by Senauer and Garcia (1991), which instead of maternal work status looks at the impact of women's value of time on the calorie consumption and nutritional status of children 25-83 months. They find that women's value of time, measured by prevailing women's wages at the village level, does not have a significant impact on any of these outcomes. Another study (Senauer et al. (1986)) looks at the effect of the opportunity cost of women's time on household food consumption patterns in urban Sri Lanka, and finds a shift from time-intensive traditional foods to time-saving foods, especially commercially baked bread.

There is significant research on factors affecting the time allocation of women or intra-household time use, and a few are on Bangladesh (Ilahi (2000)). The various factors which have been analyzed for developing countries are fertility Tiefenthaler (1997); human capital, gender, and family status (Fafchamps and Quisumbing (2003)); environment (Kumar and Hotchkiss (1988)); sickness and unemployment (Ilahi and Lanjouw (2001)); provision of quantity and quality of infrastructure (Ilahi and Grimard (2000)); employment opportunities (Newman (2002)); opportunity cost of time (Skoufias (1993)); and household composition and education (Alderman and Chishti (1991)).

Among the studies on Bangladesh, Khandker (1988) looks at the relative role of economic factors versus social customs in determining women's labor force participation in Bangladesh. He finds that women's work is influenced by individual and household economic factors and is not rigidly set by local customs. Levinson et al. (2002) analyze the time constraints of women with children 0-5 years based on a survey conducted in one sub-district of Bangladesh in 1997 in a non-harvest season. They find that the women who are the most time constrained are neither the poorest nor the richest, but those in the lower middle income groups. They also find that during the harvest months women are particularly time constrained, and they cope by reducing their cooking time as well as by sacrificing personal care and leisure.

²Based on a survey in May-June 1975.

³Based on household surveys carried out in three rural provinces of the Philippines in 1983-84.

Brown and Haddad (1995) analyze time allocation patterns in Bangladesh as part of a seven country analysis. They use a survey carried out in February-March 1994 across sixteen districts in Bangladesh. Their sample is concentrated on poorer and female-headed households, mostly engaged in non-agricultural employment. They find an increase in the allocation of time to productive activities with income for both men and women, followed by a decrease in the upper tercile of income, presumably because the opportunity cost of leisure is higher in the upper tercile. They also find the working hours of both men and women in female headed households to be lower than those of their counterparts in male-headed households. They contend that this could be due to poverty and cultural norms, with the inability to engage in productive activities outside of the household. They find that women's work hours are not longer than men's, and that women are more likely to collect water and fuel and to spend less than one hour per day on direct child care activities.

To summarize, there is a significant literature looking at the factors affecting woman's time allocation between work inside and outside home or intra-family time allocation in developing countries. However, as far as we are aware, there are only two studies for developing countries that analyze the linkages between women's time use and the nutrition of children. Both studies are for the Philippines, whose economy, geography, and population characteristics are quite different from those of Bangladesh. Also, the studies either do not focus on children 6-23 months or do not do so separately from older preschool children. In addition, in a country like Bangladesh, where the majority of women work on their own farms or in a family enterprise and do most of the household chores, the more important question is not how maternal labor force participation impacts the food consumption of children, as previously examined in the Philippines, but how the mother's distribution of time use and its seasonal fluctuations impact it.

3 Data

The data were collected in 1996-97 as part of an impact evaluation of new agricultural technologies being disseminated through non-governmental organizations. Three sites were surveyed across four different rounds covering a complete agricultural cycle: vegetable technology in Saturia, group fishponds in Jessore, and individual fishponds in Mymensingh (including Kishoreganj). See Figure 1 for the location of these sites and Table 1 for the timing of each round.⁴ The data were collected from three types of households: 1) adopting households in villages with the technology; 2) likely adopter households in villages where the technology was not yet introduced; and 3) a cross-section of all other non-adopting households representative of the general population in the villages under study.

All together 956 households were surveyed in the first round and were followed in the subsequent rounds. The different rounds correspond loosely to different agricultural seasons (Table 1). Round one corresponds to the lean agricultural season, but it also contains around a month of high labor demand for ploughing the fields and transplanting rice. Round two corresponds to the high agricultural season in which predominantly Aman paddy is harvested, but it also contains the lean season in October. Round three corresponds to the medium agricultural season in which mainly Bodo paddy is harvested. The important characteristic of the survey is the availability of time use information in each round for the most active male and female, who were generally the household head and his wife. In addition, 24-hour recall food intake for all household members as well as their anthropometric measurements were collected in each round. These datasets also have a rich set of information on household and mother's demographics, food and non-food expenditure, assets, education, landholdings, and the health and nutrition of children.

⁴The only month for which data was not collected was January 1997, and the sample size is low in June 1996 and May 1997.

Time use information was collected for all activities reported by one male and one female in the household, but information was not collected regarding time spent caring for specific children. Therefore, we do not have information on maternal time use for all children 0-5 years. In the first round, information on maternal time use and child's complementary food intake is available for 73% of the children 6-23 months and 79% of the children 24-59 months. In the second round, this information is available for 71% and 79% of the children in the two age groups, respectively. For a substantial percentage of these children, the maternal time use is missing in the third round. Hence, the child level analysis uses only the first two rounds of data. Also, in the first two rounds the children in both age groups who are not included in the analysis are likely to be younger and to have mothers who are younger and more educated.

As the fourth round survey period coincides with the first round survey period in the following year, we have analyzed the first three rounds of data for women and household head level analysis. As the focus of the analysis is women with children 0-5 years, we have limited the analysis to those in the reproductive age group of 15-49 years and those who are currently married (92% of the total). Time use data is available for 85% of the married women 15-49 years in all three rounds, and for 76% of those with children 0-5 years. For another 9% and 13% of the women, respectively, it is available for two out of three rounds. An average woman with children 0-5 years is 28 years old and has around three children living with her. She has two years of education and is marginally above the cutoff of being chronically malnourished (BMI<18.5) (Table 2). An average male head of the household, who in most cases is her spouse, is 38 years old, is more educated than the woman with around four years of education, and is chronically malnourished. Around one-third of households have access to sanitation, and almost all drink water from tubewells close to home.

4 Empirical Strategy

4.1 Conceptual Framework

We use the following theoretical framework for the nutrient intake of individuals, as developed by Behrman and Deolalikar (1988)

$$N_i = f(F_i, E_i, T_i, H_i) \quad (1)$$

where N_i is the nutrient intake of i th individual, F_i is a vector of food intake of that individual, E_i is a vector of skill set of the food preparer, T_i is a vector of time input of the food preparer, and H_i is a vector of household environment which would impact the food storage and preparation.

We use different measures of nutrient intake, differentiating between quantity and quality of nutrient intake. For food intake we use indirect measures, such as household consumption expenditure and exogenous prices. We use a mix of direct and indirect measures of the skill set of household members who are most likely to either prepare the food or supervise or make important decisions regarding the preparation process. We use the distribution of the time use of mothers or the spouse of the male household head, as they are most likely to prepare the food. For the household environment we use indicators on access to drinking water and sanitation.

4.2 Regression framework

We start with the pooled OLS regression, where we pool the data for three rounds:

$$FI_{it} = \beta cook_{it} + \eta work_{it} + \phi chcare_{it} + \lambda X_{it} + \gamma District_i + \theta Round_i + u_{it} \quad (2)$$

where FI_{it} is the food intake indicator for i th woman (or household head or child) in the t time period. For details on different food intake indicators, see Appendix B. $cook_{it}$, $work_{it}$ and $chcare_{it}$ are the variables of interest, which indicate the amount of time women spend cooking, working outside home, and doing exclusive child care, respectively. β , η and ϕ are the parameters of interest. \mathbf{X}_{it} is a vector of control variables composed of a woman's age, education, and height;⁵ the number of coresident children, distance to a drinking water source, type of toilet, per capita household expenditure, and the prices of rice, lentils, egg hens, the relatively expensive large fish *Rui*, and the relatively cheaper small fish *Puti*. $District_i$ and $Round_i$ are the district and survey round dummies. u_{it} is an error term. As the inclusion of prices leads to a sizeable reduction in sample size, we present the results of both the specifications with and without prices.

It is possible that the women from richer households spend more time on household chores, like cooking, and also eat more and better. Therefore, to identify the effect of a women's time allocation on her food consumption using the non-experimental survey data, we need to control for observables like income. We do this with the addition of control variables \mathbf{X}_{it} . However, there also might be some unobserved factors (unobserved heterogeneity), or measurable but non-surveyed factors. For example, more motivated or more informed women may spend more time cooking and may also have more nutritiously balanced diets. Or women living in communities where social norms encourage that women spend more time on household chores like cooking, may feed their children more and better food. In such cases, the OLS regression probably suffers from omitted variable bias. To control for such unobservables or measurable but non-surveyed observables that do not change over time, we use the women fixed effects model below:

$$FI_{it} = \beta cook_{it} + \eta work_{it} + \phi chcare_{it} + pcx_{it} + prices_{it} + D_i + u_{it} \quad (3)$$

where FI_{it} is the food intake indicator for i th woman (or household head or child) in the t time period. $cook_{it}$, $work_{it}$ and $chcare_{it}$ are the variables of interest. β , η and ϕ are the parameters of interest. \mathbf{X}_{it} is a vector of control variables composed of per capita household expenditure and the prices of rice, lentils, egg hens, fish *Rui*, and fish *Puti*. D_i is the dummy for the woman i . u_{it} is an error term.

In the regressions for the food intake of children, the vector of control variables include the child's age in months, the mother's education, age, and height; the household head's age and education; per capita household expenditure, and the prices of rice, lentils, egg hens, fish *Rui*, and fish *Puti*. u_{it} is an error term. For the child level regressions we use a child fixed effects model, and D_i is the dummy for the child i (Equation 3).

5 Descriptive Statistics

Labor force participation rate and type of work In developing countries women's work always remains under reported, especially non-marketed goods and services produced by women within the household. Even for the work outside the household, depending on the inclusiveness of the definition of unpaid work and the manner in which the statistics are collected, there could be significant underreporting. Mahmud and Tasneem (2011) further note that not only do the official statistics undervalue the economic contribution of women, but the women themselves do so, and this extends to the larger society, contributing to their lower status in society relative to men. We use different definitions of work for women in Bangladesh. Using the Bangladesh Bureau of Statistics (BBS) definition of work (BLFS (2010) pg 230) as when "a person who... was either working one or more hour for pay or profit or working without pay in own farm or enterprise or organization during the reference period (week preceding the day of survey,⁶" we find that two-thirds of

⁵In regressions for household heads, we include their ages and education.

⁶In the survey used in this paper, the reference period is the last 24 hours.

women are working (Figure 2a). If we make the definition more inclusive, and remove the lower bound on work hours as per the official definition, the percentage of women working increases to 85%. The women on average spend three hours every day on the official work activities. Half of this time is spent on own-farm work, and the rest is equally divided between tending to poultry/livestock and working in a cottage industry, such as Kantha stitching and knitting. They spend almost no time on agricultural or non-agricultural labor outside their own farm. Mahmud and Tasneem (2011) also find a wide variation in labor force participation rates of women in Bangladesh depending on the definition, and find that the two major work activities of women are own-farm agriculture and small business/trade/handicraft.

Work inside the household Women in Bangladesh not only work for a significant amount of time outside the household, but they are also the primary producers of goods and services within the household for its own use and consumption. These goods and services are vital for human development and sustenance, and more so in developing economies like Bangladesh, with incomplete and inefficient markets. Women spend six hours every day on these household chores, including cooking, cleaning, washing, fetching water, and gathering firewood (Figure 3). The biggest of these household chores is cooking and washing utensils, on which women spend on average four hours. Another forty minutes are spent on collecting water and fuel, and one hour on cleaning house and clothes. They spend another one hour on exclusive child care activities, such as feeding, bathing, teaching, and playing with children. If the time allocated to all work activities, including the work outside and inside the household and child care is added, women in Bangladesh spend on average ten hours working.

Gender differences in time use Women work longer hours than men⁷ in Bangladesh. Work is defined as the time allocated to the production of marketed and non-marketed goods and services, both outside and inside the household, and child care. Women spend 66% more time working than men, which is four more hours (Figures 5a&b). The composition of work also differs by gender. Women do most of the housework, but both men and women participate in own-farm agriculture, though men contribute more. Inside the home men spend around one hour doing miscellaneous work, like slaughtering animals and other household work. The child care duties are mostly the domain of the women, and men hardly spend any time on it. These time use differentials by gender have also been found in other countries (Team and Doss (2011)), like Nepal, where women spend 50-80% more time working than men (Kumar and Hotchkiss (1988)). They do most of the household chores, along with farm work, though men spend relatively longer hours on farm work. In rural Pakistan there is a similar type of work specialization, but men do most of the firewood collection (Fafchamps and Quisumbing (2003)). Though the work hours of women are longer than those of men in Bangladesh, their nutritional status, measured by BMI, is higher than that of men.

Time-use of women by income and education: Ilahi (2000) points out that the relation between the composition of time use of women and income depends on the existence and the performance of labor markets. If they function well, then as households get richer they can hire in labor, and the women (and men) in such households can lower their workload and consume more leisure. In places where it is not possible to hire labor, increases in income do not result in the lowering of work. In the Philippines as income goes up women work less on the family farm (Brown and Haddad (1995)), whereas in Nepal it is not the case (Kumar and Hotchkiss (1988)). In Bangladesh richer women spend less time working outside home on their own farms, more time on household chores, and more time on leisure (Figure 4a). The trend is the same by education. More educated women in Bangladesh, who are more likely to be richer, work less outside home and spend more time on leisure (Figure 4b). Most studies, including for Bangladesh, Pakistan, and South Asia in general, find likewise that as women become more educated, they decrease work in income generating activities, and in most cases increase their leisure (Khandker (1988), Skoufias

⁷Most men are spouses of the sample women.

(1993), Ilahi and Grimard (2000)).

Time use of women by season: There are three different agricultural seasons in Bangladesh, with varying labor demand from high to low intensity, depending on the season and the cropping cycle. Even in the month of October, corresponding to what is traditionally known as the hungry season, when the labor demand is the lowest, women are working at least two hours every day on official work activities. In the high labor demand season of Aman harvest in December, women are spending 3-4 hours on these activities. There are important differences in time use by education level of women and agricultural season. Illiterate women, who constitute 66% of the total, work no matter what, and there is little variation in their labor force participation rates (Figures 2b and 6a) or their hours of work over the year. Literate women seem to respond to the increase in the demand for labor and thereby increase in wages, like in the Aman harvest season in December (Figure 6a). However, the changes are statistically significant for women with up to a primary education, but not for those with a secondary education and above (Table 3). Women with up to a primary education can afford the leisure, but if needed can also adjust their labor supply according to wages. If the wages go above a certain threshold, they work more on their own farms. Women with a secondary education or above do not change their time allocation with the agricultural season as they can afford leisure. Also, there is an income effect as they can hire labor when its demand is higher.

To compensate for the increase in work outside the home in the Aman season, the women with up to a primary education spend less time on cooking⁸ and give up some of their leisure time (Figure 7). The illiterate women also spend less time cooking during the Aman season (Figure 7). Women with a secondary education do not change their work routine inside the home during this season. Levinson et al. (2002) also find that during the harvest months of November and December in Bangladesh, when women are severely time constrained, the cooking time gets reduced. They also find that the most severe time constraint is experienced by neither the poorest nor the richest, but those women in the lower middle income groups. Change in time use of women by agricultural season has also been found for other South Asian countries, such as Nepal and Pakistan (Kumar and Hotchkiss (1988), Fafchamps and Quisumbing (2003)).

Time use of women with children 0-5 years: On average 60% of women with children 0-5 years work (by official BBS definition), and this increases to 70% during the Aman harvest in December (Figure 8a). Women with small children compensate for the increase in demand on their time for child care by decreasing work time outside home by less than an hour, and giving up around one hour of their leisure time (Figure 9). Levinson et al. (2002) also found that during periods of time stress, women in Bangladesh are likely to fulfill their duties, including childcare, by sleeping and resting less themselves. The women spend around two hours exclusively looking after their children. They feed, bathe, teach, play with them and also take care of them in sickness. This child care time does not vary significantly by income or education level (Figures 10a&b). Also, women do not cut down on this exclusive child care time in the high agricultural season - even poor and illiterate women do not compromise on child care time (Figures 10a&b). Surveys in countries like the Philippines, Bangladesh, Kenya, and Botswana also find that women spend two hours or less in child care per day (Brown and Haddad (1995)).

There are important differences in child care time by age, number, and gender of children (Table 4). It increases with the number of children and decreases with their age: women spend almost double the time on child care when their child is 0-23 months old than when s/he is 24-59 months of age. Child care time does not differ by gender of the child when women have only one child 0-5 years. However, when they have two children 0-5 years, it increases with the number of boys and almost an hour more is spent on childcare when there are two boys than when there are two girls. This additional time on boys converts into almost half an hour more on breastfeeding, ten minutes more on exclusive feeding, ten minutes more on playing

⁸Cooking time includes time spent on washing utensils.

with them, and fifteen minutes more on looking after them in sickness. Carvalho et al. (2013) also find that boys receive significantly more childcare time and are likely to be breastfed longer than girls in India.

There are two problems, however, in documenting the time spent in child care. First, one is likely to underestimate time spent on child care by mothers as it is also done jointly with other activities. In Bangladesh women do various tasks, such as work on their own farms and cook and clean, while looking after their children. They spend more than two hours multi-tasking child care with such work activities (Table 3). This multitasking time does not differ between literate and illiterate women or gender composition of children. The second problem is that child care is also provided by other household members and hired help, especially when the mother is busy. We have information on child care time provided by men, who in most cases are the spouse. We find that the men (mostly fathers) spend very little time on child care. The same has been found for other countries (Brown and Haddad (1995)). We do not have information on child care time provided by other household members, like children and grandmothers, or household help.

6 Empirical Results

Table 5 Panel A presents results of the effect of different components of time use of married women 15-49 years on their own food consumption. The results are presented for a measure of food quantity - calories from non-staples, and for two measures of food quality - calories from non-staples and dietary diversity score (see Appendix B for details on these measures). They are also presented for total calories, which is a sum of calories from staples and non-staples. Also, the results are presented for different specifications. As inclusion of prices led to a decrease in sample size, the results are also presented for the OLS and fixed-effects models without prices. We find that cooking time⁹ is positive and significantly associated with both food quantity and quality measures - the more time the women spend cooking, the more and better food they consume. For every additional minute spent on cooking, women consume around half a calorie more, and mostly from staple food. The effect is robust to different specifications. We find that in higher intensity agricultural seasons in rounds two and three, women's cooking time goes down (Table 3), and so do their calorie consumption and dietary diversity score. However, the decline is small, around 1-2%, in both the quantity and quality of food consumption for the average decrease in time spent on cooking. This relatively small decrease in food consumption due to a decrease in cooking time does not seem to be affecting the BMI of women negatively as we do not find a statistically significant decline in the BMI of women across the agricultural seasons (Table 3).

For women 15-49 years who have children 0-5 years, we find that the association between cooking time and food consumption is bigger in magnitude. For every additional minute spent on cooking, they eat around one calorie more (Table 5 Panel B). The decrease in food consumption in higher intensity agricultural seasons is on average 2%. For the women with up to a primary education, who cut down on their cooking time the most, the decline is higher at 3-4%. However, for this group of women also we do not find any significant decline in BMI across the seasons (Table 3). We also find that the more these women do non-household work, the higher their consumption of food. This could be explained by the higher energy needs associated with working outside the household, i.e., work which is mainly performed in agricultural fields. We do not find an increase in their work time in higher intensity agricultural seasons; on the other hand, there is a decrease in their work time, except for those with up to a primary education (Table 3). There is a weak positive effect of child care time on total calorie consumption and calories from staples for these women.

⁹Cooking time includes time spent on washing utensils.

To further control for possible residual endogeneity of time use of women due to omitted time varying factors, measurement error, or simultaneity, we carry out instrumental variable estimation. We instrument for cooking time by number of girls 11-14 years in the household, working time by average distance to farm plots, and child care time by number of children 0-5 years. The test for weak instruments was not rejected for either all the married women 15-49 years or those with children 0-5 years. Nevertheless, we present the IV results in the Appendix Table A.1 for women's own food consumption. The IV estimates are mostly statistically insignificant, but move largely in the same direction as the fixed effect estimates.

For household heads in households with women 15-49 years, we find that either the time use of women has no effect on their food consumption or that it has a weak positive effect but smaller in magnitude than that on women (Table 6 Panel A). Even for the household heads in the households with women with children 0-5 years, the results are similar (Table 6 Panel B).

Table 7 Panels A and B show that an increase in mother's cooking time does not mean more or better food for children 6-23 months or 24-59 months. Even in the higher intensity agricultural seasons, when the mothers reduce their cooking time, it does not affect their children's food intake quantity or quality. The same is true for work time: it does not have an effect on the food consumption of children. As for child care time, it is not associated with food consumption of children 6-23 months, but there is some evidence that it negatively affects the food eaten by children 24-59 months (a result that is only in fixed-effects specifications with prices). About one-third of these children have younger siblings 0-23 months old. This negative effect may reflect the squeeze on the care of older children in the presence of younger children. Table 8 provide the estimates where we look at the impact of maternal time use on percentage of required calories consumed by children 6-23 and 24-59 months old, separately. The results are broadly similar to what we find when we use the food intake measures in levels.

As mentioned above, in Bangladesh, women not only spend time exclusively looking after children, but they also multi-task childcare with work on own farms, cooking, cleaning, etc. On average they spend more than two hours multi-tasking child care with such work activities. We include this multi-tasking time to analyze its effect on the food consumption of children. It does not much change the magnitude or the significance of the coefficients on exclusive child care. Also, multi-tasking does not affect the food consumption of children 6-23 months. It has a negative effect on the dietary diversity score of children 24-59 months, though the coefficient is small in size (Table 9). This negative significant effect may be indicating the increase in stress level of mothers associated with the increase in multi-tasking, and its negative effect on child care practices.

We also analyze the effect of maternal time use on children's food consumption by gender. However, because of the small sample size, we carry out the analysis by combining the children 6-23 and 24-59 months into one age-group of 6-59 month olds. Table 5 Panels C and D present the results for boys and girls, respectively. We find that cooking time of the mother has no effect on the food consumption of girls, but there may be a positive discrimination in favor of boys - there is some evidence that cooking time has a positive effect on boys' food quantity intake. The evidence is similar when we take the percentage of required calories consumed as the dependent variable (Table 8). Though the coefficients in the fixed effects model are not statistically significant for boys, they are similar in magnitude to the statistically significant coefficients of the OLS.

There is also some evidence that the work time of mothers positively affects the boys' food quantity intake. There is no consistent effect of child care time on boys' food consumption, but there seems to be a negative effect of child care time on girls' food consumption. This negative effect on girls could be indicating gender discrimination in child care time against girls. Multi-tasking child care time does not have a consistent effect on either boys or girls' food consumption (Table 10).

7 Robustness checks: controlling for household composition and child morbidity

Child care is provided not only by mothers but also by other household members, especially other adult women and girls. We do not have information on the time spent on child care by other household members, however, we control for household composition in the OLS regressions using the information on the number of males 15-55 years, females 15-55 years, girls 6-10 years, and girls 11-14 years in the household. We find that results are robust to inclusion of these household composition controls (Appendix Table A.2).

Seasonal variations in disease environment might lead to changes in morbidity among children. Changes in morbidity can result in changes in both the energy needs and food intake of the children, as well as the time mothers spend taking care of them. Thus, absence of information on morbidity could bias the estimates. We control for morbidity among children by the number of days a child is sick in the last two weeks. We find that the results are robust to these controls (Appendix Table A.3).

8 Conclusion

The descriptive and econometric analysis brings out several issues related to the measurement of women's work and their overall time use, especially child care. Women are predominantly engaged in work activities which are in the form of unpaid labor on family farms and enterprises. Thus, not only do these activities tend to go unrecorded or under-recorded, but they are also overlooked by women themselves. This leads to underestimation of the economic activity of women, and to a certain extent their undervaluation by society. Child care time is hard to measure as there are multiple providers and women multi-task child care with their other activities. Also, when a woman has more than one child in the age-group 0-5 years, it is important to understand the distribution of child care time among the children by age and gender.

We started with the hypothesis that poor complementary feeding practices among preschool children could be partly due to lack of time mothers have to prepare age-appropriate food and feed them with the required frequency. We find that when women are seriously time constrained, they do reduce their cooking time, which affects their own food consumption negatively, but they do not let it affect the food consumption of their preschool children. Also, their work time outside home does not affect the food consumption of children. Thus, we do not find evidence in support of the hypothesis put forward by literature, that complementary feeding practices or dietary quality are constrained by the time women spend on preparing food or on their overall work outside home.

We find, somewhat surprisingly, that the time women spend on exclusive child care does not differ by education, income, and season. It seems that child care is of utmost importance to women and there are no compromises on this activity even by the illiterate and poor women. Therefore, it is not surprising that we find that child care time does not affect the food consumption of children 6-23 months. We do find some evidence that it has a negative effect on the food consumption of older children 24-59 months. As one-third of older children have a younger sibling, and child care time decreases with the increasing age of preschool children, this negative effect could be reflecting the crowding out of care of older children in the presence of a younger sibling. This plausible hypothesis needs further investigation, which we are unable to do as we do not have information on the distribution of child care time among siblings. The results indicate that the feeding of older preschool children is constrained by the time mothers have in looking after them, which could be eased by government support through provision of public child care facilities, or encouragement and subsidization of private child care markets.

All through our analysis, we find evidence of gender discrimination in favor of sons, which works

through various ways. As the mothers spend more time cooking or working, boys eat more food. Also, child care time increases with the number of sons, and more child care time has a negative effect on the food consumption of girls, but not of boys. This needs to be investigated more thoroughly in the future with better time use information. This gender discrimination in food intake and care time indicates how differential investments are made between boys and girls since childhood, which could have lasting effects through their schooling years, adulthood, and beyond. Counteracting this gender discrimination requires action on several fronts, including long term education policies in maternal and paternal education, change in societal attitudes through gender sensitization campaigns, improvement in the legal rights of women, and an increase in the rate of returns of educating girls through lowering the cost of education, e.g., through subsidies for girls' education or mandatory lower school fees for girls. The policy to support the secondary education of girls by providing tuition stipends has already been in place in Bangladesh and has expanded since 1993, and is in the right direction.

In future research, we need to understand how the time use of women has changed over the years and whether the apparent discrimination of girls by mothers (and society) with respect to child care time and food provided has been reduced, especially as off-farm employment opportunities for women may have improved in Bangladesh through the expansion of the manufacturing sector during the last 20 years. We also need to understand the role of other factors, such as nutrition knowledge among women, in the persistence of poor complementary feeding practices in Bangladesh.

References

- Harold Alderman and Salim Chishti. Simultaneous determination of household and market-oriented activities of women in rural pakistan. *Research in population economics*, 7:245–65, 1991.
- M. Arimond and M.T. Ruel. Dietary diversity is associated with child nutritional status: evidence from 11 demographic and health surveys. *The Journal of Nutrition*, 134(10):2579–2585, 2004.
- Bangladesh BDHS. Demographic health survey 2011. *National institute of population Research and Training*, 2011.
- Jere R Behrman and Anil B Deolalikar. Health and nutrition. *Handbook of Development Economics*, 1: 631–711, 1988.
- Bangladesh BLFS. Report on labour force survey. *Bangladesh bureau of statistics*, 2010.
- Kenneth H Brown, RE Black, AD Robertson, and S Becker. Effects of season and illness on the dietary intake of weanlings during longitudinal studies in rural bangladesh. *The American journal of clinical nutrition*, 41(2):343–355, 1985.
- Lynn R Brown and Lawrence James Haddad. *Time allocation patterns and time burdens: A gendered analysis of seven countries*. International Food Policy Research Institute, 1995.
- Leandro S Carvalho, Silvia H Barcellos, and Adriana Lleras-Muney. Child gender and parental investments in india: Are boys and girls treated differently? *American Economic Journal: Applied Economics*, 2013.
- Marcel Fafchamps and Agnes R Quisumbing. Social roles, human capital, and the intrahousehold division of labor: evidence from pakistan. *Oxford Economic Papers*, 55(1):36–80, 2003.
- Nadeem Ilahi. *The intra-household allocation of time and tasks: what have we learnt from the empirical literature?* World Bank, Development Research Group/Poverty Reduction and Economic Management Network, 2000.
- Nadeem Ilahi and Franque Grimard. Public infrastructure and private costs: Water supply and time allocation of women in rural pakistan*. *Economic Development and Cultural Change*, 49(1):45–75, 2000.
- Nadeem Ilahi and Peter Lanjouw. *Gender and the allocation of adult time: evidence from the Peru LSMS panel data*. World Bank, Latin America and the Caribbean Region, Gender Sector Unit, 2001.
- Monica Jain. *Large decrease in child stunting in Bangladesh despite limited improvement in children’s food intake*. IFPRI, 2014.
- Shahidur R Khandker. Determinants of women’s time allocation in rural bangladesh. *Economic Development and Cultural Change*, 37(1):111–26, 1988.
- Shubh K Kumar and David Hotchkiss. *Consequences of deforestation for women’s time allocation, agricultural production, and nutrition in hill areas of Nepal*, volume 69. Intl Food Policy Res Inst, 1988.
- Mira Levinson, Orit Halpern, Zeba Mahmud, Sadia A Chowdhury, and F James Levinson. Nutrition-related caring practices and women’s time constraints: A study in rural bangladesh. Technical report, Friedman School of Nutrition Science and Policy, 2002.

- Simeen Mahmud and Sakiba Tasneem. The under reporting of women's economic activity in bangladesh: an examination of official statistics. 2011.
- Constance Newman. Gender, time use, and change: the impact of the cut flower industry in ecuador. *the world bank economic review*, 16(3):375–395, 2002.
- PDHS. *Philippines National Demographic and Health Survey 2003*. ORC Macro, 2008.
- Barry M Popkin. Time allocation of the mother and child nutrition. *Ecology of food and nutrition*, 9(1): 1–13, 1980.
- Ben Senauer, David Sahn, and Harold Alderman. The effect of the value of time on food consumption patterns in developing countries: evidence from sri lanka. *American Journal of Agricultural Economics*, 68(4):920–927, 1986.
- Benjamin Senauer and Marito Garcia. Determinants of the nutrition and health status of preschool children: an analysis with longitudinal data. *Economic Development and Cultural Change*, pages 371–389, 1991.
- Benjamin Senauer, Marito Garcia, and Elizabeth Jacinto. Determinants of the intrahousehold allocation of food in the rural philippines. *American Journal of Agricultural Economics*, 70(1):170–180, 1988.
- Emmanuel Skoufias. Labor market opportunities and intrafamily time allocation in rural households in south asia. *Journal of Development Economics*, 40(2):277–310, 1993.
- Lisa C Smith and Ali Subandoro. *Measuring food security using household expenditure surveys*, volume 3. Intl Food Policy Res Inst, 2007.
- SOFA Team and Cheryl Doss. The role of women in agriculture. Technical report, ESA Working Paper, 2011.
- Jill Tiefenthaler. Fertility and family time allocation in the philippines. *Population and Development Review*, pages 377–397, 1997.
- WHO. Strengthening action to improve feeding of infants and young children 6–23 months of age in nutrition and child health programmes. *World Health Organisation, Report of proceedings, Geneva. October*, pages 6–9, 2008.

Figure 1: Agricultural technology survey sites in Bangladesh

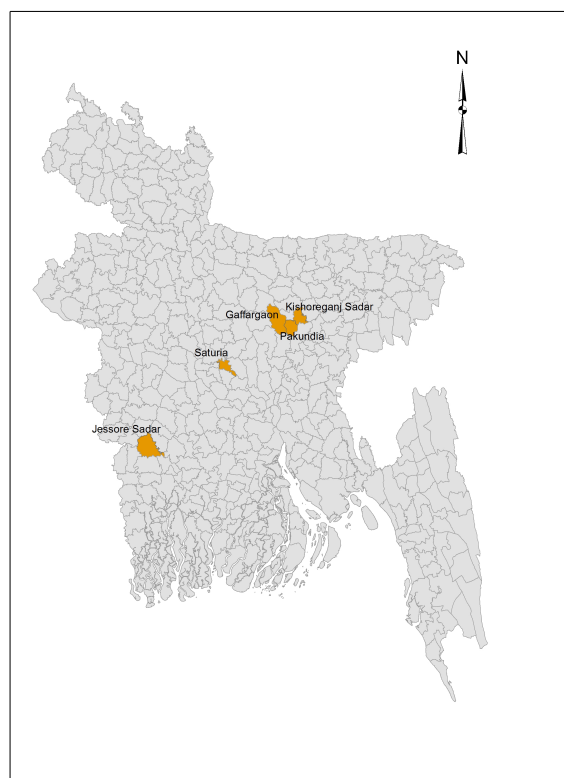


Table 1: Survey rounds in 1996-97

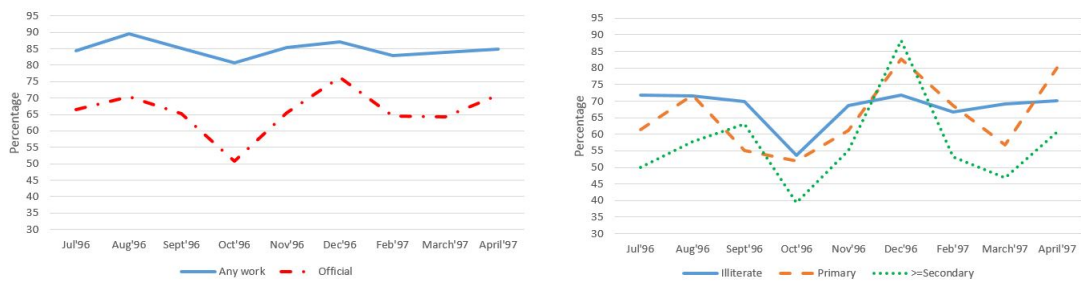
Period	Sample households	Agr season intensity	Local name and crop
Round 1: June-Sept. 1996	956	Low	
Round 2: Oct-Dec. 1996	953	High	Aman Paddy
Round 3: Feb-May 1997	951	Medium	Boro Paddy
Round 4: June-Sept. 1997	948	Low	

Table 2: Summary Statistics

	<i>Married women 15-49 years</i>				<i>Women with children 0-5 years</i>			
	Round 1	Round 2	Round 3	p-val	Round 1	Round 2	Round 3	p-val
Age in years	33	33	34	0.05	28	28	29	0.50
Education in years	1.8	1.8	1.7	0.87	2.1	2.0	1.9	0.79
Height in cms	150	150	150	0.70	150	150	150	0.88
BMI	18.9	18.7	18.7	0.20	18.7	18.4	18.6	0.36
No. of coresident children	2.6	2.6	2.6	0.80	2.7	2.7	2.7	0.84
Pc hh expenditure	654	565	706	0.00	587	498	583	0.00
Price of rice (taka)	10	9	11	0.00	10	9	11	0.00
Price of lentils (taka)	40	41	39	0.00	40	41	39	0.00
Price of hen eggs (taka)	2	3	3	0.00	2	3	3	0.00
Price of fish Rui (taka)	51	42	50	0.00	51	43	51	0.00
Price of fish Puti (taka)	37	22	33	0.00	37	22	34	0.00
Drinking water distance (mtr)	28	17	14	0.00	29	18	16	0.00
Hhs with closed pit latrine (%)	36	36	36	0.89	33	33	33	0.98
Total calories	2287	2203	2362	0.00	2362	2286	2476	0.00
Calories fr staples	1929	1916	1954	0.42	2007	1990	2082	0.10
Calories fr non-staples	358	287	408	0.00	355	296	394	0.00
Dietary diversity score	3.9	3.7	3.8	0.00	3.9	3.7	3.7	0.01
Any work (%)	87	85	84	0.23	84	81	80	0.45
Work (official) (%)	69	66	67	0.59	65	57	62	0.09
Work on own farm (official) (%)	63	61	61	0.55	60	52	56	0.18
HH head in the above households								
HH head age in years	42	43	43	0.21	38	39	39	0.85
HH head edu in years	3.3	3.2	3.2	0.99	3.5	3.4	3.3	0.82
Hh head BMI	18.5	18.4	18.5	0.47	18.4	18.2	18.3	0.28
Hh head total calories	3126	2862	3136	0.00	3172	2926	3178	0.00
Hh head calories fr staples	2516	2397	2476	0.02	2562	2453	2546	0.20
Hh head calories fr non-staples	610	465	659	0.00	610	473	631	0.00
Hh head dietary diversity score	4.2	3.9	4.0	0.00	4.2	3.9	3.9	0.00
Children 6-23 months								
Age in months	14	15		0.13	41	42		0.19
Total calories fr complementary food	338	342		0.92	1064	1072		0.87
Calories fr staples	207	220		0.67	841	859		0.64
Calories fr non-staples	131	122		0.70	223	213		0.63
Dietary diversity score	2.0	2.1		0.49	3.6	3.6		0.36
Boy (%)	52	57		0.49	47	45		0.61
Children 24-59 months								

p-val is the p-value of the ANOVA test for differences in mean across the rounds; For periods corresponding to the three rounds see Table 1.

Figure 2: Labor force participation rate of married women 15-49 years



(a) All women

(b) By education (official)

include estimates for June 1996 and May 1997 because of small sample size

Does not

Figure 3: Time use of married women 15-49 years - Hours, Percentage

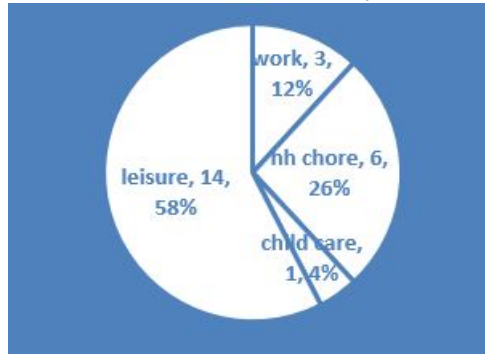


Figure 4: Time use of married women 15-49 years in round 1

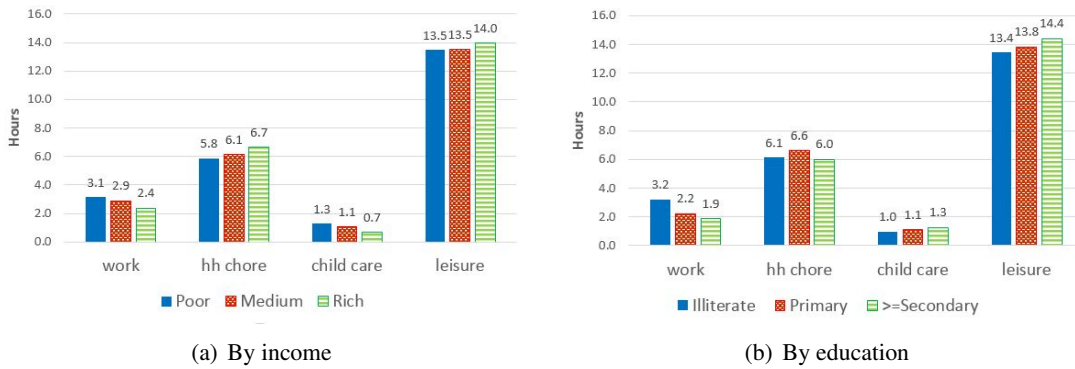


Figure 5: Time use of adult male and females by month

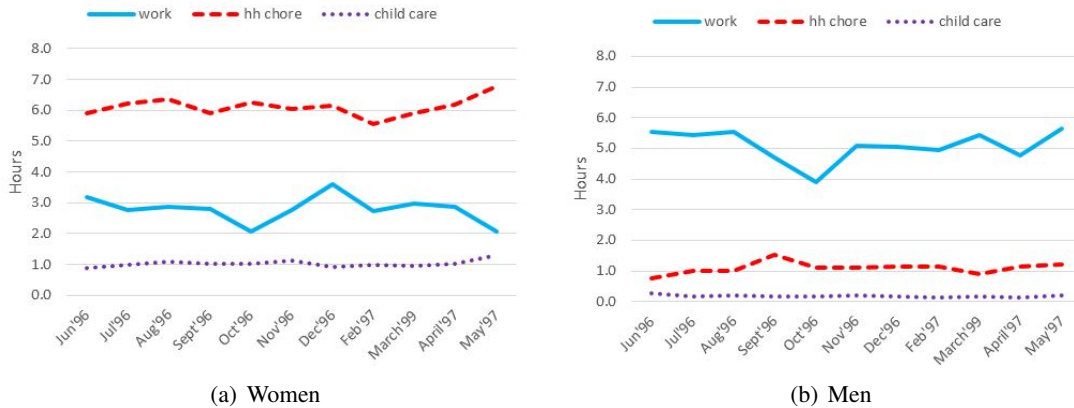
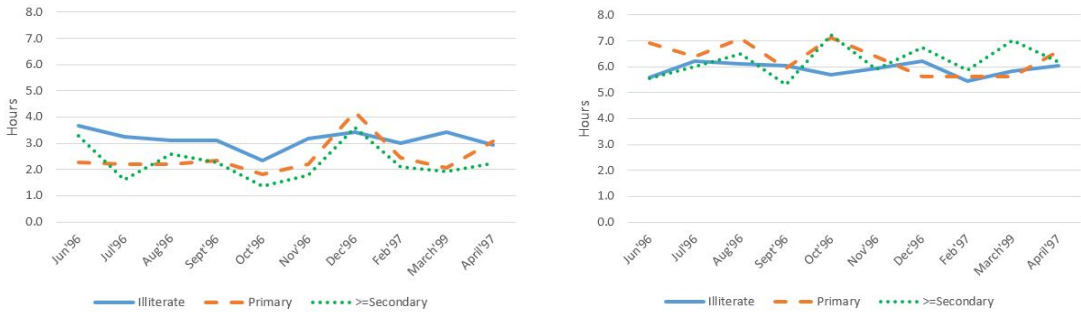


Figure 6: Time spent on work and household chores by married women 15-49 years- by education



(a) work

(b) hh chores

include estimates for May 1997 because of very small sample size

Does not

Figure 7: Difference in time spent on cooking and washing utensils in minutes between the first and second rounds by married women 15-49 years- by education

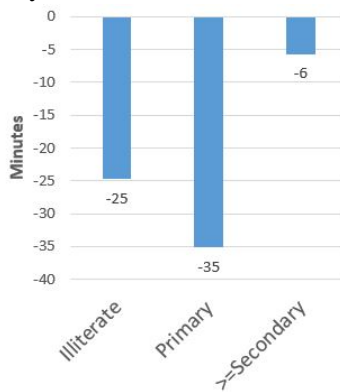
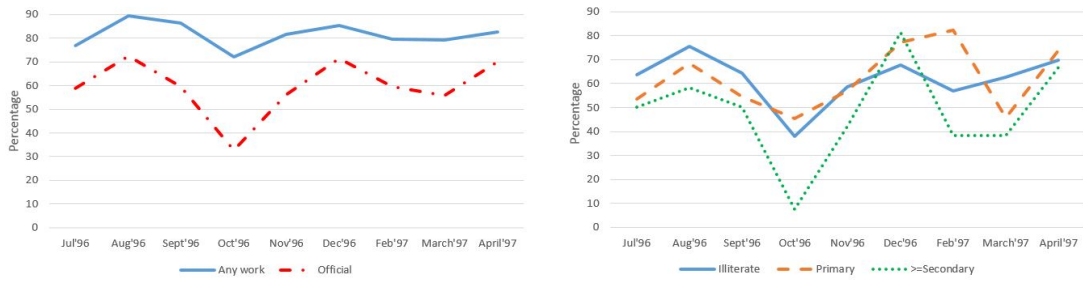


Table 3: ANOVA: Time spent by women in hours and their BMI by round and education

	All				Illiterate				Up to Primary				≥Secondary			
	Rnd 1	Rnd 2	Rnd 3	p-val	Rnd 1	Rnd 2	Rnd 3	p-val	Rnd 1	Rnd 2	Rnd 3	p-val	Rnd 1	Rnd 2	Rnd 3	p-val
A. Women 15-49 years																
Work	2.8	2.9	2.9	0.85	3.2	3.1	3.1	0.89	2.2	2.8	2.5	0.07	2.3	2.3	2.0	0.79
Hh chore	6.2	6.1	5.9	0.11	6.1	6.0	5.8	0.21	6.6	6.2	6.0	0.04	5.9	6.6	6.4	0.21
Cook/wash utensil	4.0	3.6	3.3	0.00	3.8	3.4	3.1	0.00	4.4	3.8	3.6	0.00	4.2	4.1	4.0	0.86
Child care	1.0	1.0	1.0	0.78	1.0	1.0	1.0	0.79	1.1	1.0	1.0	0.76	1.2	1.2	1.0	0.63
Leisure	13.6	13.6	14.0	0.02	13.4	13.6	13.9	0.11	13.8	13.5	14.3	0.05	14.1	14.0	14.4	0.65
BMI	18.9	18.7	18.7	0.20	18.6	18.4	18.5	0.21	19.2	19.1	19.0	0.73	19.5	19.4	19.4	0.96
B. Women 15-49 years with children 0-5 years																
Work	2.5	2.2	2.5	0.32	2.8	2.4	2.7	0.21	2.0	2.4	2.4	0.52	2.0	1.6	1.7	0.66
Hh chore	6.3	6.3	5.9	0.08	6.2	6.2	5.9	0.53	6.8	6.3	5.7	0.01	5.9	6.9	6.4	0.08
Cook/wash utensil	4.1	3.7	3.4	0.00	3.9	3.5	3.4	0.01	4.5	3.8	3.3	0.00	4.1	4.4	4.0	0.61
Child care	2.0	2.0	2.0	0.99	1.9	2.0	2.0	0.76	2.0	1.9	1.8	0.68	2.1	2.1	2.0	0.93
Leisure	13.1	13.1	13.4	0.35	12.9	13.0	13.1	0.83	13.0	12.9	13.9	0.04	13.8	13.5	13.7	0.87
Multitasking childcare	2.7	2.7	2.0	0.00	2.7	2.6	2.2	0.15	2.6	2.9	1.4	0.00	2.7	2.6	2.2	0.71
BMI	18.7	18.4	18.6	0.36	18.3	18.1	18.3	0.31	19.1	19.0	18.9	0.64	19.2	19.2	19.3	0.96

p-val is the p-value of the ANOVA test for differences in mean across the three rounds; For periods corresponding to the three rounds see Table 1.

Figure 8: Labor force participation rate of married women 15-49 years with children 0-5 years



(a) All women

(b) By education (official)

include estimates for June 1996 and May 1997 because of small sample size

Does not

Table 4: Child care time (hours) by number, age, and gender composition of children 0-5 years

No of children 0-5 years	All ages	0-23 mo	24-59 mo	Girl(s)	1 Girl/1 Boy	Boy(s)
1	1.8	2.5	1.3	1.8		1.8
2	2.7			2.4	2.7	3.2

Figure 9: Time use of married women 15-49 years - with & without a child 0-5 years

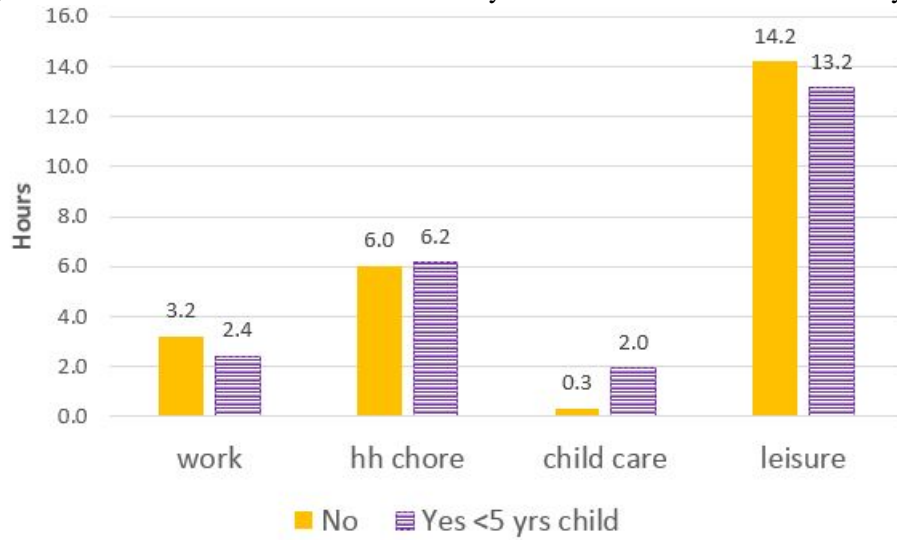
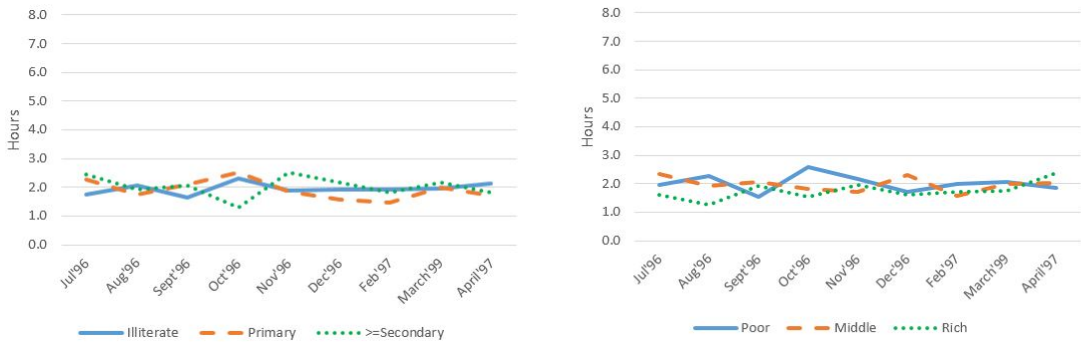


Figure 10: Time spent on exclusive child care by married women 15-49 years with a child 0-5 years - by education and income



(a) By education

(b) By income

include estimates for June 1996 and May 1997 because of very small sample size

Does not

Table 5: Effect of women's time use on their own food intake

A. Women 15-49 years

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.65 (0.24)***	0.44 (0.20)**	0.65 (0.29)**	0.56 (0.25)**	0.59 (0.19)***	0.42 (0.17)**	0.61 (0.23)**	0.54 (0.20)***	0.06 (0.07)	0.03 (0.08)	0.04 (0.08)	0.02 (0.11)	0.0003 (0.0002)	0.0004 (0.0003)	0.0006 (0.0002)**	0.0006 (0.0003)*
Working time	0.15 (0.09)*	-0.02 (0.11)	0.12 (0.10)	-0.03 (0.12)	0.22 (0.08)**	0.10 (0.10)	0.19 (0.09)**	0.10 (0.12)	-0.06 (0.03)**	-0.12 (0.04)***	-0.06 (0.03)**	-0.13 (0.05)***	-0.0001 (0.0001)	-0.0002 (0.0001)**	0.0000 (0.0001)	-0.0002 (0.0001)
Child care time	0.59 (0.20)***	0.10 (0.28)	0.52 (0.21)**	0.11 (0.31)	0.55 (0.17)***	0.15 (0.24)	0.53 (0.18)***	0.16 (0.25)	0.03 (0.06)	-0.05 (0.08)	-0.01 (0.06)	-0.05 (0.08)	-0.0001 (0.0002)	0.0002 (0.0004)	-0.0002 (0.0002)	0.0004 (0.0004)
Observations	2172	2172	1771	1771	2172	2172	1771	1771	2172	2172	1771	1771	2172	2172	1771	1771

B. Women 15-49 years with a child 0-5 years

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	1.15 (0.33)***	0.96 (0.22)***	1.29 (0.38)***	1.21 (0.26)***	0.97 (0.25)***	0.81 (0.20)***	1.15 (0.28)***	0.99 (0.24)***	0.18 (0.12)	0.15 (0.12)	0.14 (0.14)	0.22 (0.15)	0.0005 (0.0003)	0.0001 (0.0004)	0.0006 (0.0004)	0.0002 (0.0005)
Working time	0.39 (0.17)**	0.41 (0.21)*	0.38 (0.19)*	0.50 (0.25)*	0.41 (0.16)**	0.38 (0.19)**	0.41 (0.17)**	0.45 (0.23)*	-0.02 (0.04)	0.03 (0.05)	-0.03 (0.04)	0.05 (0.05)	-0.0001 (0.0002)	-0.0004 (0.0002)*	0.0000 (0.0002)	-0.0003 (0.0003)
Child care time	0.36 (0.23)	0.26 (0.28)	0.37 (0.26)	0.42 (0.25)*	0.32 (0.20)	0.24 (0.24)	0.37 (0.22)	0.37 (0.19)*	0.04 (0.07)	0.02 (0.10)	0.00 (0.08)	0.06 (0.10)	0.0000 (0.0003)	0.0004 (0.0006)	-0.0002 (0.0004)	0.0007 (0.0005)
Observations	936	936	770	770	936	936	770	770	936	936	770	770	936	936	770	770

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; Each column in each panel is a separate regression; OLS regressions contain the following controls: woman's age, woman's education, woman's height, number of coresident children, distance to drinking water, toilet, per capita household expenditure, three district dummies, and two survey round dummies. Fixed effects (FE) regressions contain per capita household expenditure as a control. In both OLS and FE regressions, those with prices contain the prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils.

Table 6: Effect of women's time use on the food intake of the household head

A. Hh head in hhs of women 15-49 years

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.41 (0.21)*	0.33 (0.22)	0.39 (0.23)	0.47 (0.23)**	0.23 (0.16)	0.33 (0.17)*	0.22 (0.18)	0.52 (0.18)***	0.17 (0.11)	0.01 (0.11)	0.17 (0.13)	-0.05 (0.13)	0.0001 -0.0002	0.0000 -0.0003	0.0004 -0.0003	0.0001 -0.0003
Working time	0.04 (0.12)	-0.10 (0.16)	0.06 (0.13)	-0.17 (0.16)	0.06 (0.10)	-0.02 (0.12)	0.07 (0.11)	-0.08 (0.13)	-0.02 (0.07)	-0.08 (0.10)	-0.01 (0.07)	-0.09 (0.12)	-0.0001 -0.0001	-0.0002 -0.0002	0.0000 -0.0001	-0.0001 -0.0002
Child care time	0.04 (0.32)	-0.43 (0.43)	0.20 (0.38)	-0.05 (0.51)	-0.22 (0.28)	-0.47 (0.29)	-0.04 (0.32)	-0.20 (0.34)	0.26 (0.16)	0.04 (0.25)	0.24 (0.17)	0.15 (0.32)	0.0001 -0.0003	0.0002 -0.0005	0.0002 -0.0003	0.0005 -0.0005
Observations	2083	2083	1696	1696	2083	2083	1696	1696	2083	2083	1696	1696	2082	2082	1695	1695

B. Hh head in hhs with a child 0-5 years

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.51 (0.34)	0.67 (0.37)*	0.55 (0.34)	0.76 (0.39)**	0.38 (0.28)	0.50 (0.26)*	0.52 (0.28)*	0.81 (0.26)***	0.14 (0.16)	0.18 (0.21)	0.02 (0.17)	-0.05 (0.23)	0.0001 -0.0003	-0.0001 -0.0004	0.0002 -0.0004	-0.0003 -0.0005
Working time	0.23 (0.20)	0.38 (0.27)	0.32 (0.23)	0.45 (0.31)	0.20 (0.18)	0.30 (0.19)	0.31 (0.21)	0.41 (0.23)*	0.03 (0.09)	0.09 (0.12)	0.01 (0.10)	0.04 (0.12)	-0.0001 -0.0002	-0.0002 -0.0003	0.0001 -0.0002	0.0000 -0.0003
Child care time	0.24 (0.40)	-0.06 (0.51)	0.35 (0.49)	0.24 (0.61)	-0.25 (0.30)	-0.28 (0.33)	-0.06 (0.37)	0.16 (0.37)	0.48 (0.22)**	0.23 (0.28)	0.42 (0.26)	0.09 (0.31)	0.0005 -0.0004	0.0005 -0.0007	0.0003 -0.0004	0.0004 -0.0007
Observations	885	885	728	728	885	885	728	728	885	885	728	728	884	884	727	727

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; Each column in each panel is a separate regression; OLS regressions contain the following controls: household head's age, household head's education, number of coresident children, distance to drinking water, toilet, per capita household expenditure, three district dummies, and two survey round dummies. Fixed effects (FE) regressions contain per capita household expenditure as a control. In both OLS and FE regressions, those with prices contain the prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils.

Table 7: Effect of maternal time use on the food intake of children

A. Children 6-23 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	-0.11 (0.25)	-0.24 (0.26)	-0.06 (0.25)	-0.18 (0.26)	0.07 (0.16)	-0.02 (0.22)	0.18 (0.16)	0.02 (0.28)	-0.18 (0.18)	-0.21 (0.14)	-0.24 (0.20)	-0.21 (0.19)	-0.0017 (0.0008)**	-0.0009 (0.00)	-0.0012 (0.00)	0.0014 (0.00)
Working time	-0.06 (0.10)	-0.04 (0.16)	-0.05 (0.11)	0.09 (0.16)	0.00 (0.06)	0.01 (0.09)	0.03 (0.08)	-0.01 (0.11)	-0.06 (0.08)	-0.05 (0.12)	-0.08 (0.07)	0.10 (0.12)	0.0003 (0.00)	-0.0006 (0.00)	0.0005 (0.00)	0.0007 (0.00)
Child care time	0.12 (0.18)	-0.23 (0.35)	-0.02 (0.22)	-0.36 (0.43)	0.02 (0.16)	0.05 (0.22)	0.03 (0.20)	-0.06 (0.27)	0.10 (0.13)	-0.28 (0.20)	-0.05 (0.15)	-0.31 (0.23)	-0.0010 (0.00)	-0.0017 (0.00)	-0.0019 (0.0006)***(0.0010)***	-0.0038 (0.0006)***(0.0010)***
Observations	250	250	204	204	250	250	204	204	250	250	204	204	250	250	204	204

B. Children 24-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.12 (0.27)	0.33 (0.45)	0.14 (0.31)	0.76 (0.50)	0.21 (0.22)	0.23 (0.34)	0.16 (0.23)	0.77 (0.31)**	-0.08 (0.12)	0.10 (0.19)	-0.02 (0.13)	-0.01 (0.29)	-0.0001 (0.00)	0.0000 (0.00)	-0.0005 (0.00)	-0.0007 (0.00)
Working time	0.08 (0.14)	-0.09 (0.21)	0.15 (0.16)	0.01 (0.28)	0.07 (0.12)	-0.04 (0.18)	0.11 (0.13)	0.08 (0.23)	0.01 (0.06)	-0.05 (0.06)	0.05 (0.06)	-0.07 (0.08)	0.0003 (0.00)	0.0002 (0.00)	0.0003 (0.00)	0.0005 (0.00)
Child care time	-0.04 (0.29)	-0.50 (0.35)	-0.13 (0.28)	-0.90 (0.34)**	-0.16 (0.22)	-0.30 (0.29)	-0.17 (0.23)	-0.58 (0.33)*	0.12 (0.12)	-0.20 (0.11)*	0.03 (0.09)	-0.32 (0.13)**	-0.0006 (0.00)	-0.0010 (0.00)	-0.0012 (0.0006)*	-0.0008 (0.00)
Observations	461	461	380	380	461	461	380	380	461	461	380	380	461	461	380	380

C. Boys 6-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.47 (0.27)*	0.42 (0.43)	0.62 (0.32)*	0.94 (0.50)*	0.32 (0.23)	0.38 (0.31)	0.42 (0.28)	0.87 (0.32)***	0.15 (0.13)	0.05 (0.20)	0.21 (0.14)	0.07 (0.27)	0.0003 (0.00)	-0.0009 (0.00)	0.0000 (0.00)	-0.0005 (0.00)
Working time	0.11 (0.15)	0.25 (0.21)	0.14 (0.16)	0.52 (0.26)*	0.03 (0.14)	0.27 (0.17)	0.07 (0.15)	0.50 (0.22)**	0.08 (0.07)	-0.02 (0.08)	0.07 (0.07)	0.01 (0.11)	0.0002 (0.00)	0.0001 (0.00)	0.0003 (0.00)	0.0010 (0.00)
Child care time	0.00 (0.24)	0.15 (0.27)	-0.07 (0.25)	-0.21 (0.28)	-0.05 (0.18)	0.31 (0.21)	-0.01 (0.22)	-0.01 (0.20)	0.05 (0.12)	-0.16 (0.11)	-0.06 (0.10)	-0.21 (0.13)	-0.0005 (0.00)	-0.0016 (0.00)	-0.0017 (0.001)***	-0.0027 (0.001)***(0.001)**
Observations	351	351	294	294	351	351	294	294	351	351	294	294	351	351	294	294

D. Girls 6-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	-0.38 (0.29)	-0.12 (0.32)	-0.52 (0.35)	-0.23 (0.29)	-0.10 (0.24)	-0.06 (0.26)	-0.24 (0.28)	-0.03 (0.18)	-0.28 (0.14)*	-0.06 (0.15)	-0.28 (0.17)*	-0.20 (0.20)	-0.0013 (0.0007)*	-0.0001 (0.00)	-0.0013 (0.00)	-0.0001 (0.00)
Working time	-0.05 (0.13)	-0.25 (0.19)	-0.06 (0.15)	-0.14 (0.21)	0.05 (0.10)	-0.20 (0.15)	0.02 (0.11)	-0.13 (0.15)	-0.10 (0.06)	-0.06 (0.09)	-0.08 (0.06)	-0.01 (0.11)	0.0004 (0.00)	-0.0002 (0.00)	0.0004 (0.00)	-0.0002 (0.00)
Child care time	-0.14 (0.32)	-0.89 (0.38)**	-0.32 (0.34)	-1.07 (0.34)***	-0.28 (0.22)	-0.65 (0.34)*	-0.37 (0.25)	-0.81 (0.33)**	0.13 (0.14)	-0.24 (0.22)	0.05 (0.13)	-0.27 (0.26)	-0.0014 (0.0007)*	-0.0009 (0.00)	-0.0019 (0.0008)**	-0.0003 (0.00)
Observations	360	360	290	290	360	360	290	290	360	360	290	290	360	360	290	290

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; Each column in each panel is a separate regression; OLS regressions contain the following controls: child's age in months, mother's education, mother's age, mother's height, household head's age and education, distance to drinking water, toilet, per capita household expenditure, three district dummies, and one survey round dummy. Fixed effects (FE) regressions contain per capita household expenditure as a control. In both OLS and FE regressions, those with prices contain the prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils.

Table 8: Effect of maternal time use on the percentage of required calories consumed by children

Children 6-23 months

	Percentage of required calories			
	Without prices		With Prices	
	OLS	FE	OLS	FE
Cooking time	-0.02 (0.04)	0.01 (0.04)	-0.01 (0.04)	-0.02 (0.04)
Working time	-0.02 (0.02)	0.01 (0.02)	-0.02 (0.02)	0.00 (0.02)
Child care time	0.00 (0.03)	-0.01 (0.05)	-0.02 (0.04)	-0.02 (0.06)
Observations	245	245	201	201

Children 24-59 months

	Percentage of required calories			
	Without prices		With Prices	
	OLS	FE	OLS	FE
Cooking time	0.01 (0.02)	0.04 (0.04)	0.01 (0.02)	0.08 (0.04)*
Working time	0.01 (0.01)	0.00 (0.02)	0.01 (0.01)	0.00 (0.02)
Child care time	0.00 (0.02)	-0.04 (0.03)	0.00 (0.02)	-0.07 (0.02)***
Observations	445	445	364	364

Boys 6-59 months

	Percentage of required calories			
	Without prices		With Prices	
	OLS	FE	OLS	FE
Cooking time	0.08 (0.03)**	0.06 (0.04)	0.08 (0.04)**	0.08 (0.05)
Working time	0.01 (0.02)	0.02 (0.02)	0.01 (0.02)	0.04 (0.02)*
Child care time	0.00 (0.03)	0.00 (0.03)	-0.01 (0.03)	-0.03 (0.04)
Observations	339	339	282	282

Girls 6-59 months

	Percentage of required calories			
	Without prices		With Prices	
	OLS	FE	OLS	FE
Cooking time	-0.04 (0.03)	-0.01 (0.03)	-0.05 (0.04)	-0.03 (0.03)
Working time	-0.01 (0.01)	-0.01 (0.02)	-0.01 (0.02)	0.01 (0.02)
Child care time	0.02 (0.03)	-0.05 (0.03)	0.01 (0.03)	-0.05 (0.04)
Observations	351	351	283	283

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; The calculations for percentage of required calories took into account calories from breastmilk; Each column in each panel is a separate regression; OLS regressions contain the following controls: child's age in months, mother's education, mother's age, mother's height, household head's age and education, distance to drinking water, toilet, per capita household expenditure, three district dummies, and one survey round dummy. Fixed effects (FE) regressions contain per capita household expenditure as a control. In both OLS and FE regressions, those with prices contain the prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils.

Table 9: Effect of maternal time use, including multi-tasking child care, on the food intake of children

Children 6-23 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	-0.17 (0.26)	-0.19 (0.26)	-0.11 (0.25)	-0.13 (0.25)	0.02 (0.17)	0.00 (0.24)	0.13 (0.17)	0.07 (0.28)	-0.19 (0.18)	-0.19 (0.15)	-0.23 (0.20)	-0.20 (0.19)	-0.0020 (0.0009)**	-0.0011 (0.00)	-0.0013 (0.00)	0.0014 (0.00)
Working time	-0.15 (0.12)	0.09 (0.21)	-0.10 (0.12)	0.25 (0.20)	-0.07 (0.09)	0.07 (0.15)	-0.03 (0.10)	0.13 (0.18)	-0.07 (0.09)	0.01 (0.14)	-0.08 (0.08)	0.12 (0.14)	0.0000 (0.00)	-0.0011 (0.00)	0.0004 (0.00)	0.0006 (0.00)
Child care time	0.13 (0.17)	-0.23 (0.35)	-0.01 (0.21)	-0.37 (0.43)	0.03 (0.15)	0.05 (0.22)	0.04 (0.19)	-0.07 (0.27)	0.10 (0.13)	-0.28 (0.19)	-0.05 (0.16)	-0.31 (0.23)	-0.0010 (0.00)	-0.0017 (0.00)	-0.0019 (0.0006)***	-0.0038 (0.0010)***
Multitasking time	0.14 (0.10)	-0.22 (0.19)	0.09 (0.09)	-0.29 (0.20)	0.11 (0.07)	-0.11 (0.16)	0.09 (0.08)	-0.26 (0.20)	0.03 (0.07)	-0.11 (0.13)	0.00 (0.05)	-0.03 (0.11)	0.0005 (0.00)	0.0008 (0.00)	0.0002 (0.00)	0.0002 (0.00)
Observations	250	250	204	204	250	250	204	204	250	250	204	204	250	250	204	204

Children 24-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.22 (0.29)	0.38 (0.46)	0.22 (0.32)	0.81 (0.52)	0.25 (0.24)	0.27 (0.35)	0.20 (0.25)	0.82 (0.33)**	-0.03 (0.12)	0.10 (0.20)	0.02 (0.13)	-0.01 (0.30)	0.0002 (0.00)	0.0001 (0.00)	-0.0002 (0.00)	-0.0005 (0.00)
Working time	0.15 (0.15)	-0.03 (0.21)	0.20 (0.16)	0.05 (0.28)	0.10 (0.13)	0.02 (0.17)	0.13 (0.13)	0.13 (0.23)	0.05 (0.07)	-0.05 (0.07)	0.07 (0.07)	-0.07 (0.09)	0.0005 (0.0003)*	0.0004 (0.00)	0.0005 (0.00)	0.0007 (0.00)
Child care time	0.02 (0.30)	-0.46 (0.34)	-0.06 (0.28)	-0.84 (0.33)**	-0.14 (0.23)	-0.26 (0.29)	-0.13 (0.23)	-0.53 (0.31)*	0.15 (0.13)	-0.20 (0.11)*	0.07 (0.08)	-0.32 (0.12)**	-0.0004 (0.00)	-0.0009 (0.00)	-0.0009 (0.00)	-0.0006 (0.00)
Multitasking time	-0.28 (0.17)	-0.26 (0.20)	-0.31 (0.20)	-0.29 (0.26)	-0.12 (0.12)	-0.26 (0.18)	-0.16 (0.15)	-0.30 (0.22)	-0.16 (0.09)*	-0.01 (0.10)	-0.14 (0.08)	0.01 (0.13)	-0.0010 (0.0004)***	-0.0009 (0.0005)*	-0.0013 (0.0004)***	-0.0010 (0.0005)*
Observations	461	461	380	380	461	461	380	380	461	461	380	380	461	461	380	380

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; Each column in each panel is a separate regression; OLS regressions contain the following controls: child's age in months, mother's education, mother's age, mother's height, household head's age and education, distance to drinking water, toilet, per capita household expenditure, three district dummies, and one survey round dummy. Fixed effects (FE) regressions contain per capita household expenditure as a control. In both OLS and FE regressions, those with prices contain the prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils.

Table 10: Effect of maternal time use, including multi-tasking child care, on the food intake of boys and girls

Boys 6-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.51 (0.31)	0.52 (0.45)	0.66 (0.37)*	1.03 (0.53)*	0.33 (0.26)	0.46 (0.32)	0.41 (0.30)	0.94 (0.35)**	0.19 (0.14)	0.06 (0.21)	0.25 (0.16)	0.09 (0.28)	0.0005 (0.00)	-0.0007 (0.00)	0.0002 (0.00)	-0.0003 (0.00)
Working time	0.14 (0.15)	0.38 (0.21)*	0.17 (0.15)	0.67 (0.27)**	0.03 (0.14)	0.38 (0.19)**	0.07 (0.14)	0.62 (0.25)**	0.11 (0.08)	0.00 (0.09)	0.10 (0.09)	0.05 (0.12)	0.0003 (0.00)	0.0004 (0.00)	0.0005 (0.00)	0.0013 (0.0007)*
Child care time	0.01 (0.24)	0.19 (0.27)	-0.05 (0.25)	-0.18 (0.27)	-0.05 (0.18)	0.34 (0.21)	-0.01 (0.22)	0.02 (0.20)	0.06 (0.13)	-0.15 (0.11)	-0.04 (0.12)	-0.20 (0.12)	-0.0005 (0.00)	-0.0015 (0.00)	-0.0015 (0.0006)**	-0.0026 (0.0012)**
Multitasking time	-0.10 (0.20)	-0.37 (0.21)*	-0.10 (0.24)	-0.51 (0.27)*	-0.01 (0.13)	-0.31 (0.20)	0.01 (0.17)	-0.38 (0.26)	-0.09 (0.11)	-0.06 (0.08)	-0.11 (0.11)	-0.13 (0.10)	-0.0003 (0.00)	-0.0008 (0.00)	-0.0006 (0.00)	-0.0011 (0.0005)**
Observations	351	351	294	294	351	351	294	294	351	351	294	294	351	351	294	294

Girls 6-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	-0.31 (0.30)	-0.11 (0.32)	-0.46 (0.36)	-0.23 (0.29)	-0.06 (0.25)	-0.05 (0.26)	-0.20 (0.29)	-0.03 (0.19)	-0.25 (0.14)*	-0.06 (0.15)	-0.26 (0.16)	-0.20 (0.20)	-0.0012 (0.0007)*	-0.0001 (0.00)	-0.0012 (0.00)	-0.0001 (0.00)
Working time	0.04 (0.15)	-0.19 (0.19)	0.01 (0.16)	-0.12 (0.22)	0.10 (0.11)	-0.15 (0.14)	0.07 (0.12)	-0.09 (0.15)	-0.06 (0.06)	-0.05 (0.09)	-0.06 (0.06)	-0.04 (0.11)	0.0005 (0.00)	-0.0002 (0.00)	0.0006 (0.00)	-0.0001 (0.00)
Child care time	-0.11 (0.31)	-0.88 (0.37)**	-0.29 (0.33)	-1.06 (0.34)**	-0.25 (0.22)	-0.64 (0.33)*	-0.35 (0.25)	-0.79 (0.31)**	0.15 (0.13)	-0.24 (0.22)	0.06 (0.13)	-0.27 (0.25)	-0.0013 (0.0007)*	-0.0009 (0.00)	-0.0018 (0.0008)**	-0.0003 (0.00)
Multitasking time	-0.24 (0.13)*	-0.22 (0.17)	-0.23 (0.15)	-0.10 (0.21)	-0.14 (0.10)	-0.18 (0.13)	-0.15 (0.12)	-0.20 (0.15)	-0.10 (0.08)	-0.04 (0.12)	-0.08 (0.07)	0.10 (0.12)	-0.0002 (0.00)	0.0000 (0.00)	-0.0004 (0.00)	-0.0001 (0.00)
Observations	360	360	290	290	360	360	290	290	360	360	290	290	360	360	290	290

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; Each column in each panel is a separate regression; OLS regressions contain the following controls: child's age in months, mother's education, mother's age, mother's height, household head's age and education, distance to drinking water, toilet, per capita household expenditure, three district dummies, and one survey round dummy. Fixed effects (FE) regressions contain per capita household expenditure as a control. In both OLS and FE regressions, those with prices contain the prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils.

A APPENDIX

Table A.1: Effect of women's time use on their own food intake with instrumental variables

Women 15-49 years

	Total calories			Calories from staples			Calories from non-staples			Dietary diversity score		
	OLS	FE	2SLS	OLS	FE	2SLS	OLS	FE	2SLS	OLS	FE	2SLS
Cooking time	0.65 (0.29)**	0.56 (0.25)**	2.41 (4.40)	0.61 (0.23)**	0.54 (0.20)***	-0.62 (3.26)	0.04 (0.08)	0.02 (0.11)	3.03 (2.95)	0.0006 (0.0002)**	0.0006 (0.0003)*	0.0173 (0.01)
Working time	0.12 (0.10)	-0.03 (0.12)	2.95 (2.06)	0.19 (0.09)**	0.10 (0.12)	0.10 (1.92)	-0.06 (0.03)**	-0.13 (0.05)***	2.85 (1.40)**	0.0000 (0.0001)	-0.0002 (0.0001)	0.0079 (0.00)
Child care time	0.52 (0.21)**	0.11 (0.31)	2.74 (1.48)*	0.53 (0.18)***	0.16 (0.25)	2.09 (1.18)*	-0.01 (0.06)	-0.05 (0.08)	0.66 (1.01)	-0.0002 (0.0002)	0.0004 (0.0004)	-0.0015 (0.00)
Observations	1771	1771	1,659	1771	1771	1,659	1771	1771	1,659	1771	1771	1,659

Women 15-49 years with a child 0-5 years

	Total calories			Calories from staples			Calories from non-staples			Dietary diversity score		
	OLS	FE	2SLS	OLS	FE	2SLS	OLS	FE	2SLS	OLS	FE	2SLS
Cooking time	1.29 (0.38)***	1.21 (0.26)***	13.89 (73.02)	1.15 (0.28)***	0.99 (0.24)***	-5.03 (28.29)	0.14 (0.14)	0.22 (0.15)	18.93 (93.91)	0.0006 (0.0004)	0.0002 (0.0005)	0.0698 (0.31)
Working time	0.38 (0.19)*	0.50 (0.25)*	3.77 (14.95)	0.41 (0.17)**	0.45 (0.23)*	1.76 (4.77)	-0.03 (0.04)	0.05 (0.05)	2.01 (18.63)	0.0000 (0.0002)	-0.0003 (0.0003)	0.0020 (0.06)
Child care time	0.37 (0.26)	0.42 (0.25)*	-24.17 (118.57)	0.37 (0.22)	0.37 (0.19)*	5.37 (44.49)	0.00 (0.08)	0.06 (0.10)	-29.54 (151.58)	-0.0002 (0.0004)	0.0007 (0.0005)	-0.1014 (0.51)
Observations	770	770	770	770	770	770	770	770	770	770	770	770

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; Each column in each panel is a separate regression; OLS regressions contain the following controls: woman's age, woman's education, woman's height, number of coresident children, distance to drinking water, toilet, per capita household expenditure, three district dummies, and two survey round dummies. Fixed effects (FE) regressions contain per capita household expenditure as a control. All regressions include prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils. We instrument for cooking time by the number of girls 11-14 years in the household, working time by the average distance to the farm plot, and child care time by the number of children 0-5 years. The test for weak instruments is not rejected.

Table A.2: Effect of maternal time use on the food intake of children controlling for household composition

A. Children 6-23 months								
	Total calories		Calories from staples		Calories from non-staples		Dietary diversity score	
	no hh comp	hh comp	no hh comp	hh comp	no hh comp	hh comp	no hh comp	hh comp
Cooking time	-0.06 (0.25)	-0.02 (0.24)	0.18 (0.16)	0.19 (0.16)	-0.24 (0.20)	-0.20 (0.19)	-0.0012 (0.00)	-0.0014 (0.00)
Working time	-0.05 (0.11)	-0.05 (0.11)	0.03 (0.08)	0.02 (0.09)	-0.08 (0.07)	-0.07 (0.07)	0.0005 (0.00)	0.0004 (0.00)
Child care time	-0.02 (0.22)	0.00 (0.23)	0.03 (0.20)	0.06 (0.21)	-0.05 (0.15)	-0.05 (0.16)	-0.0019 (0.0006)***	-0.0017 (0.0007)**
Observations	204	204	204	204	204	204	204	204
B. Children 24-59 months								
	Total calories		Calories from staples		Calories from non-staples		Dietary diversity score	
	no hh comp	hh comp	no hh comp	hh comp	no hh comp	hh comp	no hh comp	hh comp
Cooking time	0.14 (0.31)	0.16 (0.30)	0.16 (0.23)	0.17 (0.24)	-0.02 (0.13)	-0.01 (0.12)	-0.0005 (0.00)	-0.0005 (0.00)
Working time	0.15 (0.16)	0.16 (0.16)	0.11 (0.13)	0.11 (0.13)	0.05 (0.06)	0.05 (0.06)	0.0003 (0.00)	0.0003 (0.00)
Child care time	-0.13 (0.28)	-0.10 (0.26)	-0.17 (0.23)	-0.14 (0.22)	0.03 (0.09)	0.05 (0.08)	-0.0012 (0.0006)*	-0.0012 (0.0007)*
Observations	380	380	380	380	380	380	380	380
C. Boys 6-59 months								
	Total calories		Calories from staples		Calories from non-staples		Dietary diversity score	
	no hh comp	hh comp	no hh comp	hh comp	no hh comp	hh comp	no hh comp	hh comp
Cooking time	0.62 (0.32)*	0.69 (0.34)*	0.42 (0.28)	0.47 (0.29)	0.21 (0.14)	0.22 (0.15)	0.0000 (0.00)	0.0000 (0.00)
Working time	0.14 (0.16)	0.10 (0.16)	0.07 (0.15)	0.05 (0.14)	0.07 (0.07)	0.06 (0.07)	0.0003 (0.00)	0.0002 (0.00)
Child care time	-0.07 (0.25)	-0.10 (0.24)	-0.01 (0.22)	-0.04 (0.21)	-0.06 (0.10)	-0.06 (0.10)	-0.0017 (0.001)***	-0.0017 (0.0006)***
Observations	294	294	294	294	294	294	294	294
D. Girls 6-59 months								
	Total calories		Calories from staples		Calories from non-staples		Dietary diversity score	
	no hh comp	hh comp	no hh comp	hh comp	no hh comp	hh comp	no hh comp	hh comp
Cooking time	-0.52 (0.35)	-0.52 (0.35)	-0.24 (0.28)	-0.27 (0.28)	-0.28 (0.17)*	-0.25 (0.16)	-0.0013 (0.00)	-0.0013 (0.00)
Working time	-0.06 (0.15)	-0.07 (0.15)	0.02 (0.11)	0.00 (0.12)	-0.08 (0.06)	-0.07 (0.07)	0.0004 (0.00)	0.0005 (0.00)
Child care time	-0.32 (0.34)	-0.37 (0.33)	-0.37 (0.25)	-0.45 (0.25)*	0.05 (0.13)	0.07 (0.13)	-0.0019 (0.0008)**	-0.0018 (0.0008)**
Observations	290	290	290	290	290	290	290	290

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; Each column in each panel is a separate OLS regression; *no hh comp* indicates regressions with no controls for household composition; *hh comp* indicate regressions with controls for household composition; Each Regression contains the following controls: woman's age, woman's education, woman's height, number of coresident children, distance to drinking water, toilet, per capita household expenditure, three district dummies, two survey round dummies, and prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils. The household composition control variables are: number of males 15-55 years, number of females 15-55 years, number of girls 6-10 years, and number of girls 11-14 years

Table A.3: Effect of maternal time use on the food intake of children controlling for morbidity

A. Children 6-23 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	-0.11 (0.25)	-0.23 (0.26)	-0.06 (0.25)	-0.16 (0.23)	0.06 (0.15)	0.01 (0.21)	0.18 (0.16)	0.05 (0.24)	-0.17 (0.17)	-0.24 (0.17)	-0.23 (0.19)	-0.21 (0.20)	-0.0018 (0.0009)*	-0.0004 (0.00)	-0.0012 (0.00)	0.0017 (0.00)
Working time	-0.06 (0.10)	-0.04 (0.15)	-0.04 (0.10)	0.08 (0.16)	-0.02 (0.06)	0.00 (0.10)	0.01 (0.08)	-0.03 (0.11)	-0.04 (0.08)	-0.04 (0.11)	-0.05 (0.07)	0.10 (0.12)	0.0002 (0.00)	-0.0007 (0.00)	0.0003 (0.00)	0.0005 (0.00)
Child care time	0.12 (0.18)	-0.23 (0.35)	-0.02 (0.22)	-0.34 (0.44)	0.04 (0.15)	0.06 (0.23)	0.04 (0.19)	-0.03 (0.27)	0.08 (0.13)	-0.29 (0.19)	-0.06 (0.15)	-0.31 (0.23)	-0.0010 (0.00)	-0.0016 (0.00)	-0.0018 (0.0007)**	-0.0036 (0.0010)***
Observations	250	250	204	204	250	250	204	204	250	250	204	204	250	250	204	204

B. Children 24-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.13 (0.26)	0.33 (0.45)	0.14 (0.31)	0.78 (0.50)	0.21 (0.22)	0.23 (0.34)	0.16 (0.24)	0.79 (0.31)**	-0.08 (0.12)	0.10 (0.19)	-0.02 (0.13)	-0.01 (0.29)	-0.0001 (0.00)	0.0000 (0.00)	-0.0006 (0.00)	-0.0007 (0.00)
Working time	0.08 (0.14)	-0.08 (0.21)	0.15 (0.16)	0.01 (0.28)	0.08 (0.12)	-0.03 (0.17)	0.10 (0.14)	0.08 (0.23)	0.01 (0.06)	-0.05 (0.06)	0.05 (0.06)	-0.07 (0.08)	0.0003 (0.00)	0.0002 (0.00)	0.0003 (0.00)	0.0005 (0.00)
Child care time	-0.03 (0.30)	-0.52 (0.35)	-0.14 (0.28)	-0.92 (0.33)***	-0.15 (0.23)	-0.33 (0.29)	-0.17 (0.24)	-0.60 (0.32)*	0.12 (0.12)	-0.19 (0.12)*	0.03 (0.09)	-0.31 (0.13)**	-0.0007 (0.00)	-0.0010 (0.00)	-0.0013 (0.0007)*	-0.0008 (0.00)
Observations	461	461	380	380	461	461	380	380	461	461	380	380	461	461	380	380

C. Boys 6-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	0.47 (0.27)*	0.42 (0.43)	0.62 (0.32)*	0.96 (0.51)*	0.32 (0.23)	0.38 (0.31)	0.41 (0.27)	0.89 (0.34)**	0.15 (0.13)	0.04 (0.20)	0.20 (0.14)	0.07 (0.27)	0.0003 (0.00)	-0.0009 (0.00)	-0.0001 (0.00)	-0.0005 (0.00)
Working time	0.11 (0.15)	0.25 (0.20)	0.13 (0.16)	0.52 (0.25)**	0.03 (0.14)	0.27 (0.17)	0.06 (0.15)	0.51 (0.22)**	0.08 (0.07)	-0.02 (0.08)	0.07 (0.07)	0.01 (0.11)	0.0002 (0.00)	0.0001 (0.00)	0.0003 (0.00)	0.0010 (0.00)
Child care time	0.00 (0.24)	0.13 (0.26)	-0.09 (0.24)	-0.25 (0.27)	-0.05 (0.18)	0.30 (0.21)	-0.03 (0.21)	-0.03 (0.20)	0.05 (0.12)	-0.17 (0.11)	-0.06 (0.10)	-0.22 (0.12)*	-0.0005 (0.00)	-0.0014 (0.00)	-0.0018 (0.0006)***	-0.0026 (0.0012)**
Observations	351	351	294	294	351	351	294	294	351	351	294	294	351	351	294	294

D. Girls 6-59 months

	Total calories				Calories from staples				Calories from non-staples				Dietary diversity score			
	Without prices		With Prices		Without prices		With Prices		Without prices		With Prices		Without prices		With Prices	
	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE	OLS	FE
Cooking time	-0.37 (0.29)	-0.13 (0.32)	-0.52 (0.35)	-0.22 (0.28)	-0.10 (0.24)	-0.07 (0.26)	-0.24 (0.28)	-0.03 (0.18)	-0.27 (0.1416)*	-0.06 (0.14)	-0.27 (0.16)	-0.20 (0.20)	-0.0013 (0.0007)*	0.0000 (0.00)	-0.0014 (0.0008)*	-0.0001 (0.00)
Working time	-0.05 (0.13)	-0.25 (0.18)	-0.06 (0.15)	-0.15 (0.21)	0.05 (0.10)	-0.19 (0.14)	0.02 (0.11)	-0.13 (0.15)	-0.10 (0.06)	-0.06 (0.09)	-0.08 (0.06)	-0.02 (0.11)	0.0004 (0.00)	-0.0003 (0.00)	0.0004 (0.00)	-0.0002 (0.00)
Child care time	-0.15 (0.32)	-0.89 (0.38)**	-0.32 (0.34)	-1.08 (0.34)***	-0.28 (0.22)	-0.65 (0.34)*	-0.37 (0.25)	-0.81 (0.33)**	0.13 (0.13)	-0.24 (0.22)	0.05 (0.13)	-0.27 (0.26)	-0.0013 (0.0008)*	-0.0010 (0.00)	-0.0020 (0.0008)**	-0.0004 (0.00)
Observations	360	360	290	290	360	360	290	290	360	360	290	290	360	360	290	290

Standard errors in parenthesis clustered at the village level; * significant at 10%; ** significant at 5%; *** significant at 1%; Each column in each panel is a separate regression; Each regression controls for the number of days a child is sick in the last 2 weeks; OLS regressions contain the following controls: child's age in months, mother's education, mother's age, mother's height, household head's age and education, distance to drinking water, toilet, per capita household expenditure, three district dummies, and one survey round dummy. Fixed effects (FE) regressions contain per capita household expenditure as a control. In both OLS and FE regressions, those with prices contain the prices of rice, lentils, egg hens, large fish *Rui*, and small fish *Puti*. Cooking time also includes time spent on washing utensils.

B Nutrient Intake

We use measures of both quantity and quality of food. We use calories from staples as an indicator of quantity of food consumed by children. For dietary quality we use two different kinds of measures:

1. **Calories from non-staples** - Calories from *all* other food, except cereals, is defined as calories from non-staples. A higher value of percentage of calories from staples indicates lower diet quality, because energy-dense starchy staples have small amounts of bioavailable protein and micronutrients (Smith and Subandoro (2007)). People consuming large amounts of these foods are relatively more vulnerable to protein and micronutrient deficiencies.
2. **Dietary diversity score (DDS7)** - DDS is increasingly being used as an indicator of diet quality (Arimond and Ruel (2004)). We define this indicator using seven food groups: grains, roots, and tubers; legumes and nuts; dairy products; flesh foods (meats, fish, poultry, and liver/organ meats); eggs; vitamin A-rich fruits and vegetables (>130 retinol equivalents/100gm); other fruits and vegetables. A score of 1 is assigned if a person ate one or more foods from a given food group and 0 if not. These values are then summed up for all food groups with a range of 0-7.

Total calories is a sum of calories from staples and calories from non-staples. For children, in addition to the above measures, we use the percentage of required calories consumed as another measure of food intake.