Article

Underweight and Pregnant: Designing Universal Maternity Entitlements to Improve Health

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Abstract

Poor maternal nutrition in India is a major cause for concern. The depth of India's maternal nutrition problems is evident in its high neonatal mortality, widespread underweight pre-pregnancy, low weight gain during pregnancy and high rates of maternal anaemia. Poor maternal nutrition has negative consequences for the health and economic productivity for the next generation. Existing government programmes are insufficient to address widespread maternal malnutrition. With the passage of the National Food Security Act, which legislates a universal maternity entitlement, the government has a new opportunity to address poor maternal nutrition. This article posits that maternity entitlements should be used to encourage weight gain during pregnancy, and discusses the promise of such a programme as well as its potential limitations. It also recommends ways of designing and administering a maternity entitlements programme that would improve its chances for success.

Keywords

Maternal health, nutrition, pregnancy, underweight, cash entitlements, policy design

Introduction

In India, inadequate nutrition during pregnancy is not isolated among the rural population or among the poor. It is a widespread problem that affects women in both urban and rural areas, and better off women as well as poor women. India's performance on maternal nutrition indicators is also far worse than other countries with similar levels of economic development.

In this article, we present several pieces of evidence to show that maternal malnutrition is a topic of broad concern. We further show that existing government programmes are not adequately adressing the problem of poor maternal nutrition. Then, we turn to an analysis of the universal maternity entitlements

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scheme legislated by the National Food Security Act (NFSA) of 2013. Although a pilot maternity entitlements scheme, known as the Indira Gandhi Matritva Sahyog Yojana (IGMSY), was started in 53 districts in 2010, there has been no expansion of the programme beyond the initial districts. Only two states, Tamil Nadu and Orissa, currently offer a maternity entitlement programme similar to the one described in the NFSA.

The NFSA specifies that 'every pregnant woman and lactating mother shall be entitled to maternity benefit of not less than rupees 6000, in such installments as may be prescribed by the Central Government'. At present, these maternity entitlements have not been planned, budgeted for or implemented. We argue that a careful plan to implement maternity entitlements should be made, and that this plan should consider how maternity entitlements can be used to promote weight gain during pregnancy. Although there are many potential obstacles to using maternity entitlements to improve weight gain during pregnancy, not the least of which is severe intrahousehold discrimination against young women, an unconditional cash transfer given early in pregnancy, combined with educational messages about the importance of weight gain during pregnancy, would be worth the government's investment.

Underweight and Pregnant in India

Evidence on the depth of maternal malnutrition. In this section, we show that pregnant women in India are extremely undernourished, not only relative to rich country standards, but also relative to other poor countries. India's poor maternal nutrition is evidenced by a high neonatal mortality rate, low pre-pregnancy body mass, poor weight gain during pregnancy and a high rate of anaemia.

The neonatal mortality rate, or the fraction of infants who die in the first month of life, is an important indicator of maternal health and nutrition. This is because a leading cause of neonatal death is low birth weight (Bassani et al., 2010), which is related to low pre-pregnancy body mass and low weight gain during pregnancy. Women who begin pregnancy too thin and who do not gain enough weight during pregnancy are far more likely to have low birth weight babies than those who have better nutrition during pregnancy.

India's neonatal mortality rate is very high relative to its level of economic development, which suggests that maternal nutrition in India is very poor relative to economic development as well. Figure 1 shows that India's rate of NNM is far higher than what is predicted by its per capita GDP, a measure of its economic development. We use data from the World Bank's World Development Indicators to plot the log of GDP per capita against the neonatal mortality rate for 181 countries in 2014. The relationship is approximately linear and a 'best fit' line suggesting that doubling GDP per capita is associated with a 6.3 per 1, 000 reduction in NNM.

The best-fit line in Figure 1 predicts a neonatal mortality rate for India, given its GDP per capita, of 22.4 deaths per 100 live births. But India's true neonatal mortality rate in 2013 was 29.2, which is 30 per cent higher than what is predicted by the model.[1] Indeed, the percentage point difference between India's predicted neonatal mortality rate and its actual neonatal mortality rate is about 90 per cent of the total neonatal mortality rate for China in 2013, which was only 7.7. Furthermore, in 2013, in India, neonatal deaths accounted for a very high fraction of infant deaths overall: over 70 per cent of infant deaths occur in the first month of life.

India's extremely high levels of NNM (neonatal mortality) from low birth weight points to poor maternal nutrition before and during pregnancy. Two of the most important determinants of low birth weight are whether a woman is underweight before pregnancy and how much weight she gains during pregnancy. Unfortunately, India has no monitoring system to measure these important indicators in real time. In the absence of longitudinal monitoring of women who become pregnant, one way to estimate

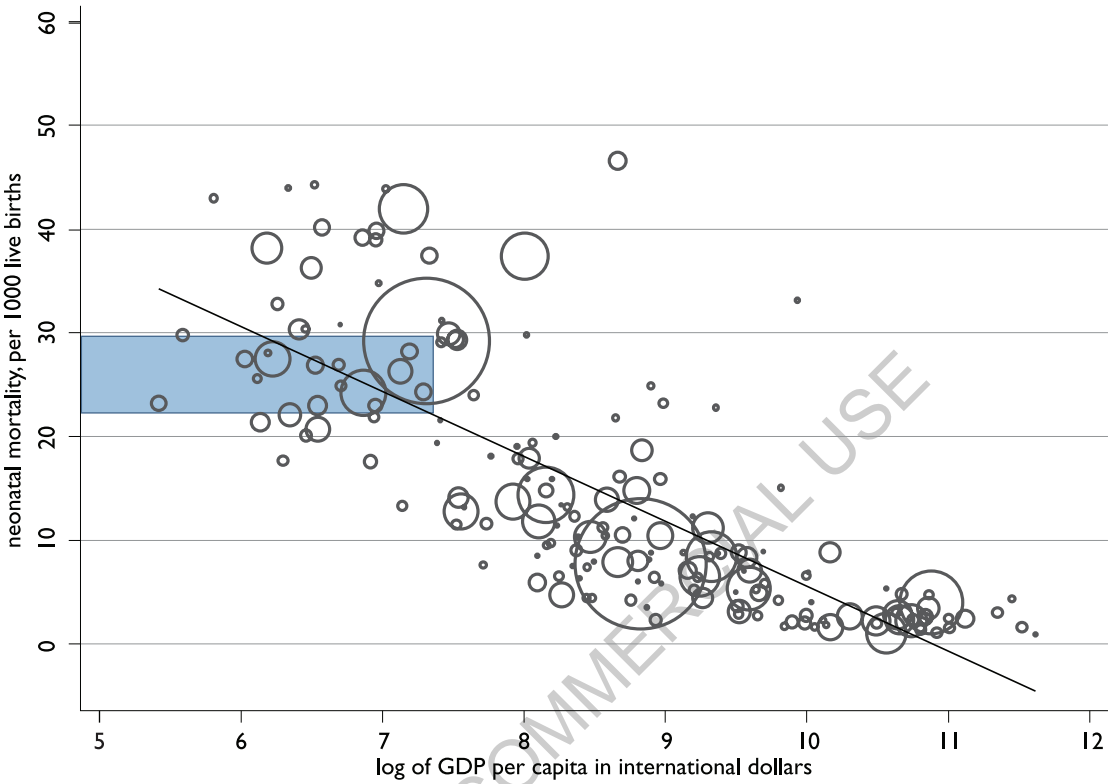

Figure 1. NNM and GDP per capita in 181 Countries, 2013

Source: Authors' representation of World Bank, 2013 data.

Note: The size of each circle is proportional to the size of the population of the country in 2013. The line on the graph is the ordinary least squares 'best-fit' regression line for these data. India's NNM exceeds what is predicted by log GDP per capita by almost 7 deaths per 1,000 live births.

pre-pregnancy underweight is by computing the fraction of women of child-bearing age who are underweight. The National Family Health Survey (NFHS) 2005, a cross-sectional survey, found that 35.6 per cent of all non-pregnant Indian women aged 15–49 have a body mass index score that is less than 18.5. This is a very high fraction compared to other, poorer, countries: of 23 African countries with comparable data, only Eritrea has a higher fraction of underweight women than India (Deaton & Drèze, 2009).

Although this figure, 35.6 per cent, is a good first guess of the fraction of women who begin pregnancy underweight, it is almost certainly an underestimate of the true fraction of pre-pregnant women who are underweight. This is because women who get pregnant are different from those who do not, in ways that are correlated with poor nutrition. Recent research, which adjusts for the ways in which pre-pregnant women are different from non-pregnant women, finds that the fraction of pre-pregnant women who are underweight is substantially higher. 42.2 per cent of Indian women are underweight at the beginning of pregnancy (Coffey, 2015), which is 7 percentage points higher than the fraction underweight among non-pregnant women of childbearing age. Doing the analysis separately for rural and urban women, we find that rates of pre-pregnancy underweight are very high in both groups: 32 per cent of urban women are underweight before pregnancy and 44 per cent of rural women are underweight before pregnancy.

Table 1. GDP per Capita and the Average Weight of Women Who are Nine or More Months Pregnant in 12 Countries that are Poorer than India

Country, Year	2014 GDP per capita (current USD)	Average Weight of Women 9+ Months Pregnant (kg)
India, 2005	**1595.7**	**51.8**
Nepal, 2011	696.9	56.1
Bangladesh, 2011	1,092.7	56.2
Ethiopia, 2005	565.2	54.1
Democratic Republic of Congo, 2007	440.2	57.7
Tanzania, 2004	998.1	60.9
Kenya, 2004	1,358.3	62.6
Uganda, 2006	696.4	58.6
Mozambique, 2003	602.1	57.7
Ghana, 2003	1,442.8	62.4
Madagascar, 2003	449.4	55.6
Cameroon, 2004	1,429.3	66.7
Niger, 2006	427.4	59.0

Source: Weight data are from DHS, n.d., www.dhsprogram.com; GDP data are from the World Bank's open data portal at data.worldbank.org

Note: African countries are ordered by population size.

Not only are Indian women too thin when they begin pregnancy, but they also do not gain enough weight during pregnancy to compensate for low pre-pregnancy body mass. Coffey (2015) estimates that women in India gain only about 7 kilograms, on average, during pregnancy. Although there are, to the authors' knowledge, no national guidelines for weight gain during pregnancy in India, this level of weight gain is only about half of what the US Institute of Medicine recommends for American women (IOM and NRC, 2009).

Not only are pre-pregnancy weight and weight gain low relative to rich country standards, they are even very low relative to poorer countries. Table 1 shows GDP per capita and the average weight of women who are nine or more months pregnant for 12 countries that are poorer than India. India's neighbours, Bangladesh and Nepal, and the 10 most populous sub-Saharan African countries whose GDP per capita are less than India's, and for which the Demographic and Health Survey (DHS) collect relevant data, are included.

Weight among women at the end of pregnancy is a measure of maternal health that combines both pre-pregnancy weight and weight gain during pregnancy into one number. Even though India has the highest per capita GDP in this group of countries, Indian women in their ninth month of pregnancy have the lowest average weight.

Widespread maternal anaemia is another sign of poor nutrition during pregnancy. The NFHS 2005 collected data on the haemoglobin levels of all Indian women, including pregnant women. Nearly 60 per cent of pregnant women were anaemic. Not only is anaemia associated with poor infant health outcomes, it also puts women at elevated risk for death from post-partum bleeding.

Consequences of poor maternal nutrition. Poor maternal nutrition has serious consequences for the health and human capital of India's children. In addition to causing low birth weight and neonatal death, there is also accumulating evidence that poor maternal nutrition is an important reason why the Indian population is among the shortest in the world. A recent study uses historical data on variation in NNM in India, which likely reflects variation in maternal nutrition, to predict the heights of Indian adults alive today (Coffey, 2014a).

The fact that Indian children and adults are so short is a sign that they are not achieving their cognitive potential, which has important effects on their economic productivity. Researchers now understand that the same early life health processes that stunt child height also affect their cognitive development: children who are stunted are less likely to be able to read and grow up to earn lower wages than taller people (Coffey et al., 2013; Spears & Lamba, 2013; Vogl, 2014). Thus, stunting among Indian children and adults is not only a health issue, it is also an economic issue.

Existing Government Programmes are Insufficient to Address Maternal Nutrition

Current government policies and programmes are inadequate to address the widespread maternal nutrition deficits that we have documented in the first section of this article. The Indian government runs two central schemes with the stated aim of improving maternal health—Integrated Child Development Scheme (ICDS) and Janani Suraksha Yojana (JSY). We discuss the reasons why neither of these programmes is sufficient for improving maternal nutrition. We also point to the need for the government to adopt national guidelines on weight gain in pregnancy in India.

Integrated Child Development Scheme. The ICDS is supposed to distribute free nutritious food to pregnant and breastfeeding women, young children and adolescent girls. Very often, however, food does not reach the intended beneficiaries. Participation by pregnant women is typically even lower than participation by young children.

The latest data on receipt of the ICDS food by pregnant women is from the Rapid Survey of Children (RSOC), which was recently released on the Ministry of Women and Child Development website. It found that only 42 per cent of pregnant women had received any supplementary food from the ICDS. An even smaller fraction had received food regularly: 28 per cent of pregnant women had received supplementary food for at least 21 days in the month before the survey.

These national figures mask significant variation at the state level. For each state that was home to at least 1 per cent of India's population in the 2011 census, Figure 2 compares the fraction of pregnant women who received any supplementary food during pregnancy from the ICDS in the 2013 RSOC data with the fraction who received any supplementary food during pregnancy from the ICDS in the 2007 District Level Household & Facility Survey (DLHS) data. It also shows the fraction who received 21 days or more of supplementary nutrition from the 2013 RSOC data.

We note that some of the patterns in Figure 2 suggest poor data quality in the RSOC. For instance, data on the fraction of pregnant women who received the ICDS food for 21 days or more in the past month are missing for Delhi, Jammu & Kashmir and Punjab. We flag the states of Haryana, Bihar and Kerala because it is not logically possible that the fraction of pregnant women who received 21 days or more of food in the last month is higher than the fraction who received any food during pregnancy, as the data claim. Nevertheless, this is what the state-level factsheets released by the ministry report. Despite data quality problems, we thought it nevertheless important to show the most up to date data on the ICDS service delivery to pregnant women.

Some broad patterns emerge from the data. Regular delivery of food to most pregnant women is rare: only in one state (Chhattisgarh) does the fraction of pregnant women who received 21 or more days of supplementary food exceed 50 per cent. Figure 2 suggests that the ICDS performance is especially poor in Uttar Pradesh and Bihar, which accounts for a quarter of pregnant women in India. Although Figure 2 shows that, in most states, the ICDS delivery of supplementary food to pregnant women improved between 2007 and 2013, this improvement was extremely slow. The fraction of women who received food at all during pregnancy increased by only about 2 percentage points per year. Unfortunately, the

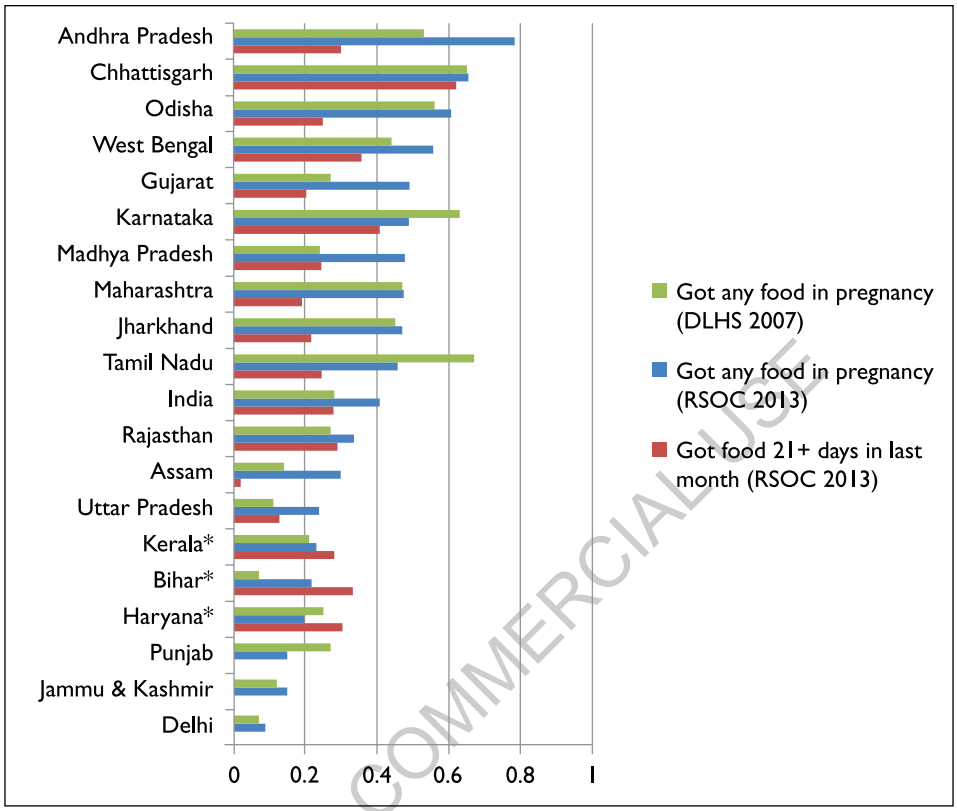

Figure 2. State-level Delivery of ICDS Services to Pregnant Women

Source: Ministry of Women and Child Development (2013) and Ministry of Health and Family Welfare (2007).

Note: It shows states which are home to at least 1 per cent of India's population in the 2011 census. Data on the fraction of pregnant women who got 21 days or more of food from the ICDS in the past month are missing for Delhi, Jammu & Kashmir and Punjab. We have flagged (*) the states of Haryana, Bihar and Kerala because it is not logically possible that the fraction of pregnant women who got 21 days or more of food in the last month is higher than the fraction who got any food during pregnancy. Nevertheless, this is what the data report. Finally, we note that these data show that a few states (Punjab, Haryana, Tamil Nadu and Karnataka) had significant declines in the fraction of pregnant women who ever got food from the ICDS between 2007 and 2013. While diminishing coverage in some states is certainly possible, we believe that data quality issues may also be at play. Further investigation into the ICDS coverage among pregnant women in these states is warranted.

number of days for which a pregnant woman received supplementary nutrition was not measured in 2007, so we do not know whether there was improvement in this indicator of service delivery.

Efforts should be made to improve ICDS service delivery to pregnant women, especially in the worst-performing states. But even a perfectly functioning ICDS nutrition programme would not provide women with all of the nutritious food they need during pregnancy. Maternity entitlements could be used to complement ICDS food; if paired with education and counselling, a well-timed cash transfer might permit pregnant women to drink milk and eat more fresh fruits and vegetables.

Janani Suraksha Yojana. The JSY program, which pays a cash incentive to women who deliver in hospitals, rather than at home, has higher participation rates than the ICDS, but does not focus on improving maternal nutrition. Its focus is instead on incentivizing facility births in order to prevent neonatal and maternal deaths.

Data suggest that JSY has accelerated the switch from home birth to hospital birth: the 2007 DLHS data found that about 47 per cent of women gave birth in hospitals, compared to 79 per cent in the 2013 RSOC data.[2] Unfortunately, though, evaluations of JSY find little evidence that it improves NNM (Powell-Jackson, Mazumdar & Mills, 2015). This is because JSY does little to improve the extremely poor quality of health care that women and infants receive in health facilities (see Coffey, 2014b). Furthermore, it does nothing to address poor nutrition during pregnancy, which is an important underlying cause of both neonatal and maternal mortality.

If a maternity entitlements scheme is to improve weight gain in pregnancy, it will need to educate women and their families about the importance of weight gain, and it will need to monitor weight gain during pregnancy. Antenatal care (ANC) visits, which preferably begin early in pregnancy, are the right time for health providers to convey this information.

In addition to promoting institutional delivery, the JSY scheme was intended to increase the fraction of women who receive ANC. Although the fraction of women who received at least 3 ANC visits improved from about 50 per cent in the 2007 DLHS data to 63 per cent in the 2013 RSOC data, this improvement is quite slow compared to the much larger increase in the fraction of births that take place in hospitals over the same time period.

Unfortunately, the RSOC data do not record whether weight was measured and discussed with patients and their families at ANC visits. The last national survey to record whether pregnant women are weighed at ANC visits was the 2012 India Human Development Survey (IHDS) collected by the National Council of Applied Economic Research and the University of Maryland. In the IHDS data, of those women who received ANC during pregnancy in the IHDS, 79 per cent reported having their weight checked. This relatively high figure suggests that at least most health care providers are accustomed to taking weight at ANC visits. However, we do not know whether weight was taken on multiple occasions, or only at a single visit.[3] Of course, in order for a woman to know whether she is gaining a healthy amount of weight, her weight must be taken multiple times during pregnancy.

There is much scope for improvement in the delivery of maternal health services: the 2013 RSOC data find that 37 per cent of women do not receive 3 ANC visits, the 2011 IHDS data find that 21 per cent of women who receive ANC are not weighed at all during their pregnancies. It is unclear whether weights are taken multiple times in order to gauge weight gain, and it is unclear whether taking a woman's weight is accompanied by the kind of counselling necessary for her and her family to make greater investments in pregnancy.

The need for national guidelines on weight gain. Despite the fact that it is well established that higher weight gain during pregnancy is important for healthier birth outcomes (see, e.g., Agarwal, Agarwal, Satya & Agarwal, 1998), the Government of India, to our knowledge, has not yet issued national guidelines on weight gain during pregnancy. It would be a useful sign of commitment to the problem for the government to either formally adopt international guidelines or commission studies that would lead to the development of India-specific guidelines. We note that the government has taken an important step in including space for weight gain checks on the National Rural Health Mission's (NRHM) Maternal and Child Health Card,[4] but also that the guidelines on the NRHM website that define 'quality antenatal care' do not mention weight checks and counselling about adequate weight gain during pregnancy (Government of India, 2015).

Maternity Entitlements: Purpose, Promise and Potential Limitations

The NFSA of 2013 legislated a universal cash entitlement for pregnant women of at least 6, 000 rupees.[5] Despite the potential promise of this programme for helping pregnant women and infants, it has been more than two years after the Act was passed, and the government has made no plans to implement it.[6]

Although, as researchers, we cannot raise the political will or the funds needed to get this programme started, we can make evidence-based recommendations for designing a useful programme should greater support for the programme materialize. In this section, we discuss what the purpose of the maternity entitlement programme should be, why we believe it could be a promising tool in fighting maternal malnutrition, and which obstacles it would face in reaching this goal.

Purpose. Maternity benefits should focus on promoting maternal nutrition, and in particular improving weight gain during pregnancy. As we have illustrated above, poor maternal nutrition has lasting implications for India's development. Furthermore, it is appropriate that a universal maternity entitlement would be designed around solving a widespread problem. As we have shown, India's maternal nutrition crisis is not isolated among the poorest groups.

Although the government should do more to address pre-pregnancy underweight and maternal anemia through its other programmes, maternity entitlements have the greatest potential to improve weight gain. First, a programme targeted to pregnant women could not achieve better *pre-pregnancy* nutrition. Second, adequate weight gain during pregnancy can compensate for pre-pregnancy underweight (see IOM and NRC, 2009). Third, the importance of weight gain has not yet been emphasized by the government. (In contrast, most health workers already know about the importance of maternal anemia.) Finally, maternal anemia would likely improve if weight gain during pregnancy were to improve.

Some advocates for maternity entitlements have suggested that they should be used to compensate women in the informal sector for lost wages. Although a well implemented maternity entitlement scheme would certainly be useful to women who work, the universal maternity entitlements programme under the NFSA should be designed around the needs of all women, not just women who work outside the home.[7]

Some advocates and government officials suggest that the maternity entitlement scheme should be conditional on the mother breastfeeding, getting immunization and providing other aspects of infant care. Indeed, the IGSMY, a pilot programme of maternity entitlements in 53 districts, makes the receipt of cash payments conditional on exclusive breastfeeding and participation in the services that are supposed to be offered by anganwadi workers (AWWs), auxiliary nurse midwives (ANMs), and Accredited Social Health Activists (ASHAs), such as iron and folic acid tablets, tetanus toxoid injections, counselling sessions, immunizations and growth monitoring sessions.

As we will see below, conditioning maternity entitlements on participation in these services is not a good idea. The main reason not to condition receipt of maternity entitlements on these health inputs is simply because women often do not control whether they receive the services. In many parts of India, health workers are absent (Chaudhury, Hammer, Kremer, Muralidharan & Rogers, 2006), or only provide some of the services that they are supposed to. It makes little sense to condition a cash transfer on using services when barriers to participation lie with the providers (the 'supply side'), rather than with the beneficiaries (the 'demand side').

One thing women do have control over is whether and how to breastfeed their children, so one might think that it makes sense to condition maternity entitlements on good breastfeeding practices. Breastfeeding in India is widespread: the latest NFHS found that 94 per cent of children under six months old were breastfed. Although it is true that more education needs to be done about the importance of exclusive breastfeeding until six months of age, it makes little sense to make exclusive breastfeeding a condition of the cash transfer.

It would be impossible for anyone other than the child's mother or immediate family members to verify. Requiring verification of exclusive breastfeeding from a health worker would do little more than encourage corruption: those whose job it were to verify breastfeeding could demand a bribe in exchange for providing the necessary paperwork. Even 'self-verification' from the mother, which is at least logically possible, nevertheless creates paperwork, delays and an interaction between the mother and the

health worker in which the health worker may demand a bribe. The health worker would still be the one deciding whether to accept a mother's self-verification.

Promise. If pregnant women receive cash payments from the government, and if families convert these payments into more, better food and more rest for pregnant women, maternity entitlements will improve birth weight among Indian children. This would have lasting benefits for health and human capital. However, getting government funds into the hands of pregnant women is not a straightforward task, nor is it certain that the extra cash will be converted into more, better food and more rest. We address the first step in this causal chain, the delivery of cash to pregnant women, in greater detail below. Here, we consider whether and how cash transfers that reach households might help improve maternal nutrition.

Research suggests that people in India do not know how much weight a woman should gain during pregnancy, and that some people wrongly believe that women should eat less, rather than more during pregnancy. The justification often given for 'eating down', that is, eating less during pregnancy, is that babies who are too large will need to be delivered by cesarean section (Hutter, 1996). People also believe that pregnant women should avoid many kinds of foods that they eat at other times (Vallianatos, 2006). If the government combines education about nutrition during pregnancy with a large sum of money to facilitate weight gain, it could send a strong signal about the importance of weight gain.

Of course, if the maternity entitlements are to serve as a signal for the importance of weight gain during pregnancy, the government will have to invest substantial effort in telling people about the purpose of the programme. While rolling out maternity entitlements, the government should do an extensive education campaign about weight gain during pregnancy. Although many frontline health workers already know about the importance of avoiding anemia during pregnancy, they may not know as much about weight gain in particular.[8]

Potential obstacles. Prior evidence suggests that even poor people may not spend extra money on food. Deaton and Drèze (2009) show that calorie consumption has been declining for households across the income distribution, even as real incomes have been rising (see Duh & Spears, 2016).[9] This is puzzling considering that many people in India are underweight.[10] Figure 3 plots the fraction of Indian men and women who are underweight at each age.

Figure 3 shows high levels of underweight among all age groups, including prime aged men, 25 per cent of whom are underweight. Being underweight is problematic because it is a sign of chronic energy deficiency, and often impacts one's ability to work (James & Francois, 1994). If many households in which people are underweight could already afford to spend more money on food, but they do not, they may be unlikely to spend a windfall of cash on additional food for pregnant women. This would be especially true if they do not understand the importance of weight gain during pregnancy.

Figure 3 also shows that young women are the demographic group who suffers from the highest level of underweight. They are also the demographic group who is most likely to become pregnant. High levels of underweight among young women reflect their poor social position and low bargaining power in Indian households (see Jeffrey, Jeffrey & Lyon, 1989). Young women are often expected to eat what is leftover after everyone else in the household has eaten their fill (Palriwala, 1993). Adding more food to the cooking pot will do little to help nourish pregnant women if the other members of the household do not allocate it to them.[11]

The poor social position of young women in India is perhaps the single most important reason why even a well administered maternity entitlements programme could fail to improve maternal nutrition. If households receive extra money from the government, there is no guarantee that they will use it to invest in nutrition for the lowest-ranking members of the household. Monitoring and evaluation of the maternity entitlements scheme will be necessary to find out whether households use the extra cash to invest in pregnancy or something else. Experiments should be done to understand the best ways to deliver educational messages about the importance of weight gain during pregnancy.

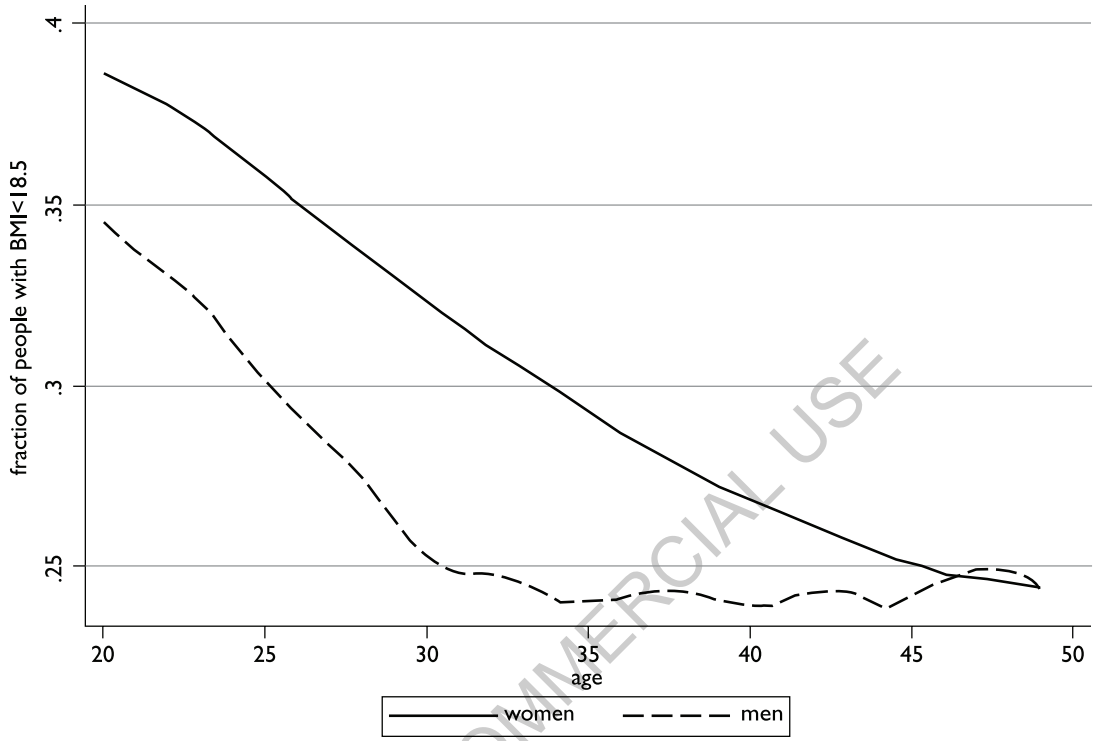

Figure 3. Fraction Underweight by Age among Men and Women in India, 2005

Source: Authors' representation from National Family Health Survey (NFHS) 2005.
Note: This figure uses local polynomial regression to plot the fraction of men and women who are underweight at each age in India.

Recommendations for Designing and Administering Maternity Entitlements

The previous section pointed out that a successful maternity benefits programme would have to do more than give out cash—it would have to educate people about the importance of weight gain during pregnancy and overcome intrahousehold discrimination against young women. Although this is likely a difficult task, it is nevertheless a worthwhile one. The damage done to India's next generation of citizens and workers due to poor maternal nutrition is too severe for the government to ignore.

This section presents recommendations about how the maternity entitlements programme should be designed and administered. In brief, our recommendations are:

- Maternity entitlements should be an unconditional, rather than a conditional, cash transfer
- Maternity entitlements should be housed in the Ministry of Health, rather than the Ministry of Women and Child Development, and distributed by newly hired staff
- Maternity entitlements should be given as a lump sum payment early in pregnancy, and indexed for inflation

We present evidence and arguments for each of these recommendations below.

Maternity entitlements should be unconditional cash transfers. Around the world, supply-side constraints on public services have been recognized as a problem for conditional cash transfer programmes. The purpose of conditionality is to ensure that cash transfer recipients use the services in place to improve their health. However, conditionality cannot be effective if high quality health services are not widely available (Doetinchem, Xu & Carrin, 2008). According to a 2010 World Health Organization commentary, 'low-quality services do not have much health impact and where services are simply not available [conditional cash transfer] programmes can do little to improve the health of the population' (Huntington, 2010). For example, an evaluation of Brazil's Bolsa Familia cash transfer programme found no impact on immunizations despite the fact that the transfer was supposed to be conditional on families obtaining them. This may in part be due to the lack of health services available to beneficiaries (Soares, Ribas & Osorio, 2007).

In 2011, the Ministry of Women and Child Development launched a pilot of the maternity entitlements programme in 53 districts across the country, under the name of the IGMSY. Maternity entitlements under the IGMSY require women to meet several conditions, including registration of pregnancy at a health center within four months of pregnancy (when they may or may not know they are pregnant), children's immunization and exclusive breastfeeding for six months.

A recent study of the IGMSY documents that the health centers where pregnancies are to be registered are usually located in the main village, which makes it difficult for some women in distant hamlets to reach them. Additionally, the study finds an acute shortage of staff at district, block and village levels, resulting in existing staff's inability to provide the IGMSY services and documentation (Falcao, Khanuja, Matharu, Nehra & Sinha, 2015). These infrastructure and staffing constraints prevent many potential beneficiaries from fulfilling the requirements and participating in the programme.

Addressing the supply-side constraints in the provision of maternal and child health care in India is a problem that certainly needs to be remedied. But given the long-term nature of these supply-side problems, conditioning maternity benefits on receiving services only reduces the effectiveness of the maternity entitlements programme. Until longer term solutions are in place, it is critical that supply-side conditions within the maternity entitlements programme be eliminated entirely.

Can cash transfers improve health outcomes without conditionality? There is encouraging evidence from cash transfers in other developing countries that people use cash transfers to invest in health. In Uruguay, a programme giving unrestricted cash assistance to poor pregnant women led to a decrease in the incidence of low birthweight, likely through improved maternal nutrition and weight gain during pregnancy (Amarante et al., 2011). Suggestive evidence from South Africa shows improved height-for-age for children whose mothers received unconditional cash assistance (Aguero, Carter & Woolard, 2007). Other studies of unconditional transfers from African countries show that they reduce hunger and increase dietary diversity (Adato & Bassett, 2012; Haushofer & Shapiro, 2013).

Within India, results from a pilot study in Madhya Pradesh showed that an unconditional cash transfer increased food sufficiency with a shift towards the purchase of more nutritious foods (vegetables, eggs and fruit) (Sewa Bharat & UNICEF, 2014). More research should be done to understand what sort of education and outreach can effectively convince families to invest this extra income in food, and how to overcome the discrimination against young women that might prevent Indian households from investing income from maternity entitlements in extra food for pregnant women.

Although some policymakers think that the cash from unconditional transfers might be abused, studies consistently show that even in the absence of education to promote using transfers for health investments, decision makers do not buy alcohol, tobacco or work less when they receive an unconditional transfer (Ardington, Case & Hosegood, 2009; Evans & Popova, 2014; Haushofer & Shapiro, 2013).

Given the scale of the maternal nutrition challenge, it is important that maternity entitlements reach as many households as possible. Unconditional transfers are far more likely to reach beneficiary households than unrealistic conditional transfers.

Maternity entitlements should be housed in the Ministry of Health, and administered with newly hired staff. Government programmes to improve maternal and child health are housed both in the Ministry of Health and in the Ministry of Women and Child Development. The Ministry of Health administers the JSY programme, while the Ministry of Women and Child Development administers the ICDS programme. Here, we discuss three reasons why it would be better to house maternity entitlements in the Ministry of Health rather than the Ministry of Women and Child Development.

First, the JSY programme has been relatively successful at reaching its intended beneficiaries, if not in improving health outcomes, while the ICDS programme does not reach most pregnant women. The fact that the Health Ministry has largely succeeded in distributing cash benefits is an important reason to house the programme there.

Second, the Ministry of Health is better positioned to implement maternity benefits because pregnant women and their families are often quite trusting of doctors and nurses. If educational messages about using maternity entitlements for weight gain during pregnancy are delivered by doctors and nurses, rather than AWWs, pregnant women and their families are more likely to take them seriously.[12]

Given the large administrative burden of the programme, it is clear that more pregnant women would receive the funds they are entitled to if there were dedicated staff to administer the programme. In the same way that the JSY programme and NREGA hired dedicated staff to distribute programme funds, the government should hire additional staff specifically responsible for managing maternity entitlements. They could work alongside existing JSY staff in health facilities, where pregnancy would be verified, and paperwork could be filed in one place.

Payments should be made in a lump sum, early in pregnancy, and indexed for inflation. Under the IGMSY pilot, payments are supposed to be made to women through their bank accounts on two separate occasions: once during pregnancy to facilitate improved nutrition and once at the time of birth to facilitate adequate rest and breastfeeding. In practice, though, women sometimes get only one payment, and payments are often delayed. Multiple payments in any government programme come with costs, both for the government and for beneficiaries.

The costs to beneficiaries of receiving a payment include the time and effort required to submit the documentation for each payment, travel to the bank to collect the funds, and whatever bribes must be paid along the way. These costs are often large. In a study of the Public Distribution System for food in India, Khera (2011) finds that the average distance to the closest bank or post office for beneficiaries is 5.2 km, and in an examination of the old-age pension scheme, Chopra and Puduserry (2014) found that the average time taken for a pensioner to go to the bank or post office, collect his or her pension and come back was five hours. Coffey (2014b) finds that in the JSY programme in Uttar Pradesh, beneficiaries took home only a fraction of the actual cash transfer because large fractions of the benefit had to be paid as rents to nurses, ASHAs and other hospital staff for the services provided to them. Furthermore, husbands often took time away from work to accompany women to collect the payments.

Transferring funds in multiple tranches also increases the administrative costs for the government. Someone must produce documentation that a woman is eligible for a payment, someone else must process that documentation, and someone else must write and deliver the check. The government saves money when it gives out payments in a single tranche, rather than multiple tranches. These savings could be invested in monitoring the programme.

If maternity entitlements are to be invested in food that improves weight gain during pregnancy, they must be disbursed early in pregnancy. Although it is normal and healthy for women to gain relatively little weight during the first trimester of pregnancy, they should begin to gain approximately a pound (or a half kilogram) per week in the beginning of the second trimester and gain approximately that much each week until the end of pregnancy. Weight that is gained in the second trimester serves to increase a woman's blood volume, which she needs to nourish the fetus, and helps her lay down fat stores that she will need when she is breastfeeding. Weight gained in the third trimester contributes most to fetal growth (Hytten & Leitch, 1964). It is critical, therefore, to deliver money to pregnant women as early in their pregnancy as possible.

Finally, maternity entitlements should be inflation-adjusted so that their value does not erode over time.

The Importance of Getting Started

India's maternal nutrition indicators are some of the worst in the world, especially relative to its level of economic development. Given the importance of nutrition during pregnancy for maternal and infant survival, as well as for a child's long-term educational and economic outcomes, maternal nutrition is an area urgently in need of intervention.

By passing the NFSA, India has laid the groundwork for a universal maternity entitlements programme that could benefit millions of pregnant women. But maternity entitlements have not yet been implemented.

Maternity entitlements should be designed around the important goal of improving weight gain during pregnancy. They should consist of an unconditional, single cash payment given as early in pregnancy as possible. They should be administered by the Ministry of Health, and indexed for inflation. Most importantly, maternity entitlements should be paired with an education campaign that teaches people about the importance of weight gain during pregnancy.

Notes

1. The figure that the World Bank's World Development Indicators use for India's neonatal mortality rate is based on the Sample Registration System (SRS) figures. The SRS provides the most recent NNM figures for all of India.
2. The RSOC asked ever-married women about the last two live births in the three years before the survey. The IHDS, which asked about births between 2005 and 2011, found that about 60 per cent of births during that period occurred in health facilities.
3. The IHDS question asks: 'Did you have any of the following performed at least once during any of your antenatal check-ups for this pregnancy?' 'Weight taken' is one of the options.
4. A picture of the card can be found on the Government of Uttar Pradesh website (see Government of Uttar Pradesh, 2013).
5. Government employees or their immediate family members are excluded.
6. In September 2015, the Supreme Court of India issued a notice to the centre about the non-implementation of maternity entitlements. The Ministry of Women and Child Development is expected to respond to this notice in November 2015.
7. Indeed, very few young women in India do work outside the home: the NFHS 2005 finds that 32 per cent of women between the ages of 18 and 30 report currently working outside the home. Of those who do, some stop working during pregnancy. 23 per cent of pregnant women report working outside the home.
8. No survey that we are aware of has measured knowledge among health workers about how much weight women should gain during pregnancy.

9. The authors think that the decline in calorie consumption may be due an improved disease environment and labour saving progress, which allow people to maintain a given body size while eating fewer calories.
10. People who are underweight have a body mass index score of less than 18.5.
11. Coffey, Khera and Spears (2015) identify an effect of poor social status among women on their health in pregnancy, and on the health of their children.
12. Health workers may also be more able to convince of the importance of weight gain during pregnancy than AWWs. AWWs are often from villages, and so may share similar beliefs that we discussed above about the need to 'eat down' during pregnancy, or to restrict the consumption of certain foods.

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