

Progress in Reducing Child Under-Nutrition

Evidence from Maharashtra

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Assessing the progress made in reducing under-nutrition among children who are less than two years old in Maharashtra between 2005-06 and 2012, this article points out that child under-nutrition, especially stunting, declined significantly in the state during this period. It holds that this decline can be associated with the interventions initiated through the Rajmata Jijau Mother-Child Health and Nutrition Mission, which began in 2005, and that this indicates the critical role the state can play in reducing child under-nutrition in India.

We thank Fred Arnold for clarifications and help in estimation.

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Has India made any progress in reducing child under-nutrition? This question assumes importance given the measly decline in child under-nutrition in India in the 1990s and the competing explanations advanced for it. We seek to address this question by assessing the progress made in addressing under-nutrition among children less than two years old in Maharashtra. The first two years of a child are a critically important period in children's lives because this is both when their nutritional base is shaped and when they respond well to interventions aimed at reducing under-nutrition. To assess progress, we discuss the results of a comprehensive nutrition survey conducted in Maharashtra in 2012, and compare them with those of the National Family Health Survey-3 (NFHS-3) (2005-06).

In matters of life and death, India exhibits several disparities and paradoxes. One such paradox, which Ramalingaswamy, Jonsson and Rohde (1996) christened the "Asian enigma," was found in child under-nutrition. It is seen in the higher prevalence of child under-nutrition in south Asia than in sub-Saharan Africa, which it outperforms in most socio-economic indicators. India, the largest country in south Asia, was a contributor to this

enigma. Since the 1990s, the country has undergone drastic changes in its economy and society at large. It is instructive to know what has happened to the child under-nutrition paradox. Clearly, the paradox persists. India had, according to NFHS-3 estimates, the worst levels of child under-nutrition in the world in 2005-06.

What can explain this unchanging paradox? Many have tried to decipher it by delving deeper; some with the bliss of received wisdom, others with the new mantra of genetic predisposition. This has led to a lively debate in India, which has been referred to as the "Great Indian Nutrition Debate" (Desai and Thorat 2013). Two important points highlighted by the debate merit mention. One, genetic predisposition may not be the primary reason for high levels of child under-nutrition in India (Jayachandran and Pande 2013). Two, studies link such high under-nutrition levels to a couple of important factors in which India fares dismally.

One such factor is open defecation. Open defecation contributes to child under-nutrition in significant reinforcing ways, especially via increased susceptibility to, and reduced immunity against, infections (Spears and Lamba 2013; Chambers and Medeazza 2013). The other important factor is a combination of practices, known as "infant and young child feeding" (IYCF) practices. A comparative analysis between India and 12 Sub-Saharan African countries suggests that we fare dismally in IYCF practices as well (Wable 2013).

It is widely agreed that the first two years not only lay the basis for a child's nutrition, but also influence its overall development. The IYCF practices, notably

early initiation to breastfeeding, exclusive breastfeeding for six months, and proper complementary feeding after six months, among others, play a pivotal role in determining a child's nutrition status. As a matter of fact, the period from pregnancy to 24 months of age is called a "crucial window of opportunity" for reducing under-nutrition and its adverse effects (Bryce et al 2008). Therefore, policies and programmes aimed at addressing child under-nutrition should accord priority to interventions that can be made during this period, as studies emphasise (Gupta and Rohde 2004; Wable 2013).

Maharashtra was one of the first states in India to initiate a specific programme to address child under-nutrition called the Rajmata Jijau Mother-Child Health and Nutrition Mission (2005), which focused on the "first one thousand days from conception". The NFHS-3, which estimated a prevalence rate of 46% stunting, 17% wasting, and 37% underweight among children under five years in Maharashtra during 2005-06, served as a motivation for the nutrition mission. After the NFHS-3, no comparable estimates on child under-nutrition from a broad-based, representative survey are yet available. It is in this context that a detailed and representative survey called the Comprehensive Nutrition Survey in Maharashtra (CNSM) was carried out during February-April 2012.

One of the specific objectives of the CNSM was to assess the progress made in reducing child under-nutrition in Maharashtra between 2005-06 and 2012. Hence, it collected nutritional information to derive estimates of child nutrition that could be compared with those of the NFHS-3. But a major difference between these surveys is that the NFHS-3 collected nutritional information on children under five years, while the CNSM collected nutritional information on 2,662 children under two years. This was 2.8 times higher than the NFHS-3's coverage of 947 children under two years (for details of

the CNSM survey, see IIPS and UNCF 2013). This commentary assesses the progress made in reducing under-nutrition among children in the group of zero to 23 months in Maharashtra through a comparative analysis of the results of the CNSM and the NFHS-3.

Decline in Child Under-Nutrition

Table 1 suggests a clear, progressive trend. All three indicators of child under-nutrition show a decline. The extent of decline is larger in stunting (height for age) and smaller in wasting (weight for height). Spatially, the decline is larger in rural than urban Maharashtra. The largest decline was in stunting in rural Maharashtra (16%) and the smallest decline was in wasting in urban areas of the state (only 1%). Between 2005-06 and 2012, stunting declined, on an average, 2.6% per annum, followed by underweight (weight for age) by about 1%, and wasting 0.6%. It appears that the form of child under-nutrition that was the highest (stunting) in Maharashtra registered the largest decline and vice versa.

Table 2 shows that a decline was registered among both girls and boys. Interestingly, the prevalence of child under-nutrition is less among girls, while the extent of decline is more among them. Here too, the decline is more in stunting and less in wasting. In wasting, while girls registered a 6% decline, the decline among boys was marginal. During this six-year period, stunting seems to have declined among girls, on an average, by about 3%

Table 2: Gender Gap in Child Under-Nutrition (>2SD) in Maharashtra (Percentage)

	Boys			Girls		
	2005-06	2012	Decline	2005-06	2012	Decline
Stunting	40.2	25.9	14.3	37.4	20.3	17.1
Underweight	31.4	25.1	6.3	28.1	19.6	8.5
Wasting	20.4	18.6	1.8	19.7	13.5	6.2

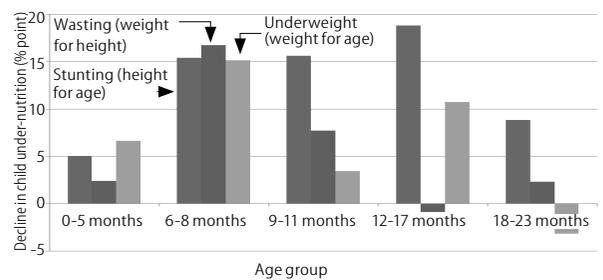
Sources: For CNSM (2012) estimates, IIPS and UNCF (2013); for NFHS-3 (2005-06), authors' estimates from unit-level data.

Table 1: Child Under-Nutrition (>2SD) in Maharashtra, 2005-06 to 2012 (Percentage)

	Total			Rural			Urban		
	2005-06	2012	Decline	2005-06	2012	Decline	2005-06	2012	Decline
Stunting	38.8	23.3	15.5	41.7	25.6	16.1	34.6	20.6	14.0
Underweight (weight for age)	29.9	22.6	7.3	34.4	25.2	9.2	23.4	19.5	3.9
Wasting	20.1	16.3	3.8	22.6	17.2	5.4	16.5	15.1	1.4

Sources: For CNSM (2012) estimates, IIPS and UNCF (2013); for NFHS-3 (2005-06), authors' estimates from unit-level data.

Figure 1: Decline in Child Under-Nutrition across Age Groups



per annum, and both underweight and wasting by around 1% per annum. The corresponding proportions are less for boys – 2%, 1%, and 0.3%, respectively.

A disaggregation by age groups reveals that the decline is uneven across the age groups (Table 3, p 25). The extent of decline is larger among children belonging to 6-8 months in all three indicators. Going by the extent of decline, children belonging to the age groups of 0-5 months and 18-23 months seemed to have benefited the least. Surprisingly, between 2005-06 and 2012, wasting seems to have risen marginally in the 12-17 age group, as also underweight in the 18-23 age group. Thus, Table 3 does not indicate a uniform decline in under-nutrition among children of 0-23 months in Maharashtra.

By and large, the decline is larger in stunting, mostly benefiting children belonging to the 6-17 months age group (Figure 1). In the other two indicators, children in the 6-8 months age group seemed to have gained the most. So, the bulk of the decline in child under-nutrition registered in six years came from two age groups – in wasting (6-8 and 9-11 months) and underweight (6-8 and 12-17 months).

Social and Wealth Groups

Table 4 (p 25) shows that all social groups experienced a decline in all three indicators of child under-nutrition. Interestingly, the extent of decline was larger among scheduled tribes (sts), among whom the incidence of child under-nutrition is quite high. Here too, the extent of decline was larger in stunting. In the six years, stunting among st children (0-23 months) declined by 25%, or 4.2% on an average per annum. They were followed by the scheduled castes (scs) with an average decline of 3.8% per annum. The relative inequality in stunting between social groups (between st and others)

Table 3: Child Under-Nutrition (>2SD) across Age Groups in Maharashtra (Percentage)

Age Groups	Stunting			Wasting			Underweight		
	2005-06	2012	Decline	2005-06	2012	Decline	2005-06	2012	Decline
0-5 months	14.3	9.3	5.0	23.0	20.6	2.4	20.9	14.3	6.6
6-8 months	28.4	13.0	15.4	30.3	13.6	16.7	33.3	18.2	15.1
9-11 months	30.6	15.0	15.6	21.2	13.5	7.7	24.8	21.4	3.4
12-17 months	49.5	30.7	18.8	16.7	17.6	-0.9	37.1	26.4	10.7
18-23 months	50.0	41.2	8.8	15.7	13.4	2.3	27.6	30.8	-3.2

Sources: For CNSM (2012) estimates, IIPS and UNCF (2013); for NFHS-3 (2005-06), authors' estimates from unit-level data.

Table 4: Child Under-Nutrition (>2SD) among Social Groups in Maharashtra (Percentage)

Social Groups	Stunting			Underweight			Wasting		
	2005-06	2012	Decline	2005-06	2012	Decline	2005-06	2012	Decline
STs	52.9	27.6	25.3	52.9	28.4	24.5	26.7	19.9	6.8
SCs	46.4	23.9	22.5	40.0	26.1	13.9	28.2	19.3	8.9
OBCs	33.3	20.7	12.6	25.3	20.3	5.0	17.0	16.8	0.2
Others	34.3	22.0	12.3	21.0	18.7	2.3	16.1	12.0	4.1
ST/Others	1.5	1.3	-	2.5	1.5	-	1.7	1.7	-

Sources: For CNSM (2012) estimates, IIPS and UNCF (2013); for NFHS-3 (2005-06), authors' estimates from unit-level data.

also declined, though only marginally, in the six years.

The extent of decline was higher among STs (24.5%), followed by SCs (14%). It is important to bear in mind that the prevalence rates of underweight were very high among STs and SCs, and despite the large reduction, they continue to be higher. Nonetheless, the rate ratio of relative inequality in underweight (between STs and others) declined from 2.5 to 1.5 during the period.

The decline in wasting threw up a somewhat different picture. The extent of decline was larger among SCs (9%), followed by STs (7%). At the other end, the prevalence of stunting is higher among the Other Backward Classes (OBCs) compared to others, and the extent of decline is also less among them.

Almost similar patterns are seen in wealth groups as well (Table 5). The extent of decline was largest among the poorest wealth group and smallest among the richest. Needless to add, despite such higher decline, the former seems to have about two times the child under-nutrition than in the latter. Thus, relative inequality in child under-nutrition seems to be larger among wealth groups than social groups.

Table 5: Child Under-Nutrition (>2SD) among Wealth Groups in Maharashtra (Percentage)

Wealth Groups	Stunting			Underweight			Wasting		
	2005-06	2012	Decline	2005-06	2012	Decline	2005-06	2012	Decline
Poorest	60.7	26.6	34.1	46.0	26.7	19.3	23.0	17.7	5.3
Poor	44.6	26.6	18.0	37.6	24.0	13.6	24.8	16.4	8.4
Non-poor	40.3	26.9	13.4	40.6	28.6	12.0	27.8	21.4	6.4
Rich	41.3	23.2	18.1	26.7	21.7	5.0	19.4	14.5	4.9
Richest	22.9	13.3	9.6	14.5	11.9	2.6	11.1	11.4	-0.3
Poorest/richest	2.7	2.0	**	3.2	2.2	**	2.1	1.6	**

Sources: For CNSM (2012) estimates, IIPS and UNCF (2013); for NFHS-3 (2005-06), authors' estimates from unit-level data.

Decline: Behind and Beyond

It is clear from the discussion that the prevalence of under-nutrition among children under two years declined in Maharashtra between 2005-06 and 2012. Against this fairly impressive performance, it is important to highlight at least two factors. For a start, the growth rate of Maharashtra's net state domestic product from 1998-99 to 2005-06 was, on an average, 8.98% per annum (at 2004-05 prices), while it was 9.79% from 2006-07 to 2011-12.

Was this higher growth primarily responsible for the significant decline in child under-nutrition registered during this period? The answer is far from definite. If economic growth is primarily responsible for such a significant decline, why did child under-nutrition not decline significantly in the preceding period when economic growth was also high? To put differently, what enabled economic growth to deliver effectively now, but not earlier? This leads us to infer that economic growth might have played a definite role, but it may not have been primarily responsible for the significant decline.

If not economic growth, what else led to this decline? Here, the well-focused efforts of Maharashtra through the Rajmata Jijau Mother-Child Health and Nutrition

Mission to reduce child under-nutrition assume importance. The mission, with a strong commitment and clear focus on children under two years, launched a dedicated programme to bring down child under-nutrition through a menu of inter-connected measures, ranging from monitoring the nutritional status of pregnant women to ICYF practices and vaccination, among others. These factors are expected to reduce child under-nutrition, and they seem to have done precisely that. But, it is important to attempt a critical assessment on what aspects of the mission contributed to the decline in child under-nutrition. Also, the mission needs to explore why the decline was confined largely to children belonging to two or three age groups and why the interventions helped reduce stunting the most, but not wasting and underweight.

As stated, the mission prioritised reducing under-nutrition among children under two years. The prevalence of under-nutrition among children above two years was high in Maharashtra. For instance, the prevalence of stunting varies from 47% (48-59 months) to 54% (24-35 months), which are close to double the prevalence rates among children up to 11 months. In addition, the extent of decline was small among children belonging to the 18-23 month age group (Table 3). This was also true of weight for age. Only in wasting was the difference in prevalence less between children under and above two years. Additionally, children belonging to the 24-59 month age group constituted 68% of stunted, 53% of wasted, and 69% of underweight children under five years in Maharashtra in 2005-06. These need to be considered before drawing a generalised view on the decline in child under-nutrition in Maharashtra.

Presumably, the contribution of the mission might inspire many states to follow suit. It is important to bear in mind the factors that might hinder the continuance and success of such missions. Given the magnitude of child under-nutrition in India, the mission mode of functioning might do an impressive job to begin with. To ensure that the mission contributes to continued reduction would require, besides better coordination, huge resources, both human and financial, which are in

short supply. In their absence, the zeal of the mission is likely to dissipate.

Yet another crucial factor that will influence the success of such a mission in the long run is whether it integrates itself with the public health system and strengthens it. Public health, through improvements in the disease environment, can contribute to improving child nutrition significantly. For instance, a 2014 study that examined the factors responsible for improvements in height among Europeans between 1856-60 and 1976-80 concluded that “improvements in the disease environment, as reflected in infant mortality, is the single most important factor driving the increase in height” (Hatton 2014: 366). Hence, the creation of synergy between the mission and public health is central

not merely to expand the mission’s reach and scope in the long run, but also to ensure that the gains and momentum achieved so far are not lost. Without such synergy, the mission runs the risk of weakening its own potential and sense of purpose by progressively compartmentalising issues and interventions.

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