Explaining Cross-Region Disparities in Childhood Stunting in India

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Abstract

The high and persistent prevalence of child undernutrition in India has been a major public health concern. Moreover, large and graded regional disparities still persist in childhood undernutrition. This study explores what drives large disparities in childhood among different regions of India. Was it due to the variations in observed nutrition-related endowments or differential strengths of relationships between endowments and height-for-age across regions? We explored this question by comparing the regions with relatively poor nutrition outcomes with the benchmark of southern region, the best performer.

Applying unconditional quintile regression and counterfactual decomposition methods to the NFHS-4 data, we find that covariate effects (endowments) and coefficient effects (returns to endowments) vary across regions and quintiles when compared to the benchmark region of southern states. For example, observed HAZ disparities are primarily attributable to the differences in returns to endowments, while endowments try to reduce such disparities when southern region is compared with the northern region. On the contrary, if we compared southern region with the central region, covariate and coefficient effects both have significantly increased the observed disparities in HAZ outcomes. We discuss our results in light of the superior track record of food and nutrition policies in the southern states.

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Introduction

The tenacious prevalence of childhood stunting in India has been a major public health concern. The prevalence of childhood stunting has dropped by 27 percent (about 14 points) between 1993 and 2016 (IIPS 1995; IIPS and ICF 2017) in spite of a sizeable increase in per capita gross domestic product during this period. If we compare with China, these rates of decline look modest; in China, childhood stunting dropped from 33 to 10% between 1992 and 2005 (Svedberg 2006). A systematic review has also concluded that, in India, burden of childhood stunting is still extraordinarily high and there is an urgent need to understand the risk factors in greater details (Ansuya et al. 2018).

Meanwhile, the National Nutrition Mission (NNM) launched by the Government of India in March 2018, brought nutrition at the foci to attain productive and sustainable future. The mission envisaged that child nutrition is the key for foundation of human development; and reducing susceptibility to morbidity, mortality, and disability by providing proper nutrition would enhance cumulative lifelong learning capabilities and productivity during adulthood. The importance of reduction of childhood stunting for overall well-being has also iterated by the National Health Policy (2017).

A number of studies conducted in India have demonstrated that an array of household, individual, and contextual factors have significant influence on childhood undernutrition (Subramanyam et al. 2010; Fenske et al. 2013). Prominence of mother's marital age, seeking antenatal care services, educational attainment, nutritional status, and anaemia; child's adequate and diversified diet; possession of household assets, sanitation facility, and, household size in determining child nutritional status is found in recent studies (Menon et al. 2018). They found that these factors together explain 71% of the observed differences in stunting prevalence across Indian districts. By employing spatial econometric model, Khan and Mohanty (2018) concluded that mother's BMI and household's wealth are strong and

significant predictors of all the three anthropometric outcomes, while women's educational attainment and breastfeeding practices have significant association with stunting and underweight.

Recently, Jose et al. (2018) have found that although a moderate decline of child undernutrition was observed during last ten years, a large and graded socio-economic and spatial disparity continues to exist. The study has also noted that about 83% of high stunting prevalence (higher than the national average) districts belong to eight states located in north-central (Uttar Pradesh, Bihar, Madhya Pradesh, and Jharkhand), western (Rajasthan, Gujarat, and Maharashtra), and eastern (Odisha) region. The study has also pointed out that women's undernutrition and poverty at the district-level have strong effects on child underweight. Thus, effects of endowments (or covariate *per se*) were found to be significant in India; however, they vary across space and nature of endowment.

Some macro-economic studies have also tried to unveil disparities in returns to endowments (or strength of association *per se*) such as influence of strength of institutions in implementing public policies and programmes, spread of public services, community's bargaining power, quality of the governance, and macro-level politico-economic context etc. on child undernutrition. In India, regional disparity was observed between northern, north-central, and southern states in institutional performance (Bajpai 2014; Barik and Thorat 2015; Sanneving et al. 2013). Effect of inter-state politico-institutional factors on child undernutrition was also revealed by Harriss and Kohli (2009) by differentiating "clientelism" and "programmatic" politics.

Limited attempts were made to delimit the contribution of covariates operating at individual, household and at the aggregate level (*covariate effects*) and contribution of the strength of relationship (*coefficient effects*) together on child anthropometric outcomes to understand cross-region disparities in India. Earlier study carried out by Cavatorta et al. (2015)

found that large cross-state disparities in child nutritional outcomes in India are modestly explained by the differences in the endowments, while returns to the endowments or lumpsum effect of implementation of nutrition-relevant policies and programmes play central role in explaining such disparity.

Numerous nutrition-centric policies were introduced after 2005. For instance, the Ministry of Women and Child Development had revised National Plan of Action for Children (NPAC). Policies regarding elimination of vitamin A deficiency, control of anaemia, and, National Guidelines on Infant and Young Child Feeding (IYCF) were also revised in 2006. *Janani Suraksha Yojona* (JSY) was implemented in 2006 for better maternal and child health outcomes as a component of National Rural Health Mission (NRHM). Nonetheless, Vir et al. (2014) have noted that despite the articulation of the National Nutrition Policy (NNP), in the post-NNP phase, the overall issue of undernutrition received very little attention, except for increased attention to the supplementary feeding component of the ICDS Scheme. Meanwhile, a number of states have also come up with state-specific schemes and emphasis on multisectoral nutrition intervention was given.

Against this backdrop, the present study proposes to investigate cross-region disparity in childhood stunting in India. The purpose of the present study is to assess the relative contribution of different endowments (or covariates) and returns to those endowments (effects of implementation of various policies and programmes) contributing in disparities in childhood stunting with respect to the benchmark region of southern states by employing unconditional quantile regression-based counterfactual decomposition (QR-CD). Such method allows the covariate and coefficient effects to vary along the entire distribution of the outcome variable and perceived to be a more nuanced approach to delineate the effects of endowments (or covariates) and returns to endowments (or coefficients). We would also enquire whether contribution of covariate and coefficient effects are different at the lower tail of the HAZ

distribution, where severe stunting likely to be prevalent, compared to the middle and higher tail during the study period? Such insights would be of utmost importance in a policy atmosphere where targeting most vulnerable is considered imperative.

Our primary hypothesis is that cross-region disparity of childhood stunting is arising out of varying endowments of the regions. We are, of course, particularly interested in disparities in the lower tail of the distribution. A secondary hypothesis is that, even if a covariate or a coefficient dominates, there are important differences across the HAZ distribution in the relative contributions of covariate and coefficient effects. The rationale behind application of QR-CD approach would be strengthen if the second hypothesis holds.

Materials and Methods

Data and variables

Unit-level data from the fourth round of National Family Health Survey (NFHS-4), 2015-16, was used carry out the study. The survey was conducted by the International Institute for Population Sciences (IIPS), Mumbai and ICF. NFHS collects data on various socio-demographic and population health indicators including nutritional status of women, men and children based on a nationally representative sample. The dataset is accessible for free of cost after obtaining requisite permission and approval from MEASURE-DHS archive. The survey collected information from 601,509 households and interviewed 527,889 ever-married women (in the age group 15-49) in all the states and union territories in India. In addition, the survey collected information on indicators pertaining to maternal and child health care of 259,627 children born during the five years preceding the survey. In the state module, the sample sizes were 91,933 for women and 45,231 children born during five-years preceding the survey. Out of 45,231 children, complete information of 38,696 (Correct) children on various anthropometric and other socio-demographic, economic and healthcare related was available.

Stunting, an indicator of long-term childhood deprivation, defined as Height-for-age Z scores (HAZ) less than two standard deviation of the WHO International Reference Standard (WHO 2010), has been used as outcome variable. As suggested by Cavatorta et al. (2015), although we started with reduced form of conceptual framework of UNICEF (1990) and other previous literature, we further refined our covariate set since decomposition of observed HAZ differences into covariate and coefficient effects require well-specified regressions models which should include only key relevant covariates. Our final regression models include following covariates representing child, maternal, household and spatial characteristics.

We included current age of the child (in months), square of the age, sex of the child (male/female), size of the child at birth (more than average, average, small) as a proxy for birth weight, early initiation of breastfeeding (no/yes), number of siblings (continuous), receipt of ICDS services during 12 months preceding the survey (no/yes), age-adjusted child immunization status (no/partial/full) as child characteristics. Maternal characteristics comprises age of the mother at first birth (continuous), square of age (continuous), maternal educational attainment (continuous) and work status (not-working/working), degree of media exposure (additive index of three binary variables – reading newspaper at least once a week, watching television at least once a week, listening radio at least once a week) (continuous), Mother's height and BMI (continuous), and, level of anaemia (no, mild/moderate and severe). In addition, institutional delivery of the index child (no/yes) has been considered as a proxy of contact with health personnel by mother. Further, normalized factor scores of variables indicating household decision-making, freedom of movement, economic freedom etc. were incorporated as maternal level variable in continuous form representing degree of women's empowerment (see endnote 1 for details). Similarly, normalized factor scores of variables indicating maternal dietary practices were also included as maternal characteristics (see endnote 2 for details).

Household affluence, socio-religious category (Hindu SC/ST, Hindu OBC/others, Muslims/others), and place of residence (rural/urban) were incorporated as household level variable. The index is based on possession of household durable assets, availability of safe drinking water and sanitation, and handholding. For construction of index, the variables were first broken into sets of dichotomous variables and indicator weights are assigned using principal component analyses (PCA) as suggested by Filmer and Pritchett (2001).

It is important to mention that the southern region includes Kerala, Tamil Nadu, Karnataka, Andhra Pradesh and Telengana, while the northern region comprises Delhi, Rajasthan, Punjab, Haryana, Jammu & Kashmir, and Himachal Pradesh. The north-eastern region incorporates the states of Sikkim, Arunachal Pradesh, Manipur, Nagaland, Mizoram, Meghalaya, Tripura and Assam, while the central region includes Uttarakhand, Uttar Pradesh, Chhattisgarh and Madhya Pradesh. The eastern region comprises the states of Bihar, West Bengal, Jharkhand and Odhisa, whereas the western region includes Gujarat, Maharashtra and Goa.

Methods

To assess differentials in HAZ scores according to regions, we first estimated the distributions of HAZ scores separately for all the regions using kernel density smoothing techniques. We then computed regional differentials at each quintile and provided raw difference in HAZ distribution across quintiles.

Main objective of the present study is to decompose the regional differences in HAZ outcomes into the covariate effects (i.e. differences in HAZ scores due to differential level of characteristics in differing regions), and the coefficient effect (i.e. differences in HAZ scores due to the differential returns to those characteristics across the entire distribution of HAZ scores in differing regions) as mentioned earlier. It may be mentioned that OLS or logit/probit type regressions are inappropriate in such situation because of their limitations, and, decomposition based on OLS results would apply only to the mean regional differences in HAZ

scores, but not to the other distributional characteristics such as quintile and thus constrained in policy making. Moreover, employing OLS after simple segmentation of the outcome variable, for example, HAZ into deciles would introduce sample selectivity bias (Koenker and Hallock 2001).

Quintile regression method as developed by Koenker and Bassett (1978) can estimate only conditional quantile effects of changes in explanatory variable and thus not very suitable for the present study because such method does not capture the effect of a change in a predictor variable in a population of individuals with different characteristics rather than influence among group of individuals with specific values of covariates. In the present study, we have applied Blinder-Oaxaca decomposition method for unconditional quintile regression models suggested by Firpo et al. (2009) and Fortin et al. (2011) to decompose the regional HAZ score differential along the entire distribution.

Firpo et al. (2009) have proposed to estimate the impact of changing the distribution of explanatory variables on the marginal (unconditional) quantiles of outcome variable by employing a regression of a transformation – the recentered influence function (RIF) – of the dependent variable (Y) on the explanatory variables (X). This approach allows estimating the contribution of each explanatory variable for the components of the HAZ decomposition and thus extends the Blinder and Oaxaca decomposition to other distributional statistics than the mean (Fortin et al., 2011).

To estimate the unconditional quantile regression, first we have derived the RIF of the response variable (HAZ score, in our case). The RIF for the τ_{th} quantile is given by the following expression:

$$RIF\ (Y, q_{\tau}) = q_{\tau} + \frac{\tau - I(Y \leq q\tau)}{fy(q\tau)} \qquad (1)$$

Where $f_Y(q_{\tau})$ is the marginal density function of Y at the point q_{τ} estimated by kernel methods; q_{τ} is the sample quantile; I ($Y \leq q_{\tau}$) is an indicator function indicating whether the

value of the outcome variable is below q□. RIF provides a linear approximation to a non-linear functional (ν(Y)) (such as median) of the Y distribution and thus allow computing partial effects for single covariates (Firpo et al. 2009). Firpo et al. (2009) have also shown that by estimating OLS of the new dependent transformed variable on the covariates (X), the RIF quantile regression may be implemented. In our case, considering two regions (A and B), RIF regressions for HAZ score in both regions are estimated as:

$$E\,[RIF\,(Y_{i\epsilon g}\,;\,q_{\tau}\,)\mid X_{i\epsilon g}\,] = X_{\,i,\,g}\,\beta_{\tau,\,g} \quad g = A, B \qquad (2)$$

Coefficients $\beta_{\tau,\,g}$ represents the approximate marginal effects of the predictor variables on the HAZ quantile q_{τ} for children age 0-59 months in region g = A, B.

To decompose the observed differences of HAZ scores between two regions A and B (say southern and northern region in this case), into covariate (differing endowments of observed determinants of HAZ) and coefficient (differing strength of relationships between observed determinants and HAZ) effects, it is also necessary to estimate the counterfactual HAZ distribution. We have obtained the counterfactual HAZ distribution (say C distribution) by combining the covariates of region A with the distribution of characteristics of region B. This is the distribution of HAZ scores in B region that would have prevailed if the households in the B region had the same returns to their characteristics as households in the A region.

If q_{τ_A} and q_{τ_B} are given quantiles of the HAZ score distribution in A and B regions respectively, and q_{τ_C} is the same quantile of the counterfactual C distribution, then the overall difference between B and A HAZ scores at any given quantile can be decomposed as:

$$q_{\tau\_B} - q_{\tau\_A} = [q_{\tau\_B} - q_{\tau\_C)}] \;\; + [q_{\tau\_C} - q_{\tau\_A}] \qquad (3)$$

Where $[q_{\tau\_C} - q_{\tau\_A}]$ represents the covariate effect and $[q_{\tau\_B} - q_{\tau\_C)}]$ represents the coefficient effect.

The covariate and coefficient effects are each decomposed into the contribution of individual covariates using the RIF regression as mentioned in equation (2) to obtain unconditional quantile effects of covariates on HAZ scores.

Using the RIF unconditional quantile estimates the following decomposition of HAZ score can be obtained for any given quantile:

$$\widehat{q_{\tau\_B}} - \widehat{q_{\tau\_A}} = \left[\overline{X_B}\left(\widehat{\beta_C} - \widehat{\beta_B}\right) + \widehat{R^{Coeff}}\right] + \left[\left(\overline{X_A}\,\widehat{\beta_A} - \overline{X_B}\,\widehat{\beta_C}\right) + \widehat{R^{Cov}}\right] \quad (4)$$

Where $\widehat{q_{\tau\_B}} - \widehat{q_{\tau\_A}}$ represents the raw difference in B and A HAZ scores at the τth quantile and X represents the covariate averages. Note that $\widehat{\beta_C}$ is estimated from a RIF regression of the counterfactual HAZ score distribution. $\left(\widehat{\beta_C} - \widehat{\beta_B}\right)$ is, therefore, the difference in the effects of covariates between regions and $\overline{X_B}\left(\widehat{\beta_C} - \widehat{\beta_B}\right)$ represents the coefficient effect. $\left(\overline{X_A}\,\widehat{\beta_A} - \overline{X_B}\,\widehat{\beta_C}\right)$ represents the differences between B and A HAZ scores attributable to the differences in characteristics of endowments and hence represents the covariate effect. $\widehat{R^{Coeff}}$ and $\widehat{R^{Cov}}$ are errors related to the estimation of coefficient and covariate effects.

We have tried our best to minimize endogeneity problem while making choice regarding predictor variables as par previous literature (Srinivasan et al. 2013; Cavatorta et al. 2015). However, endogeneity could still persist among different predictor variables and leading to difficulties in interpreting parameters. However, one should keep in mind that the objective of the CD exercise is not identifying causality, rather judge the relative importance of covariate and coefficient effects in explaining variations in HAZ scores (Srinivasan et al. 2013; O'Donnell et al. 2009). Thus, a cautious approach should be adopted while interpreting coefficients of the variables that are potentially endogenous, though validity of decomposition is not in question.

Results

Descriptive statistics of HAZ scores across regions

Table 1 presents descriptive statistics of observed HAZ scores across quintiles in six regions of India. Overall, under-five children belong to the southern India are least likely to be stunted (HAZ score -1.14), while such children belong to the central region are most likely to be stunted (HAZ score -1.70). However, at the bottom quintile, children belong to the north-eastern India have marginally better HAZ outcome compared to their counterparts in the southern region, whereas children of the central region have the worst HAZ outcomes. Child's HAZ outcomes found to be relatively better in the southern region in all other quintiles and worst in the central region. Other than the central region, child HAZ outcome was found to be relatively worse in the eastern region as well. Although other regions may be placed in intermediate category, HAZ scores across quintiles are comparable between the northern and north-eastern regions.

Sample characteristics of study children across regions

Table 2 depicts sample characteristics of the children across regions. As expected, mean age of the children does not vary according to region; mean age of the children is between 29 and 30 months. Proportion of girls in the sample is disproportionately lesser than boys; such differences are somewhat higher in the northern and central regions. 29% of the children in the southern region are born with average or greater than average size, while such percentage was only 11 in the northern region. Children born with lesser than average size are higher in the central region (13%) followed by the eastern region (11.5%). Early initiation of breastfeeding is found to be the highest in the north-eastern region (67.8%) and lowest in the central region (32.6%). Sibling size of children, which is defined as total number of living younger and older siblings, has found to be the highest in the central region and the lowest in the southern region. It may also be observed that more than six out of ten children have benefitted from ICDS services in the southern and eastern region, while such proportions are relatively lower in

northern and north-eastern region. Complete immunization was observed to be higher in the southern region compared to other regions.

Mother's age at first birth is observed to be the lowest in the eastern region (20.5 years) closely followed by the central region (20.9 years), while it the highest in the northern region (22 years). Mean BMI of mothers has found to be the highest in the southern region and the lowest in the eastern region. Mothers' of the southern region has the highest completed years of schooling (9.2 years), while mothers from eastern region have the lowest educational attainment (4.9 years). Mild/moderate anaemia among women has been found to be the highest in the eastern region (47.7%), while severe anaemia has been found to be the highest in the central region (17.2%). Mother's mean height has been found to be the highest in the northern region (154.7 cm), while it is the lowest among mothers of the eastern region (149.9 cm). Mothers belong to the southern region have higher degree of dietary diversity compared to other regions, while mothers of the central region have lesser degree. Level of empowerment among the mothers was observed to be relatively higher in the north-eastern region followed by the southern region, while it is relatively lower in the eastern and central regions. Degree of mass media exposure is found to be the highest among the women in the southern region, while it is the lowest among mothers of the eastern region. Proportion of institutional delivery also varies widely across regions – although nearly 97% of women in southern region delivered in institution, it is only 65% in the eastern region. Proportion of working mothers is found to be the highest in the north-eastern region (21.8%) and the lowest in the eastern India (14%).

Proportion of non-SC/ST Hindus are higher in the sample except in the north-eastern region, while proportion of Muslims and other minorities are relatively higher in the southern region and northern region. Proportion of the poorest households in the sample has been found to be the highest in the eastern region (48.3%) followed by the central region (30.5%), while the proportion of the affluent households has been located in the northern and the western

region. Proportion of urban residents is found to be the highest in the southern region (43.6%) closely followed by the western region (43.5%).

Results of Recentered influence function (RIF) quantile regression

The estimates obtained from the unconditional RIF quantile regression for six regions separately are shown in Tables 3 to 5. Although all the variables considered in the RIF quantile regression found to have significant influence on childhood stunting, such associations vary across quantiles and regions.

Increase in child's age significantly tend to lower HAZ score, reflecting growth faltering among young children in all the regions. It is important to note that the negative effect of age increases substantially as we move from the lower tail to the upper tail, particularly up to 75^{th} quantile, in all the regions – indicating children who have had better nutritional status stand to lose more on account of growth faltering as they grow older. Such a pattern underscores the importance of flexibly modelling effects across the distribution. There is no apparent gender disparity against girls in childhood stunting in all the regions. Rather, girls have positive HAZ outcomes compared to boys almost in all the quantiles across regions. Significant negative effect of smaller birth size (proxy for low birth weight) on growth faltering has been observed in all the regions; it somewhat reduces for the children belong to the highest tail of the HAZ distribution in the eastern and southern regions. Association between early initiation of breastfeeding and childhood stunting has been observed to be mixed. For instance, in the northern region, although significant positive association between early initiation of breastfeeding and child's HAZ outcomes was found across quantiles, such association was negative and significant at 25^{th}, 75^{th} and 90^{th} quantiles in the north-eastern region (Table 3). In the southern region, effect of early initiation of breastfeeding on childhood stunting gradually became positive and significant as we move from the lower tail to the upper tail of the HAZ distribution (Table 5). Higher sibling size significantly tends to reduce HAZ scores for the

indexed children belong to the bottom quantile in every region except the western region. Our analysis also revealed that, effect on receipt of ICDS services is mixed and varies across quantiles and regions. Age-adjusted full immunization found to have positive and significant effect on child's HAZ outcomes at the bottom quantile in the northern, central, eastern and southern regions; however, the direction of association is reversed if we move from the lower to the higher tail of the distribution.

Mother's higher age at first birth is found to have positive and significant influence on HAZ scores in almost all the regions with some exceptions. Even after controlling other confounding variables, mother's height and BMI have net positive and significant influence on a child's HAZ scores across quantiles and regions; however, at a smaller degree. We observed that as we move from the lower tails to the upper tails of HAZ distribution, significant positive influence of mother's completed years of schooling weakens in the north-eastern region; however, remained positive and significant in all other regions. Our analysis suggests that anemic mothers generally have poorer HAZ scores of their children except for the bottom quantile children of the western and southern regions. Mother's dietary diversity is found to have mix association and varies across regions and quantiles with her child's HAZ outcomes – the net effect of mother's dietary diversity is positive and significant throughout the quantiles in the eastern region; such association is negative and significant among children belong to the northern regions, except at the median. Women's empowerment found to have stronger influence on child's positive HAZ outcomes at the upper quantiles except few occasions. Exposure to mass media of mothers significantly enhance HAZ scores among children across quantiles except the eastern and northern regions. Our analysis suggests positive and significant net effect of institutional delivery in enhancing child's HAZ scores for the children belong to the bottom quantiles except in all regions except for northern regions.

As far as socio-religious composition of the household is concerned, we found that Hindu OBC and upper caste children are more likely to have higher HAZ scores compared to Hindu SC/ST children across quantiles in the northern, central and southern regions; however, not in all the quantiles in rest of the regions. Also, children belong to Muslims/other minorities in the said regions more likely to have higher HAZ scores compared to SC/ST children across quantiles except the 90^{th} quantile of the southern region. It is worth mentioning that although possession of household assets has positive and significant influence on child HAZ outcomes in every region, though its effect is minimal.

Urban residence positively and significantly associated with a child's higher HAZ scores compared to rural residence even after controlling other potentially confounding factors across quantiles in the western and southern regions, while opposite holds for the northern and north-eastern regions.

Thus, we have observed that various factors are influencing child's HAZ scores in varying degree at different quantiles and regional variations of such influence are also pronounced.

Counterfactual decompositions

The differences in HAZ scores across quantiles and divisions, the decomposition of these differences into aggregate covariate and coefficient effects and the contribution of broad characteristics to these effects are presented in Tables 6-10. Appendix Tables A1-A5 depict the contribution of individual characteristics in disentangling covariate and coefficient effects in detail. Tables 6-10 revealed considerable variations in counterfactual HAZ distributions and, covariate and coefficient effects across regions while comparing with benchmark southern region. One needs to keep in mind that the *negative sign* of the observed raw gap in HAZ scores between the southern and other regions reflects the fact that raw HAZ scores of other regions are lower than the southern region in all quintiles, except at the lowest quintile of the north-eastern region. Additionally, it must also be kept in mind that the direction of effect of

contribution of characteristics in the lower panels of the Tables 6-10 – *negative* figures imply a contribution to *increase* in the regional disparity in HAZ scores, while positive figures show a contribution to *diminish* it. A careful look to these tables reveals covariate effects and coefficient effects both have significant contribution in enhancing cross-region disparities across quantiles.

If we compare covariate, coefficient effects, and overall HAZ scores of the southern region with those of northern region, we found that coefficient effects significantly contribute in increasing HAZ disparity in every quantile (ranges from 124% at 25^{th} quantile to 217% at 10^{th} quantile), while covariate effects try to reduce disparities significantly at 10^{th}, 75^{th} and 90^{th} quantiles (Table 6). The bottom panel of the table suggests that contribution of maternal level endowments in reducing disparities was the highest among all other endowments, while contribution of returns to endowments at the child level contribute significantly to enhance disparities at 50^{th} and 90^{th} quantiles followed by the returns to the spatial characteristics. Mother's dietary diversity followed by mother's height and household wealth are the highest contributing factors in reducing disparities in her child's HAZ outcomes for the bottom quantile (Appendix Table A1).

On the contrary, if we compare the north-eastern region with the southern region, we find that coefficient effects try to reduce disparities at 10^{th} and 25^{th} quantiles, while enhance it at the 90^{th} quantile. At the same time, covariate effects significantly increase the disparities; however, its effect diminishes as we move from the bottom to the highest quantile (Table 7). It may also be noted that contribution of maternal endowments in enhancing such disparities was the highest among other endowments. Mother's height found to be highest contributing factor in enhancing disparities and its effect increases as we move lowest to the highest quantile (Appendix Table A2).

While comparing disparities in child HAZ scores between the southern and the central region, we find that covariate as well as coefficient effects both significantly contribute in enhancing disparities in childhood stunting, contribution of covariate effects decline as we move from lower to the upper end of the HAZ distribution. Contribution of coefficient effects found to be the maximum at the highest quantile of the distribution. Influence of maternal endowments in increasing disparities found to be the highest as found in earlier cases. Differences in maternal education, BMI and child's age were found to be the highest contributing factors in enhancing disparities (Appendix Table A3).

If we compare contribution of covariate and coefficient effects in increasing disparities in child HAZ outcomes between eastern region and our benchmark region of the southern states, we find that covariate effects overwhelmingly dominates over coefficient effects in enhancing disparities in childhood stunting across quantiles (77.9% at highest quantile to 154.8% at the bottom quantile). Although coefficient effects have contributed in reducing such disparities, their magnitudes were small (22.1% at highest quantile and 54.8% at the lowest quantile) (Table 9). Lower panel of the Table 9 suggests that, like other regions, contribution of unequal maternal endowments is the largest contributor of increasing disparities ranging from 73.5% at the bottom quantile to 58.3% at the highest quantile, while contribution of the household endowments are modest and increase as we move from lower to the upper quantile. Appendix Table A4 revealed that contribution of maternal height and BMI are the highest in increasing disparities; however, varies according to quantiles.

Contribution of covariate and coefficient effects in increasing child HAZ disparities is mixed and varies across quantiles if we compared child HAZ outcomes between the western and southern region. For instance, coefficient effects contributes nearly 72% in increasing disparities at bottom quantile, effects of covariates were nearly 69% and 113% at 75^{th} and 90^{th}

quantiles. Contributions of mother characteristics, namely, mother's educational attainment, found to be the highest in increasing disparities (Table 10 and Appendix Table A5).

Discussion

Regional variations of undernutrition among under-five children in a vast country like India have been well-documented by a number of studies conducted in the recent past (Menon et al. 2018; Khan and Mohanty, 2018; Covatorta et al. 2015; Mohsena et al., 2015; Pathak 2009). However, these studies could not point out whether covariate and coefficient effects vary across HAZ distribution, understanding of which is important in a society where high degree socio-economic inequity prevails.

We have used distribution-wide RIF regression and counterfactual decomposition method to understand drivers of disparity in childhood stunting across regions of India. We preferred this method because, first, it is less restrictive than mean regression, and second, it allows us to disentangle covariate and coefficient effects for each quantile, which could be extremely valuable for the policy makers and programme implementers as mentioned earlier. Our results indicate that both covariate as well as coefficient effects with varying proportions across quantiles and explain the observed HAZ differences according to regions. Table 11 summarizes the results. With respect to southern region, disparities in child's HAZ outcomes are largely due to covariate effects in the eastern and north-eastern regions with exceptions in some quantiles, while such disparities are largely accounted for coefficient effects in the northern region. On the other hand, in the central as well as western regions, coefficient as well as covariate effects both are contributing to enhance disparities (with varying degree according to quantiles) with respect to southern region. Thus, our hypotheses are partially accepted. As noted earlier, our empirical analyses involved a wide set of covariates drawn from the previous literature first and the selection of final set was based on model fit. Thus, the plausibility of insufficient coverage of covariates in influencing our results could be low, given the

informational constraints inherent in NFHS data. However, some of the weaknesses of the study are also acknowledged. First, cross-sectional data are not appropriate for identifying causal effects and thus the results are at best indicative and not conclusive. Secondly, our model specifications are limited by the nature of the NFHS data, group-wise decomposition methods impose the requirement of identical sets of covariates across groups (Covatorta et al. 2015), and interpretations of coefficient effects are speculative to some extent. Nonetheless, the present study helps in highlighting important region-specific dimensions for reduction of childhood stunting in India.

Significant variations across states with respect to culture, attitudes, and dietary habits of population have been well-known. In addition, functioning of institutions, availability and accessibility of public services, levels of social, economic and human capital and political makeup also vary across states and regions in India.

Clearly, performance of southern states with respect to child HAZ outcomes appears to be significant with its comparators. Earlier studies have argued that the southern states have not only observed demographic transition as well as epidemiologic transition but also have advanced level of human development indicators and better in terms of provisions of public services such as drinking water, sanitation, healthcare, education, public distribution system, transportation and so on (Paul et al. 2004). As argued by Covatorta et al. (2015) coefficient effects in such comparison amass several potential effects together and do not provide specific information regarding factors or actions; however, health and nutritional related policies and programmes would likely to play an important role in this context. While comparing superior child nutritional outcomes of Tamil Nadu to the states with worse performer, they argued that effective implementation of ICSD, Public Distribution System, Noon Meal Scheme in the school played an important role in child anthropometric outcomes. In an earlier study, to understand dramatic improvement in child nutritional status in Vietnam during 1990,

O'Donnell et al. (2009) found that covariate and coefficient effects are equally important, and noted remarkable consistency of the strong coefficient effects with health, food and nutrition policies introduced in that period. Arguably, elements of such programmes have potential to influence both the slope coefficients as well as the intercept independently. For example, growth monitoring can arrest growth faltering reflected in the strength of relationship between child age and HAZ scores as well as can improve height independently of specific variables (Covatorta et al. 2015).

States in the central region are not only underdeveloped in terms of human development indicators but also the provision of various services and amenities are poor (Paul et al. 2004) and could have resulted in poor nutritional outcomes for children. Further, our results also suggest that the differences in implementation in various nutrition-centric policies between the central and southern regions are also responsible for such outcome. Surprisingly, such differences between southern and western regions were also observed, which requires deeper investigations.

Our results also indicate that equalizing few endowments have a potential to reduce disparities in nutritional outcomes among children between the southern and, the eastern and the north-eastern regions. Among the endowments, mother's BMI, education and household affluence are amenable by implementing better policies and implementation and defining policy priorities.

To note, the state has prioritised public provisioning of nutrition sensitive programmes in the recent past aiming reduction in child undernutrition, though separate policy document in nutrition is yet to come up in many states. We recommend inter-regional variations of factors affecting childhood stunting and level of implementation should be focussed in nutritional policy of different states, particularly central and northern states. Additionally, there should be

enough scope to corroborate agricultural policies, livehoold generation policies with in the nutrition policy.

It may be mentioned that currently, in Bihar, 18 centrally sponsored schemes and 30 state-specific specific schemes are being implemented by 16 departments. One such state-specific nutritional intervention has been implemented through JEEViKA[3] platform in 101 blocks of 11 districts. Initial evaluation suggests collectivization of healthy practices around reproductive, maternal, neonatal and child health in rural Bihar has increased significantly through this intervention (Saggurti et al. 2018). It is hoped that nutrition sensitive programmes would result in reduction of child undernutrition in the long run. We suggest such intervention should be scaled-up further in other underdeveloped states, if proven successful. To ensure better dividends from these schemes, there is a need for developing a comprehensive framework for appropriate budgeting and expenditure for these schemes and brining convergence, greater coordination among the administrative departments (Acharya et al. 2017). In line with Gillespie et al. (2013), we conclude that apart from scaling up proven nutrition sensitive interventions, focussing on policy processes and outcomes, and their political underpinnings will be critical to reduce childhood stunting in India.

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[3] JEEViKA is an initiative of the Government of Bihar for poverty alleviation, which aims at social and economic empowerment for the rural poor by improving their livelihoods by developing institutions of women like self-help groups (SHGs) and their federations. It will eventually enable rural households in accessing and negotiating better public provisioning of credit, assets and services.

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Table 1: Percentile of HAZ score in six regions of India in 2015-16						
Percentile	Northern	North-Eastern	Central	Eastern	Western	Southern
10	-3.25	-3.12	-3.65	-3.58	-3.52	-3.16
25	-2.29	-2.30	-2.72	-2.71	-2.51	-2.22
50	-1.32	-1.39	-1.80	-1.74	-1.59	-1.26
75	-0.25	-0.35	-0.76	-0.72	-0.49	-0.20
90	0.84	0.85	0.30	0.40	0.79	1.05
Total	-1.23(0.02)	-1.25 (0.02)	-1.70(0.02))	-1.64 (0.02)	-1.42(0.03)	-1.14(0.03)

Table 2: Sample characteristics of child aged 0-59 months according to background characteristics by regions, 2015-16						
	Northern	North-Eastern	Central	Eastern	Western	Southern
Child HAZ (Mean)	-1.23(0.02)	-1.25 (0.02)	-1.70(0.02))	-1.64 (0.02)	-1.42(0.03)	-1.14(0.03)
Age of Child in Month (mean)	29.80	30.01	30.11	29.91	30.14	30.01
Age2 (mean)	1173.10	1189.77	1200.32	1182.78	1201.01	1168.98
Child Sex						
Male	53.13	50.77	52.01	50.63	51.71	50.10
Female	46.87	49.23	47.99	49.37	48.29	49.90
Birth Size						
Normal	78.76	72.03	72.44	70.28	64.77	61.20
Average and above	11.39	17.27	14.10	18.22	24.30	29.03
Small	9.85	10.70	13.46	11.50	10.93	9.78
Early Breastfeeding						
No	60.57	32.22	67.36	55.68	44.62	42.32
Yes	39.43	67.78	32.64	44.32	55.38	57.68
No. of Sibling (mean)	1.31	1.57	1.57	1.50	1.14	0.95
Benefitted ICDS services						
No	53.18	53.01	42.62	36.26	41.68	34.82
Yes	46.82	46.99	57.38	63.74	58.32	65.18
Immunization						
No	7.21	17.41	8.28	7.53	11.50	3.54
Partial	35.63	36.38	44.96	36.81	42.24	35.50
Full	57.16	46.21	46.76	55.66	46.26	60.96
Mother's Characteristics						
Institutional Delivery						
No	15.35	34.89	27.09	29.39	9.17	3.36
Yes	84.65	65.11	72.91	70.61	90.83	96.64
Age of mother at first birth	22.00	21.70	20.94	20.53	21.35	21.64
BMI of mother (mean)	21.97	21.71	20.92	20.32	21.14	22.52
Mother's anaemia						
No	42.86	53.46	41.36	36.10	46.83	47.56
Mild/moderate	40.82	34.79	41.42	47.72	37.55	37.24
Severe	16.32	11.74	17.22	16.18	15.62	15.19
Mother's height (mean)	154.65	150.78	151.28	149.89	152.45	152.80
Mother's Education (mean)	6.78	6.73	5.74	4.85	7.32	9.21
Working mother						
No	86.50	78.24	82.34	86.04	79.18	81.43
Yes	13.50	21.76	17.66	13.96	20.82	18.57
Maternal dietary index	4.92[0-10]	4.88[0-10]	4.01[0-10]	5.25[0-10]	4.57[0-10]	5.55[0-10]
Empowerment	6.45[0-10]	7.16[0-10]	6.24[0-10]	6.05[0-10]	6.44[0-10]	6.78[0-10]
Media exposure	1.32[0-3]	1.28[0-3]	1.04 [0-3]	0.81[0-3]	1.31[0-3]	1.63[0-3]
Religion and caste composition						
Hindu/SC/ST	34.34	69.16	35.21	35.27	27.65	27.94
Hindu/Others	48.02	19.10	50.67	50.09	60.44	55.60
Muslim/Others	17.64	11.74	14.12	14.64	11.90	16.66
Wealth index						
Poorest	10.56	18.91	30.45	48.30	9.28	3.60
Poorer	16.41	32.09	24.20	24.89	18.90	14.80
Middle	21.10	24.08	17.86	14.49	22.82	28.57
Richer	22.09	16.21	14.43	8.25	23.75	30.87
Richest	29.84	8.72	13.06	4.07	25.18	22.16
Place of residence						
Urban	27.55	23.78	23.64	15.26	43.45	43.61
Rural	72.45	76.22	76.36	84.74	56.55	56.39
Total	7928	5234	10653	7770	3175	3936

Table 3: Unconditional Re-centred Influence Function (RIF) quantile regression results for Northern and North-Eastern regions in India (2015-16)										
	Northern region					North-Eastern region				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Child Characteristic										
Age of Child (Mean)	-0.050***	-0.053***	-0.057***	-0.086***	-0.096***	-0.022***	-0.031***	-0.054***	-0.09***	-0.083***
Age2	0.001***	0.001***	0.001***	0.001***	0.001***	0.000***	0.000***	0.001***	0.001***	0.001***
Female	0.153***	0.06***	0.053***	0.089***	0.172***	0.243***	0.11***	0.176***	0.179***	0.216***
Birth Size										
Normal										
Average and above	-0.066*	0.074***	-0.026	0.123***	0.342***	0.022	0.207***	0.215***	0.116***	0.503***
Small	-0.028	-0.135***	-0.137***	-0.233***	-0.197***	-0.169***	-0.102***	-0.287***	-0.5***	-0.426***
Early Breastfeeding (Yes)	0.121***	0.102***	0.06***	0.092***	0.187***	-0.006	-0.037*	-0.017	-0.063***	-0.119***
No. of Sibling (Mean)	-0.064***	-0.013	0.001	0.024***	0.046***	-0.044***	-0.084***	-0.084***	-0.066***	-0.054***
Benefitted ICDS services	-0.168***	-0.15***	-0.073***	-0.211***	-0.309***	0.103***	-0.046**	-0.117***	-0.005	-0.027
Immunization										
No										
Partial	0.053	0.148***	0.138***	0.116***	0.044	0.124***	0.065**	0.010	-0.068*	0.175***
Full	0.233***	0.197***	0.155***	0.069*	0.060	0.000	-0.154***	-0.140***	-0.286***	-0.197***
Mother's Characteristics										
Institutional Delivery (yes)	-0.110***	-0.060**	-0.066***	-0.087***	-0.054	0.063*	0.004	-0.027	-0.11***	-0.043
Age of mother at first birth	0.008**	0.008***	0.018***	0.024***	0.007	0.002	0.014***	0.007***	0.023***	0.034***
BMI of mother	0.000***	0.000***	0.000***	0.000***	0.000***	0.001***	0.000***	0.001***	0.000***	0.000***
Mother's Education	0.014***	0.02***	0.022***	0.018***	0.011***	0.017***	0.006**	0.016***	-0.012***	-0.031***
Mother's anaemia										
Mild/moderate	0.058**	-0.042**	-0.022	-0.166***	-0.106***	-0.066**	0.063***	0.045**	-0.133***	0.063*
Severe	-0.107***	-0.143***	-0.202***	-0.159***	-0.13***	-0.044	-0.127***	0.05*	-0.008	0.034
Mother's height	0.006***	0.006***	0.006***	0.005***	0.004***	0.005***	0.006***	0.005***	0.005***	0.004***
Working mother	-0.057	-0.007	0.063***	-0.131***	-0.123***	0.226***	0.242***	0.086***	0.010	0.065*
Maternal dietary index	-0.028***	-0.007**	0.001	-0.030***	-0.034***	0.010**	-0.005	-0.003	-0.006	0.007
Empowerment	-0.002	0.016**	0.002	-0.028***	0.008	0.007	0.024**	0.049***	0.05***	0.114***
Media exposure	0.243***	0.184***	-0.001	-0.040	-0.043	0.269***	0.182***	0.008	0.048	-0.106**
Religion and caste composition										
Hindu/SC/ST										
Hindu/Others	0.012	0.066***	0.112***	0.035	0.105***	0.196***	0.215***	0.163***	-0.034	-0.15***
Muslim/Others	0.022	0.078***	0.193***	0.307***	0.323***	-0.092**	-0.158***	-0.152***	-0.123***	-0.325***
Wealth index	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000	0.000***	0.000***
Place of residence										
Urban										
Rural	0.252***	0.148***	0.186***	0.172***	0.145***	0.066**	0.057**	0.053**	0.071**	0.153***
Constant	-12.467***	-12.414***	-11.564***	-7.84***	-4.037***	-12.371***	-11.815***	-10.188***	-6.911***	-5.111***
R square	0.049	0.090	0.117	0.100	0.062	0.048	0.098	0.130	0.129	0.069
Adj. R square	0.048	0.090	0.117	0.099	0.061	0.047	0.097	0.129	0.129	0.069

*p<0.05; **p<0.01;***p<0.001

Table 4: Unconditional Re-centred Influence Function (RIF) quantile regression results for Central and Eastern regions in India (2015-16)										
	Central regions					Eastern regions				
	10	25	50	75	90	10	25	50	75	90
Child Characteristic										
Age of Child (Mean)	-0.057***	-0.067***	-0.076***	-0.104***	-0.128***	-0.032***	-0.052***	-0.067***	-0.091***	-0.095***
Age2	0.001***	0.001***	0.001***	0.001***	0.002***	0***	0.001***	0.001***	0.001***	0.001***
Female	0.081***	0.029**	0.056***	0.03**	0.025	0.003	0.046***	0.023*	-0.001	0.098***
Birth Size										
Normal										
Average and above	-0.12***	-0.092***	-0.039***	-0.029	-0.058*	-0.045*	0.058***	0.104***	0.122***	0.023
Small	-0.299***	-0.298***	-0.329***	-0.312***	-0.363***	-0.356***	-0.253***	-0.299***	-0.206***	-0.051
Early Breastfeeding (Yes)	-0.022	-0.037***	0.029***	0.034**	-0.037*	0.041**	-0.043***	0.006	-0.091***	-0.031
No. of Sibling (Mean)	-0.041***	-0.068***	-0.046***	-0.005	-0.02***	-0.119***	-0.068***	-0.031***	-0.032***	0.041***
Benefitted ICDS services	-0.025	-0.037***	-0.057***	-0.102***	-0.154***	-0.066***	-0.09***	-0.093***	-0.142***	-0.136***
Immunization										
No										
Partial	0.157***	0.022	0.035*	0.009	-0.101**	0.367***	0.22***	0.02	-0.120***	-0.116**
Full	0.462***	0.192***	0.022	-0.132***	-0.305***	0.426***	0.239***	-0.027	-0.314***	-0.266***
Mother's Characteristics										
Institutional Delivery (yes)	0.000	0.081***	0.032***	0.035**	-0.030	0.201***	0.102***	0.010	-0.017	-0.08***
Age of mother at first birth	-0.012***	-0.008***	0.011***	0.024***	0.023***	0.000***	0.003	0.014***	0.03***	0.029***
BMI of mother	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.001***	0.001***	0.000***
Mother's Education	0.038***	0.031***	0.023***	0.024***	0.017***	0.008***	0.02***	0.026***	0.01***	0.02***
Mother's anaemia										
Mild/moderate	-0.031*	0.005	-0.025**	0.009	0.006	0.02	0.000***	-0.005	-0.097***	-0.106***
Severe	-0.205***	-0.113***	-0.135***	-0.083***	0.085***	-0.122***	-0.136***	-0.034*	-0.236***	-0.058
Mother's height	0.004***	0.006***	0.005***	0.006***	0.005***	0.005***	0.005***	0.006***	0.006***	0.006***
Working mother	-0.029	-0.084***	-0.141***	-0.186***	-0.2***	-0.134***	-0.046**	0.005	0.037	0.188***
Maternal dietary index	-0.001	0.004**	-0.001	0.012***	0.018***	0.03***	0.027***	0.017***	0.009***	0.021***
Empowerment	0.003	-0.001	-0.007*	-0.003	0.021***	0.06***	0.029***	0.003	0.028***	0.042***
Media exposure	0.163***	0.048***	0.036***	0.014	-0.026	-0.021	0.006	-0.008	-0.134***	-0.273***
Religion and caste composition										
Hindu/ SC/ST										
Hindu/Others	0.12***	0.119***	0.107***	0.152***	0.124***	0.064***	-0.035**	-0.027*	-0.062***	-0.026
Muslim/Others	0.221***	0.072***	0.052***	0.022	0.017	-0.143***	-0.145***	-0.195***	-0.292***	-0.306***
Wealth index	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
Place of residence										
Urban										
Rural	0.062***	-0.009	0.051***	0.033*	-0.106***	0.021	-0.042**	-0.104***	-0.115***	-0.184***
Constant	-10.048***	-11.282***	-9.477***	-9.104***	-6.741***	-11.892***	-11.104***	-11.284***	-9.856***	-7.643***
R square	0.0416	0.0933	0.1283	0.1293	0.0817	0.0499	0.0978	0.1454	0.1228	0.0701
Adj. R square	0.0414	0.0931	0.1281	0.1291	0.0815	0.0495	0.0975	0.145	0.1225	0.0698

*p<0.05; **p<0.01;***p<0.001

Table 5: Unconditional Re-centred Influence Function (RIF) quantile regression results for Western and Southern regions in India (2015-16)										
	Western regions					Southern regions				
	10	25	50	75	90	10	25	50	75	90
Child Characteristic										
Age of Child	-0.042***	-0.053***	-0.08***	-0.113***	-0.113***	-0.013***	-0.027***	-0.036***	-0.057***	-0.058***
Age2	0.001***	0.001***	0.001***	0.001***	0.001***	0***	0***	0***	0.001***	0***
Female	0.166***	0.011	0.114***	0.164***	0.164***	0.205***	0.153***	0.097***	0.003	0.036
Birth Size										
Normal										
Average and above	-0.035	0.006	-0.142***	-0.054	-0.054	0.008	0.014	-0.003	-0.039	-0.202***
Small	-0.473***	-0.190***	-0.186***	-0.239***	-0.239***	-0.317***	-0.152***	-0.304***	-0.36***	0.000
Early Breastfeeding (Yes)	0.065	-0.006	-0.009	-0.101***	-0.101***	-0.073**	-0.099***	-0.041**	0.110***	0.302***
No. of Sibling	-0.039	0.026*	-0.001	0.004	0.004	-0.042*	-0.066***	-0.044***	-0.056***	-0.106***
Benefitted ICDS services	-0.139***	0.013	0.021	0.11***	0.11***	0.039	-0.043*	-0.129***	-0.078***	-0.266***
Immunization										
No										
Partial	-0.039	-0.156***	-0.314***	-0.427***	-0.427***	0.512***	0.321***	0.274***	0.079	-0.78***
Full	-0.001	-0.092**	-0.36***	-0.665***	-0.665***	0.443***	0.174***	0.056	-0.256***	-0.823***
Mother's Characteristics										
Institutional Delivery (yes)	0.068	0.257***	0.221***	0.113**	0.113**	0.329***	0.199***	0.255***	0.275***	0.288***
Age of mother at first birth	-0.022***	0.007**	0.017***	0.012***	0.012***	0.005	0.018***	0.024***	0.03***	0.043***
BMI of mother	0.000***	0.000***	0.000***	0.000***	0***	0***	0***	0***	0***	0
Mother's Education	0.055***	0.039***	0.028***	0.025***	0.025***	0.04***	0.04***	0.017***	0.019***	0.004
Mother's anaemia										
Mild/moderate	-0.304***	-0.244***	-0.14***	-0.136***	-0.136***	0.126***	-0.039*	-0.052**	-0.139***	-0.651***
Severe	0.123**	-0.007	-0.089***	-0.217***	-0.217***	0.274***	-0.043	-0.109***	-0.212***	-0.483***
Mother's height	0.003***	0.004***	0.004***	0.005***	0.005***	0.005***	0.005***	0.006***	0.007***	0.009***
Working mother	-0.224***	-0.304***	-0.217***	-0.071**	-0.071**	-0.072	-0.051*	0.165***	0.017	-0.131**
Maternal dietary index	-0.013**	0.007*	0.02***	0.054***	0.054***	-0.021***	-0.026***	-0.027***	0.002	0.010
Empowerment	-0.121***	-0.064***	-0.012	0.016	0.016	-0.007	-0.002	-0.003	-0.014	0.029*
Media exposure	-0.338***	-0.101**	-0.023	-0.082*	-0.082*	0.493***	0.384***	0.093*	0.082	0.188**
Religion and caste composition										
Hindu/ SC/ST										
Hindu/Others	-0.007	0.052*	0.029	-0.155***	-0.155***	0.502***	0.299***	0.162***	0.041	0.003
Muslim/Others	0.33***	0.118***	0.001	-0.201***	-0.201***	0.372***	0.115***	0.037	0.157***	-0.174**
Wealth index	0***	0***	0***	0***	0***	0***	0***	0***	0***	0***
Place of residence										
Urban										
Rural	-0.098**	-0.221***	-0.298***	-0.302***	-0.302***	-0.111***	-0.072***	-0.077***	-0.108***	-0.425***
Constant	-7.85***	-8.984***	-8.224***	-7.175***	-7.175***	-13.324***	-11.069***	-10.927***	-11.098***	-10.669***
R square	0.0543	0.1107	0.1621	0.1494	0.0979	0.0465	0.0939	0.1101	0.0992	0.063
Adj. R square	0.0534	0.1099	0.1613	0.1486	0.0971	0.0458	0.0932	0.1094	0.0985	0.0623

*p<0.05; **p<0.01;***p<0.001

Table 6: Oaxaca Blinder decomposition of HAZ scores of Southern and Northern regions of India, 2015-16					
	10	**25**	**50**	**75**	**90**
Northern HAZ score	-3.282***	-2.311***	-1.348***	-0.295***	0.753***
Southern HAZ score	-3.141***	-2.177***	-1.187***	-0.130**	1.223***
Observed Raw gap in HAZ scores	-0.141	-0.134**	-0.161***	-0.166**	-0.470***
Covariate effect	0.165**	0.032	0.047	0.184***	0.115
(% contribution)	-117.1	-24.0	-29.0	-111.0	-24.5
Coefficient Effect	-0.306**	-0.166**	-0.208***	-0.350***	-0.585***
(%contribution)	217.1	124.0	129.0	211.0	124.5

	Covariate effect					**Coefficient effect**				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effect	0.165**	0.032	0.047	0.184***	0.115	-0.306**	-0.166**	-0.208***	-0.350***	-0.585***
Child Characteristics	-0.034	-0.039	0.042	0.069	-0.032	1.754	-0.680	-0.564**	3.495	-2.015**
%	-5.7	-15.7	13.9	12.4	-8.3	-652.7	-436.0	-84.0	-543.0	262.3
Mother's Characteristics	0.419***	0.141***	0.120***	0.311***	0.289***	-15.906	4.171***	7.989***	-13.832	10.775**
%	69.2	57.0	39.5	56.0	75.7	5,917.3	2,675.5	1,189.5	2,149.2	-1,402.6
Household's Characteristics	0.152***	0.111***	0.089***	0.131***	0.083***	1.646	0.302***	0.249***	2.072*	1.330**
%	25.0	44.8	29.3	23.5	21.8	-612.2	194.0	37.0	-322.0	-173.1
Spatial Characteristics	0.069**	0.034**	0.053**	0.045**	0.041**	-0.837	-0.148*	-0.091*	0.070	-0.138
%	11.4	13.8	17.3	8.1	10.8	311.4	-94.8	-13.6	-10.9	18.0
Constant						13.074	-3.490**	-6.911***	7.552	-10.720**
Total	0.605***	0.248***	0.303***	0.555***	0.382***	-0.269	0.156*	0.672***	-0.644	-0.768***
Residuals	-0.440	-0.216	-0.257	-0.371	-0.267	-0.038	-0.322	-0.880	0.294	0.183

*p<0.05; **p<0.01;***p<0.001

Table 7: Oaxaca Blinder decomposition of HAZ scores of Southern and North-eastern regions of India, 2015-16					
	10	**25**	**50**	**75**	**90**
North-Eastern HAZ score	-3.088***	-2.281***	-1.371***	-0.305***	0.856***
Southern HAZ score	-3.141***	-2.177***	-1.187***	-0.130**	1.223***
Observed Raw gap in HAZ scores	0.052	-0.104*	-0.184***	-0.176**	-0.366***
Covariate effect	-0.327***	-0.315***	-0.276***	-0.117**	0.016
(% contribution)	-623.8	301.4	150.5	66.5	-4.5
Coefficient Effect	0.379***	0.210***	0.093	-0.059	-0.383**
(%contribution)	723.8	-201.4	-50.5	33.5	104.5

	Covariate effect					**Coefficient effect**				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effect	-0.327***	-0.315***	-0.276***	-0.117**	0.016	0.379***	0.210***	0.093	-0.059	-0.383**
Child Characteristics	-0.071***	-0.067***	-0.067**	-0.020	-0.117***	0.108	0.425	1.324*	0.853	1.066
%	13.5	12.5	14.2	9.0	-858.0	241.7	-2,063.2	-5,036.1	6,991.7	10,242.8
Mother's Characteristics	-0.346***	-0.327***	-0.307***	-0.119***	0.072**	-0.511	0.871	-2.573	-0.123	-0.118
%	65.9	61.4	65.4	54.0	527.7	-1,140.2	-4,227.1	9,786.4	-1,008.3	-1,131.9
Household's Characteristics	-0.123***	-0.157***	-0.098***	-0.106***	0.018	0.052	0.057	0.125	0.022	0.068
%	23.4	29.4	21.0	48.2	132.0	115.7	-278.3	-475.5	176.6	650.7
Spatial Characteristics	0.015**	0.017**	0.003	0.024***	0.041***	0.031	-0.001	-0.141	-0.107	-0.306
%	-2.9	-3.2	-0.6	-11.1	298.3	69.7	7.0	536.4	-877.5	-2,943.3
Constant						0.364	-1.372	1.239	-0.632	-0.699
Total	-0.525***	-0.533***	-0.469***	-0.220***	0.014	0.045	-0.021	-0.026	0.012	0.010
Residuals	0.199	0.219	0.193	0.103	0.003	0.334	0.231	0.119	-0.071	-0.393

*p<0.05; **p<0.01;***p<0.001

Table 8: Oaxaca Blinder decomposition of HAZ scores of Southern and Central regions of India, 2015-16					
	10	**25**	**50**	**75**	**90**
Central HAZ score	-3.637***	-2.699***	-1.788***	-0.765***	0.299***
Southern HAZ score	-3.141***	-2.177***	-1.187***	-0.130**	1.223***
Observed Raw gap in HAZ scores	-0.496***	-0.522***	-0.601***	-0.635***	-0.924***
Covariate effect	-0.384***	-0.417***	-0.340***	-0.366***	-0.336***
(% contribution)	77.4	79.8	56.6	57.6	36.3
Coefficient Effect	-0.112	-0.106*	-0.261***	-0.269***	-0.588***
(%contribution)	22.6	20.2	43.4	42.4	63.7

	Covariate effect					**Coefficient effect**				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effect	-0.384***	-0.417***	-0.340***	-0.366***	-0.336***	-0.112	-0.106	-0.261***	-0.269***	-0.588***
Child Characteristics	-0.052**	-0.029	-0.013	0.077***	0.136***	-2.246	-0.949	-0.722	-0.776	-0.746
%	9.4	4.8	2.6	-13.9	-27.1	4,856.5***	-2,680.1	-982.2	1,839.5	970.3
Mother's Characteristics	-0.453***	-0.489***	-0.380***	-0.537***	-0.503***	0.793	0.088	-1.202	3.922	2.420
%	81.80	79.81	75.86	97.18	99.70	-1,713.75*	249.82	-1,634.82	-9,295.79	-3,145.93
Household's Characteristics	-0.068***	-0.089***	-0.123***	-0.103***	-0.106***	0.205	0.088	0.107	0.062	0.234
%	12.3	14.5	24.6	18.6	21.1	-442.7	248.1	145.0	-147.9	-304.8
Spatial Characteristics	0.019	-0.005	0.015**	0.010	-0.032**	-0.013	-0.023	0.041	0.013	-0.164
%	-3.5	0.9	-3.0	-1.9	6.3	28.8	-65.8	56.0	-31.0	213.6
Constant						1.216	0.832	1.850	-3.264	-1.820
Total	-0.554***	-0.613***	-0.501***	-0.552	-0.504***	-0.046	0.035	0.074	-0.042	-0.077
Residuals	0.170	0.196	0.161	0.186	0.169	-0.066	-0.141	-0.335	-0.227	-0.511

*p<0.05; **p<0.01;***p<0.001

Table 9: Oaxaca Blinder decomposition of HAZ scores of Southern and Eastern regions of India, 2015-16					
	10	**25**	**50**	**75**	**90**
Eastern HAZ score	-3.550***	-2.713***	-1.723***	-0.708***	0.409***
Southern HAZ score	-3.141***	-2.177***	-1.187***	-0.130**	1.223***
Observed Raw gap in HAZ scores	-0.409***	-0.536***	-0.536***	-0.579***	-0.814***
Covariate effect	-0.633***	-0.670***	-0.734***	-0.734***	-0.634***
(% contribution)	154.8	124.8	137.1	126.9	77.9
Coefficient Effect	0.224**	0.133**	0.199***	0.155*	-0.180
(%contribution)	-54.8	-24.8	-37.1	-26.9	22.1

	Covariate effect					**Coefficient effect**				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effect	-0.633***	-0.670***	-0.734***	-0.734***	-0.634***	0.224**	0.133**	0.199***	0.155*	-0.180
Child Characteristics	-0.101***	-0.035**	-0.006	0.042*	0.096***	-0.492	-0.344	0.215	0.372	-2.185
%	10.3	3.3	0.5	-3.5	-8.9	-1,155.5	-217.8	327.6	159.5	-1,702.0
Mother's Characteristics	-0.720***	-0.756***	-0.819***	-0.665***	-0.624***	0.400	-2.862	0.381	-0.418	-9.941
%	73.5	71.8	69.4	54.8	58.3	938.6	-1,811.8	579.3	-179.3	-7,744.8
Household's Characteristics	-0.169***	-0.237***	-0.307***	-0.532***	-0.447***	0.137	-0.024	0.077	0.040	-0.181
%	17.2	22.5	26.1	43.8	41.8	321.0	-15.5	117.8	17.1	-141.1
Spatial Characteristics	0.010	-0.024	-0.047***	-0.060***	-0.095***	-0.024	-0.029	0.079	0.299	0.202
%	-1.0	2.3	4.0	4.9	8.8	-55.3	-18.1	120.0	128.3	157.0
Constant						0.022	3.417	-0.686	-0.060	12.234
Total	-0.980***	-1.053***	-1.179***	-1.214***	-1.070***	0.043	0.158	0.066	0.233	0.128
Residuals	0.348	0.383	0.445	0.480	0.437	0.181	-0.025	0.133	-0.078	-0.308

*p<0.05; **p<0.01;***p<0.001

Table 10: Oaxaca Blinder decomposition of HAZ scores of Southern and Western regions of India, 2015-16					
	10	**25**	**50**	**75**	**90**
Western HAZ score	-3.381***	-2.390***	-1.519***	-0.374***	0.969***
Southern HAZ score	-3.141***	-2.177***	-1.187***	-0.130***	1.223***
Observed Raw gap in HAZ scores	-0.240***	-0.213***	-0.332***	-0.244***	-0.254**
Covariate effect	-0.068	-0.138***	-0.127***	-0.168***	-0.287***
(% contribution)	28.4	64.8	38.2	68.9	112.7
Coefficient Effect	-0.172*	-0.075	-0.205***	-0.076	0.032
(%contribution)	71.6	35.2	61.8	31.1	-12.7

	Covariate effect					**Coefficient effect**				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effect	-0.068	-0.138***	-0.127***	-0.168***	-0.287***	-0.172	-0.075	-0.205***	-0.076	0.032
Child Characteristics	0.030	0.030	0.072***	0.106***	0.083	-1.274*	-0.808**	-0.430	-0.556	0.166
%	-27.7	-12.4	-30.3	-32.2	-15.0	4,182.0	3,886.0	-7,956.7	3,232.6	-433.4
Mother's Characteristics	-0.079	-0.253***	-0.305***	-0.431***	-0.654***	1.313	2.431**	0.821	0.520	-1.470
%	73.3	103.0	127.7	130.5	117.9	-4,309.7	-11,687.4	15,212.8	-3,026.0	3,843.7
Household's Characteristics	-0.062***	-0.029**	-0.013	-0.013	0.002	0.285**	0.084	0.116*	0.061	0.287**
%	56.9	11.8	5.5	3.8	-0.3	-934.0	-402.3	2,146.5	-354.8	-751.3
Spatial Characteristics	0.003	0.006	0.007*	0.007*	0.015*	-0.033	-0.018	-0.025	-0.001	-0.007
%	-2.6	-2.4	-2.9	-2.1	-2.7	106.9	88.0	-460.8	5.0	18.1
Constant						-0.321	-1.709	-0.477	-0.042	0.986
Total	-0.108	-0.245	-0.239***	-0.331***	-0.555	-0.030	-0.021	0.005	-0.017	-0.038
Residuals	0.040	0.108	0.112	0.162	0.268	-0.142	-0.054	-0.211	-0.059	0.071

*p<0.05; **p<0.01;***p<0.001

Table 11: Summary of direction of covariate and coefficient effects (statistically significant) across regions with benchmark region

Southern as benchmark	Covariate effects	Coefficient effects
Vs. Northern region	Positive (i.e. decreases disparities) and small	Negative (i.e. increases disparities) and large
Vs. North-eastern region	Negative (i.e. increases disparities) and large	Positive (i.e. decreases disparities except 90^{th} quantile) and small (except bottom 10^{th} quantile)
Vs. Central region	Negative (i.e. increases disparities) and large (except 90^{th} quantile)	Negative (i.e. increases disparities except bottom 10^{th} quantile) and small (except 90^{th} quantile)
Vs. Eastern region	Negative (i.e. increases disparities) and large	Positive (i.e. decreases disparities except 90^{th} quantile) and small
Vs. Western region	Negative (i.e. increases disparities except 10^{th} quantile) and large except 10^{th} and 50^{th} quantiles	Negative (i.e. increases disparities except 25^{th}, 75^{th}, 90^{th} quantiles) and small except 10^{th} and 50^{th} quantiles

Table A1 : Detailed Oaxaca decomposition of gap of HAZ score of Southern and Northern regions of India, 2015-16

	Covariate effect					Coefficient effect				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effects	0.165**	0.032	0.047	0.184***	0.115	-0.306**	-0.166**	-0.208***	-0.350***	-0.585***
Child Characteristic										
Age of Child (Mean)	0.313	0.303	0.370	0.505	0.637	-0.455	-0.699	-0.368	3.845	-2.536
%	51.8	122.5	121.9	91.0	166.9	169.3	-448.1	-54.9	-597.4	330.1
Age2	-0.365	-0.300	-0.317	-0.396	-0.451	-0.593	0.366	0.057	-1.395	1.197
%	-60.3	-121.1	-104.6	-71.3	-118.0	220.4	234.8	8.4	216.8	-155.8
Female	-0.037**	-0.017**	-0.013**	-0.022**	-0.042**	0.748	0.090	0.041	0.243	-0.174
%	-6.2	-6.8	-4.3	-3.9	-11.0	-278.4	57.6	6.1	-37.7	22.6
Birth Size										
Normal										
Average and above	0.041***	-0.038***	0.001	-0.072***	-0.238***	0.101	-0.009	-0.010	0.006	-0.168*
%	6.7	-15.3	0.3	-13.0	-62.4	-37.6	-5.9	-1.5	-0.9	21.8
Small	-0.003***	-0.012***	-0.008***	-0.014***	-0.018***	0.225	0.019	-0.017	0.121	-0.010
%	-0.5	-4.7	-2.5	-2.5	-4.7	-83.6	12.3	-2.5	-18.8	1.3
Early Breastfeeding (Yes)	-0.043***	-0.029***	-0.028***	-0.024***	-0.076***	1.026	0.046	-0.037	0.261	0.251
%	-7.0	-11.8	-9.1	-4.4	-19.8	-381.6	29.7	-5.6	-40.6	-32.7
No. of Sibling (Mean)	-0.020	0.000	0.001	0.005	0.013	-0.020	-0.041	-0.049	0.816	0.416
%	-3.4	0.0	0.4	0.9	3.3	7.3	-26.3	-7.3	-126.8	-54.2
Benefitted ICDS services	0.084***	0.060***	0.042***	0.092***	0.144***	1.143	-0.005	-0.030	0.238	-0.103
%	14.0	24.3	14.0	16.6	37.7	-425.2	-3.5	-4.5	-36.9	13.4
Immunization										
No										
Partial	-0.001	-0.004	-0.004	-0.004	-0.001	0.204	-0.137	0.017	-0.121	-0.311**
%	-0.2	-1.7	-1.2	-0.7	-0.2	-76.0	-87.7	2.5	18.8	40.4
Full	-0.003	-0.003	-0.002	-0.001	0.000	-0.626	-0.310	-0.166***	-0.518	-0.578***
%	-0.5	-1.1	-0.8	-0.2	-0.1	232.7	-199.0	-24.8	80.4	75.3
Mother's Characteristics										
Institutional Delivery (yes)	0.017***	0.008***	0.012***	0.018***	0.008***	1.465	0.228	0.307*	2.857	0.942
%	2.8	3.1	3.8	3.3	2.1	-544.8	146.0	45.7	-443.9	-122.7
Age of mother at first birth	0.006	0.006	0.012	0.012	0.009	-4.691	0.054	0.367	-2.601	1.054
%	0.9	2.5	3.8	2.1	2.4	1745.0	34.7	54.6	404.2	-137.2
BMI of mother	-0.043***	-0.053***	-0.055***	-0.063***	-0.087***	1.829	0.308	0.529**	-1.384	0.104
%	-7.1	-21.3	-18.3	-11.3	-22.8	-680.3	197.5	78.7	215.1	-13.5
Mother's Education	-0.064***	-0.087***	-0.106***	-0.069***	-0.050***	-0.621	0.182	0.090	0.461	-0.801
%	-10.6	-35.2	-35.1	-12.4	-13.0	231.1	116.8	13.4	-71.7	104.3
Mother's anaemia										
Mild/moderate	0.017***	-0.016***	-0.015***	-0.043***	-0.036***	-0.184	-0.032	0.011	0.494	-0.066
%	2.9	-6.5	-5.1	-7.8	-9.4	68.3	-20.5	1.6	-76.8	8.5
Severe	-0.010***	-0.011***	-0.017***	-0.013***	-0.012***	0.040	-0.003	-0.009	0.195	-0.004
%	-1.6	-4.5	-5.7	-2.3	-3.1	-14.9	-2.1	-1.3	-30.3	0.5
Mother's height	0.258***	0.250***	0.256***	0.210***	0.181***	-8.931	4.543***	6.641***	-15.911	8.300*
%	42.6	100.7	84.3	37.9	47.3	3322.5	2914.3	988.8	2472.1	-1080.5
Working mother	-0.011	-0.001	0.007	-0.033	-0.033	-0.134	0.018	0.277***	1.407	0.535
%	-1.9	-0.5	2.2	-5.9	-8.5	49.9	11.7	41.2	-218.7	-69.7
Maternal dietary index	0.295***	0.080***	0.033***	0.271***	0.305***	-2.324	-1.027***	-0.221	0.804	-0.053
%	48.7	32.3	10.8	48.8	79.7	864.7	-658.6	-32.9	-124.9	6.9
Empowerment	0.000	-0.003	0.001	0.010	-0.005	0.094	0.013	0.006	0.017	-0.016
%	0.0	-1.2	0.2	1.7	-1.3	-34.9	8.6	0.9	-2.6	2.1
Media exposure	-0.045***	-0.031***	-0.004***	0.010***	0.009***	-2.448	-0.114	-0.009	-0.171	0.779
%	-7.5	-12.4	-1.4	1.8	2.2	910.7	-73.0	-1.3	26.6	-101.5
Religion and caste composition										
Hindu/ SC/ST										
Hindu/Others	0.000	-0.011	-0.013	-0.004	-0.014	1.226	0.234**	0.191***	1.673	0.887**
%	0.1	-4.3	-4.2	-0.6	-3.8	-456.1	149.9	28.5	-260.0	-115.4
Muslim/Others	0.000	0.001	0.003	0.004	0.004	0.264	0.031	0.040*	0.588	0.193
%	0.0	0.6	1.0	0.8	1.1	-98.1	19.7	5.9	-91.3	-25.1
Wealth index	0.151***	0.120***	0.098***	0.130***	0.093***	0.156	0.038	0.018	-0.188	0.251**
%	25.0	48.5	32.4	23.4	24.5	-58.1	24.5	2.6	29.3	-32.6
Place of residence										
Urban										
Rural	0.069**	0.034**	0.053**	0.045**	0.041**	-0.837	-0.148*	-0.091*	0.070	-0.138
%	11.4	13.8	17.3	8.1	10.8	311.4	-94.8	-13.6	-10.9	18.0
Constant						13.074	-3.490**	-6.911***	7.552	-10.720**
Total	0.605***	0.248***	0.303***	0.555***	0.382***	-0.269	0.156*	0.672***	-0.644	-0.768***
Residuals	-0.440	-0.216	-0.257	-0.371	-0.267	-0.038	-0.322	-0.880	0.294	0.183

*p<0.05; **p<0.01;***p<0.001

Table A2: Detailed Oaxaca decomposition of gap of HAZ score of Southern and North-Eastern regions of India, 2015-16										
	Covariate effect					Coefficient effect				
	10	25	50	75	90	10	25	50	75	90
Aggregate effects	-0.327***	-0.315***	-0.276***	-0.117**	0.016	0.379***	0.210***	0.093	-0.059	-0.383**
Child Characteristic										
Age of Child	0.004	0.007	0.012	0.020	0.018	-0.064	0.220	1.054	0.449	0.210
%	-0.8	-1.3	-2.6	-9.2	136.0	-143.0	-1067.0	-4007.6	3684.7	2022.5
Age2	0.003	0.004	0.007	0.011	0.010	0.104	-0.190	-0.562	-0.314	-0.120
%	-0.6	-0.7	-1.5	-5.1	71.6	231.9	921.2	2136.2	-2574.0	-1157.7
Female	-0.010**	-0.005*	-0.009*	-0.008*	-0.008*	-0.048	0.013	0.036	-0.093	0.107
%	1.8	0.9	1.9	3.8	-61.0	-106.3	-61.5	-137.6	-765.2	1027.0
Birth Size										
Normal										
Average and above	-0.003	-0.041***	-0.056***	-0.016**	-0.097***	-0.034	0.046	0.087	0.035	0.043
%	0.6	7.7	11.8	7.3	-716.6	-75.3	-224.0	-331.4	287.2	412.6
Small	-0.003*	-0.002	-0.006*	-0.011**	-0.010**	-0.031	0.000	0.002	-0.022	-0.020
%	0.6	0.4	1.3	4.9	-70.8	-68.2	0.2	-6.6	-182.0	-191.8
Early Breastfeeding	-0.002	-0.006	-0.005	-0.012**	-0.021***	-0.117	-0.008	-0.047	0.169	0.099
%	0.4	1.1	1.1	5.3	-157.9	-260.4	38.8	180.2	1387.3	948.8
No. of Sibling	-0.030***	-0.063***	-0.069***	-0.055***	-0.048***	0.082	0.086	0.096	0.033	-0.080
%	5.8	11.8	14.8	25.1	-354.4	183.4	-415.9	-366.7	271.5	-766.9
Benefitted ICDS services	-0.031***	0.013**	0.031***	0.004	0.012	-0.070	0.043	0.103	0.100	0.169
%	5.9	-2.5	-6.7	-2.0	86.2	-155.3	-208.6	-392.2	821.3	1622.6
Immunization										
No										
Partial	0.000	0.000	0.000	0.000	0.001	0.109	0.109	0.264	0.214	0.295
%	-0.1	0.0	0.0	0.2	4.8	242.5	-527.9	-1003.6	1754.6	2833.9
Full	0.000**	0.026***	0.028***	0.047***	0.028***	0.176	0.107	0.291	0.281	0.363
%	0.0	-4.8	-5.9	-21.3	204.0	392.4	-518.5	-1106.7	2306.4	3491.8
Mother's Characteristics										
Institutional Delivery	-0.020**	0.003	0.007	0.023**	0.013	0.544	-0.088	0.162	0.155	-0.038
%	3.8	-0.6	-1.5	-10.3	98.2	1214.3	428.4	-614.9	1270.0	-367.1
Age of mother at first birth	0.002	0.013***	0.007***	0.019***	0.031***	0.272	0.553	0.354	0.234	0.250
%	-0.4	-2.5	-1.5	-8.4	226.6	607.1	-2683.6	-1344.7	1918.3	2402.6
BMI of mother	-0.056***	-0.045***	-0.073***	-0.063***	-0.037***	-0.116	-0.029	-0.152	0.247	-0.041
%	10.7	8.5	15.7	28.8	-271.8	-259.0	140.2	578.4	2023.8	-391.1
Mother's Education	-0.052***	-0.041***	-0.055***	0.034***	0.104***	-0.107	0.168	0.357	0.301	0.187
%	9.9	7.7	11.7	-15.7	764.9	-238.9	-817.3	-1358.0	2469.6	1799.7
Mother's anaemia										
Mild/moderate	0.002	-0.002	-0.001	0.004	-0.002	-0.031	0.007	0.002	-0.039	-0.074
%	-0.4	0.4	0.2	-1.9	-16.2	-69.0	-34.2	-6.8	-319.9	-713.2
Severe	0.006	0.017***	-0.004	-0.002	-0.003	0.000	-0.018	-0.003	-0.068	-0.078
%	-1.2	-3.2	0.8	1.0	-19.6	-0.3	86.0	10.5	-556.6	-745.9
Mother's height	-0.170***	-0.225***	-0.229***	-0.188***	-0.155***	-0.858	1.112	-2.451	-0.333	-0.382
%	32.4	42.3	48.7	85.3	-1137.1	-1914.8	-5401.7	9321.0	-2734.5	-3674.8
Working mother	-0.017***	-0.017***	-0.007***	-0.001	-0.005	-0.108	0.006	0.049	-0.078	0.030
%	3.1	3.3	1.6	0.7	-37.2	-241.9	-31.3	-187.0	-642.2	284.7
Maternal dietary index	-0.008**	0.001	-0.001	0.004	-0.005	-0.047	-0.179	-0.612	-0.379	-0.022
%	1.6	-0.2	0.2	-1.9	-37.8	-104.9	868.5	2326.6	-3107.8	-215.4
Empowerment	0.009	0.001	0.055***	0.054***	0.109***	0.015	0.002	-0.002	0.006	0.007
%	-1.8	-0.2	-11.8	-24.6	801.7	34.1	-9.3	8.3	49.8	70.4
Media exposure	-0.043***	-0.031***	-0.006	-0.002	0.021**	-0.075	-0.665	-0.277	-0.168	0.044
%	8.1	5.9	1.3	1.0	156.0	-166.9	3227.1	1053.0	-1378.9	418.2
Religion and caste composition										
Hindu/ SC/ST										
Hindu/Others	-0.099***	-0.114***	-0.098***	0.033*	0.081***	0.002	0.003	0.114	0.021	0.121
%	18.8	21.4	20.9	-15.2	592.6	3.5	-12.2	-433.1	168.3	1167.5
Muslim/Others	0.003	0.005	0.005	0.004	0.009	-0.001	0.020	0.033	0.064	0.048
%	-0.5	-1.0	-1.1	-1.9	67.5	-2.9	-99.3	-123.9	526.5	464.9
Wealth index	-0.027	-0.047**	-0.006	-0.144***	-0.072***	0.052	0.034	-0.021	-0.063	-0.102
%	5.1	8.9	1.2	65.2	-528.1	115.1	-166.8	81.4	-518.2	-981.7
Place of residence										
Urban										
Rural	0.015	0.017**	0.003	0.024***	0.041***	0.031	-0.001	-0.141	-0.107	-0.306
%	-2.9	-3.2	-0.6	-11.1	298.3	69.7	7.0	536.4	-877.5	-2943.3
Constant						0.364	-1.372	1.239	-0.632	-0.699
Total	-0.525***	-0.533***	-0.469***	-0.220***	0.014	0.045	-0.021	-0.026	0.012	0.010
Residuals	0.199	0.219	0.193	0.103	0.003	0.334	0.231	0.119	-0.071	-0.393

*p<0.05; **p<0.01;***p<0.001

Table A3: Detailed Oaxaca decomposition of gap of HAZ score of Southern and Central regions of India, 2015-16										
	Covariate effect					Coefficient effect				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effects	-0.384***	-0.417***	-0.340***	-0.366***	-0.336***	-0.112	-0.106	-0.261***	-0.269***	-0.588***
Child Characteristic										
Age of Child	0.073*	0.085*	0.092*	0.133*	0.161*	-0.715	-0.073	0.261	-0.778	-0.866
%	-13.2	-13.8	-18.4	-24.1	-32.0	1544.8	-207.1	354.5	1844.2	1125.3
Age2	-0.045	-0.049	-0.048	-0.064	-0.073	0.291	-0.013	-0.248	0.231	0.465
%	8.1	8.0	9.7	11.5	14.5	-629.1	-37.8	-337.3	-547.4	-604.9
Female	-0.006**	-0.002	-0.004**	-0.002	-0.003	0.122	0.044	-0.019	-0.043	-0.051
%	1.1	0.4	0.8	0.4	0.6	-262.9	123.0	-25.9	102.5	66.7
Birth Size										
Normal										
Average and above	0.036***	0.026***	0.011	0.009	0.013	-0.056	-0.001	-0.017	-0.021	0.020
%	-6.6	-4.3	-2.3	-1.6	-2.6	120.0	-2.8	-23.4	49.7	-26.4
Small	-0.020***	-0.021***	-0.021***	-0.021***	-0.026***	0.015	0.024	0.009	0.006	0.042
%	3.7	3.4	4.3	3.9	5.1	-32.4	66.9	11.6	-14.7	-54.6
Early Breastfeeding	0.010	0.019*	-0.012	-0.015	0.016	0.014	-0.078	-0.108	0.077	0.269
%	-1.8	-3.1	2.4	2.8	-3.1	-29.6	-220.8	-146.5	-182.6	-350.0
No. of Sibling	-0.036***	-0.060***	-0.039***	-0.004	-0.019*	-0.035	0.107	0.129	0.144	0.051
%	6.6	9.8	7.8	0.8	3.8	76.0	301.1	175.0	-340.2	-65.9
Benefitted ICDS services	0.004	0.006*	0.008***	0.015***	0.022***	0.112	0.039	-0.032	-0.058	-0.008
%	-0.7	-0.9	-1.6	-2.7	-4.3	-241.8	109.2	-43.5	138.1	10.5
Immunization										
No										
Partial	0.021**	0.002	0.004	0.001	-0.017*	-0.735	-0.334*	-0.252*	-0.135	-0.266
%	-3.8	-0.3	-0.9	-0.2	3.3	1588.5	-942.1	-342.4	320.8	345.7
Full	-0.089***	-0.034***	-0.004	0.025***	0.062***	-1.259	-0.662**	-0.444*	-0.198	-0.403
%	16.0	5.6	0.8	-4.6	-12.3	2722.8	-1869.7	-604.2	468.9	523.8
Mother's Characteristics										
Institutional Delivery (yes)	0.000	-0.022***	-0.008*	-0.010	0.005	0.431	0.195	0.543	0.176	0.089
%	0.0	3.6	1.7	1.8	-0.9	-931.8	551.3	738.4	-417.7	-115.2
Age of mother at first birth	0.016**	0.012***	-0.014***	-0.032***	-0.028***	-0.683	-0.072	0.001	0.106	0.759
%	-2.8	-2.0	2.9	5.8	5.6	1477.5	-203.4	1.8	-251.3	-987.4
BMI of mother	-0.091***	-0.106***	-0.090***	-0.118***	-0.136***	0.230	0.014	0.221	0.280	0.521
%	16.3	17.2	18.0	21.3	27.0	-497.2	39.3	300.1	-663.0	-677.6
Mother's Education	-0.211***	-0.171***	-0.119***	-0.134***	-0.091***	-0.085	0.238	0.150	0.174	-0.272
%	38.2	27.9	23.8	24.3	18.0	183.4	672.2	203.4	-411.8	353.0
Mother's anaemia										
Mild/moderate	-0.004	0.000	-0.003	0.001	-0.002	0.058	0.055	0.080	0.050	-0.021
%	0.7	0.0	0.6	-0.2	0.5	-126.3	156.1	109.2	-119.1	26.7
Severe	-0.007**	-0.004**	-0.004**	-0.003*	0.002	0.028	-0.010	0.023	-0.014	0.029
%	1.3	0.7	0.9	0.5	-0.5	-60.0	-27.5	30.8	32.4	-37.1
Mother's height	-0.110***	-0.157***	-0.135***	-0.154***	-0.143***	1.128	-0.010	-1.861	3.160	0.339
%	19.8	25.7	26.8	27.9	28.4	-2438.2	-28.2	-2530.1	-7489.3	-440.7
Working mother	-0.001	-0.002	-0.003	-0.004	-0.004	-0.253	0.042	0.095	0.110	0.369
%	0.1	0.3	0.5	0.7	0.8	547.0	117.2	129.1	-260.8	-480.2
Maternal dietary index	0.006	-0.024	0.005	-0.081***	-0.105***	0.643	0.275	-0.215	0.064	0.493
%	-1.1	4.0	-0.9	14.7	20.8	-1389.9	775.1	-292.8	-151.4	-641.3
Empowerment	-0.001	0.000	0.003	0.001	-0.006	0.013	0.004	0.002	0.008	0.000
%	0.2	0.0	-0.5	-0.2	1.2	-28.1	12.0	2.6	-18.4	0.3
Media exposure	-0.051***	-0.015**	-0.011*	-0.004	0.006	-0.717	-0.643	-0.241	-0.192	0.113
%	9.1	2.5	2.1	0.8	-1.2	1549.9	-1814.2	-327.3	454.4	-146.5
Religion and caste composition										
Hindu/ SC/ST										
Hindu/Others	-0.011**	-0.010***	-0.009***	-0.014***	-0.011**	0.118	0.115	0.123	0.062	0.139
%	1.9	1.6	1.8	2.5	2.2	-256.0	323.5	167.2	-147.5	-180.8
Muslim/Others	-0.007	-0.002	-0.002	-0.001	-0.000	0.075	0.033	0.032	0.002	-0.005
%	1.4	0.3	0.3	0.1	0.1	-161.2	92.8	43.7	-4.9	6.1
Wealth index	-0.050**	-0.077***	-0.113	-0.088***	-0.095***	0.012	-0.060	-0.048	-0.002	0.100
%	9.0	12.6	22.5	16.0	18.8	-25.5	-168.2	-65.8	4.5	-130.1
Place of residence										
Urban										
Rural	0.019	-0.005	0.015***	0.010	-0.032**	-0.013	-0.023	0.041	0.013	-0.164
%	-3.5	0.9	-3.0	-1.9	6.3	28.8	-65.8	56.0	-31.0	213.6
Constant						1.216	0.832	1.850	-3.264	-1.820
Total	-0.554***	-0.613***	-0.501***	-0.552	-0.504***	-0.046	0.035	0.074	-0.042	-0.077
Residuals	0.170	0.196	0.161	0.186	0.169	-0.066	-0.141	-0.335	-0.227	-0.511

*p<0.05; **p<0.01;***p<0.001

Table A4: Detailed Oaxaca decomposition of gap of HAZ score of Southern and Eastern regions of India, 2015-16										
	Covariate effect					Coefficient effect				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effects	-0.633***	-0.670***	-0.734***	-0.734***	-0.634***	0.224**	0.133**	0.199***	0.155*	-0.180
Child Characteristic										
Age of Child	0.026	0.041	0.054	0.070	0.073	-0.270	-0.101	0.331	-0.102	-3.928
%	-2.7	-3.9	-4.5	-5.8	-6.8	-634.8	-64.0	504.6	-43.7	-3059.7
Age2	-0.007	-0.011	-0.014	-0.017	-0.016	0.268	0.022	-0.239	-0.152	2.107
%	0.7	1.1	1.2	1.4	1.5	628.9	13.9	-364.6	-65.1	1641.5
Female	0.000	-0.001	-0.001	0.000	-0.004	-0.023	-0.079	-0.023	-0.171	-0.232
%	0.0	0.1	0.1	0.0	0.4	-55.0	-49.7	-34.8	-73.3	-180.6
Birth Size										
Normal										
Average and above	0.008	-0.010**	-0.018***	-0.019***	-0.005	-0.096	-0.048	0.010	0.088	0.225
%	-0.8	1.0	1.5	1.6	0.5	-224.8	-30.4	15.1	37.8	175.1
Small	-0.009**	-0.007**	-0.007**	-0.005**	-0.001	-0.057*	0.023	0.006	0.043	0.058
%	0.9	0.6	0.6	0.4	0.1	-133.2	14.9	8.7	18.3	45.0
Early Breastfeeding	-0.008	0.010**	-0.002	0.015**	0.006	-0.174	-0.119	-0.045	0.155	0.157
%	0.9	-1.0	0.1	-1.2	-0.6	-407.7	-75.1	-69.2	66.3	122.4
No. of Sibling	-0.091***	-0.048***	-0.022***	-0.020***	0.026**	0.055	0.084	0.111	0.256	0.325
%	9.2	4.5	1.8	1.7	-2.4	129.5	53.4	168.7	109.9	253.4
Benefitted ICDS services	0.003	0.003	0.003	0.006	0.005	-0.021	-0.019	-0.074	0.049	-0.035
%	-0.3	-0.3	-0.3	-0.5	-0.5	-48.2	-12.3	-112.7	21.0	-27.3
Immunization										
No										
Partial	-0.007	-0.004	0.000	0.002	0.002	-0.069	-0.032	0.085	0.050	-0.570
%	0.7	0.4	0.0	-0.2	-0.2	-161.1	-20.3	128.7	21.4	-444.0
Full	-0.016	-0.008	0.001	0.011	0.009	-0.106	-0.076	0.055	0.156	-0.292
%	1.6	0.8	-0.1	-0.9	-0.8	-249.0	-48.2	83.1	67.0	-227.7
Mother's Characteristics										
Institutional Delivery	-0.061***	-0.028***	0.000	0.005	0.029**	0.449	0.142	0.244	0.260	0.328
%	6.2	2.7	0.0	-0.4	-2.8	1054.3	89.6	372.1	111.4	255.5
Age of mother at first birth	-0.001	-0.009	-0.030***	-0.062***	-0.063***	0.208	-0.351	-0.223	-0.708	0.690
%	0.1	0.9	2.5	5.1	5.9	488.6	-222.0	-340.0	-303.7	537.8
BMI of mother	-0.174***	-0.192***	-0.239***	-0.214***	-0.176***	-0.249	-0.410	0.757	1.185	1.256
%	17.8	18.2	20.2	17.6	16.5	-584.3	-259.6	1153.0	507.9	978.7
Mother's Education	-0.060***	-0.132***	-0.172***	-0.050**	-0.148***	0.403	0.237	0.215	0.195	0.034
%	6.2	12.6	14.6	4.1	13.8	946.8	149.9	327.4	83.5	26.6
Mother's anaemia										
Mild/moderate	0.004	-0.001	-0.001	-0.021***	-0.023**	-0.006	0.022	0.027	0.176	0.169
%	-0.4	0.1	0.1	1.8	2.2	-13.3	14.2	41.5	75.5	131.9
Severe	0.000	0.000	0.000	0.000	0.000	-0.001	-0.009	0.041	0.048	0.129
%	0.0	0.0	0.0	0.0	0.0	-2.7	-5.5	62.3	20.7	100.7
Mother's height	-0.284***	-0.289***	-0.324***	-0.343***	-0.307***	0.864	-1.631	-0.150	-1.546	-11.537
%	28.9	27.4	27.5	28.2	28.7	2027.5	-1032.7	-227.8	-662.9	-8987.6
Working mother	-0.021***	-0.003	0.000	0.005	0.026***	-0.091	0.017	0.158	0.393	0.730
%	2.2	0.3	0.0	-0.4	-2.4	-212.5	10.7	240.2	168.5	568.5
Maternal dietary index	-0.092***	-0.081***	-0.051***	-0.025**	-0.059***	-0.505	-0.284	-0.536	-0.217	-1.800
%	9.4	7.7	4.3	2.0	5.5	-1184.7	-180.0	-816.0	-92.9	-1402.0
Empowerment	-0.042***	-0.020***	-0.002	-0.017**	-0.030***	-0.005	-0.013	-0.001	-0.012	-0.006
%	4.3	1.9	0.2	1.4	2.8	-11.3	-8.5	-2.0	-5.1	-4.5
Media exposure	0.010	0.000	0.001	0.058***	0.127***	-0.669	-0.581	-0.152	-0.192	0.064
%	-1.0	0.0	-0.1	-4.8	-11.9	-1569.6	-367.9	-231.4	-82.2	49.8
Religion and caste composition										
Hindu/ SC/ST										
Hindu/Others	-0.004	0.002	0.001	0.004	0.002	0.147	0.028	0.107	0.068	-0.228
%	0.4	-0.2	-0.1	-0.3	-0.2	344.5	17.7	163.5	29.2	-177.6
Muslim/Others	0.015**	0.017***	0.021***	0.030***	0.037***	0.045	-0.019	0.011	0.070	-0.017
%	-1.6	-1.6	-1.8	-2.5	-3.5	106.2	-12.2	17.1	29.8	-13.6
Wealth index	-0.180***	-0.256***	-0.329***	-0.566***	-0.486***	-0.055	-0.033	-0.041	-0.098	0.064
%	18.4	24.4	27.9	46.6	45.4	-129.8	-20.9	-62.8	-41.9	50.1
Place of residence										
Urban										
Rural	0.010	-0.024	-0.047***	-0.060***	-0.095***	-0.024	-0.029	0.079	0.299	0.202
%	-1.0	2.3	4.0	4.9	8.8	-55.3	-18.1	120.0	128.3	157.0
Constant						0.022	3.417	-0.686	-0.060	12.234
Total	-0.980***	-1.053***	-1.179***	-1.214***	-1.070***	0.043	0.158	0.066	0.233	0.128
Residuals	0.348	0.383	0.445	0.480	0.437	0.181	-0.025	0.133	-0.078	-0.308

*p<0.05; **p<0.01;***p<0.001

Table A5: Detailed Oaxaca decomposition of gap of HAZ score of Southern and Western regions of India, 2015-16										
	Covariate effect					Coefficient effect				
	10	**25**	**50**	**75**	**90**	**10**	**25**	**50**	**75**	**90**
Aggregate effects	-0.068	-0.138***	-0.127***	-0.168***	-0.287***	-0.172*	-0.075	-0.205***	-0.076	0.032
Child Characteristic										
Age of Child	0.000	0.000	0.000	0.000	0.000	-1.197**	-0.698**	-0.293	-0.660	-0.374
%	0.0	0.0	0.0	0.0	0.0	3927.7	3354.7	-5427.9	3838.5	977.6
Age2	0.027	0.028	0.033	0.043	0.052	0.639*	0.391**	0.137	0.260	0.270
%	-24.5	-11.3	-14.0	-13.1	-9.3	-2098.0	-1878.0	2531.6	-1509.1	-706.2
Female	-0.006	0.000	-0.004	-0.006	-0.022**	0.095	0.034	0.013	-0.023	-0.076
%	5.9	0.2	1.8	1.7	4.1	-313.3	-161.5	232.9	135.8	198.3
Birth Size										
Normal										
Average and above	0.004	-0.001	0.010*	0.005	0.012	-0.028	-0.001	-0.005	-0.043	-0.069
%	-3.8	0.2	-4.1	-1.4	-2.1	91.3	4.4	-83.7	248.8	179.7
Small	-0.009*	-0.004	-0.003	-0.004	-0.016**	-0.005	0.009	-0.004	-0.003	-0.002
%	8.4	1.6	1.4	1.3	2.9	17.5	-43.6	-74.8	15.4	4.2
Early Breastfeeding	-0.001	0.000	0.000	0.001	0.000	-0.081	0.022	-0.020	0.046	0.191*
%	0.8	0.0	0.0	-0.4	-0.1	265.9	-104.3	-373.1	-265.9	-500.1
No. of Sibling	-0.004	0.007	0.000	0.001	0.025	-0.024	-0.037	-0.006	0.073	0.098
%	4.0	-2.9	0.1	-0.3	-4.5	80.0	177.5	-117.5	-425.4	-257.1
Benefitted ICDS services	0.018	-0.002	-0.003	-0.017	-0.034	-0.056	-0.020	0.016	-0.076	0.041
%	-16.9	0.9	1.3	5.2	6.2	184.6	97.6	305.4	441.5	-106.3
Immunization										
No										
Partial	-0.007	-0.019	-0.033***	-0.043***	-0.061**	-0.246	-0.163*	-0.079	-0.056	0.023
%	6.7	7.7	13.7	13.0	10.9	807.0	781.7	-1460.3	326.4	-60.0
Full	0.009	0.021	0.072***	0.126***	0.128**	-0.371	-0.345	-0.188	-0.073	0.063
%	-8.4	-8.7	-30.3	-38.2	-23.1	1219.4	1657.5	-3489.3	426.6	-163.5
Mother's Characteristics										
Institutional Delivery	-0.010	-0.022**	-0.016*	-0.009	-0.018	0.333	0.274	0.461	0.480	-0.155
%	8.8	8.8	6.7	2.8	3.3	-1094.3	-1318.9	8529.6	-2789.6	405.6
Age of mother at first birth	0.008	-0.003	-0.006*	-0.005	-0.013	-0.856*	-0.158	0.097	-0.072	-0.003
%	-7.2	1.2	2.6	1.4	2.3	2808.8	759.7	1787.3	417.3	6.6
BMI of mother	-0.015	-0.062***	-0.088***	-0.080***	-0.119***	-0.114	0.125	0.172	-0.132	-0.153
%	13.6	25.3	37.1	24.2	21.5	373.4	-602.9	3180.1	767.4	400.8
Mother's Education	-0.165***	-0.131***	-0.081***	-0.067*	-0.172**	0.015	0.097	0.066	0.067	-0.251
%	152.6	53.5	33.9	20.1	31.0	-49.9	-468.2	1216.9	-387.9	657.1
Mother's anaemia										
Mild/moderate	-0.002	-0.002	-0.001	-0.001	-0.002	0.025	-0.001	0.033	0.000	0.061
%	1.8	0.7	0.4	0.2	0.3	-80.8	4.7	603.9	1.4	-159.7
Severe	0.000	0.000	0.000	0.000	0.000	0.000	-0.005	-0.011	-0.006	0.037
%	0.1	0.0	0.0	-0.1	0.0	0.2	23.5	-195.8	33.8	-97.1
Mother's height	-0.025***	-0.034***	-0.030***	-0.033***	-0.021**	2.550	2.496**	0.182	0.127	-1.417
%	22.8	13.9	12.4	9.9	3.8	-8369.4	-11999.4	3361.3	-738.0	3703.5
Working mother	0.009	0.016***	0.010**	0.004	0.026**	-0.293	-0.032	-0.006	-0.088	0.216
%	-8.4	-6.6	-4.2	-1.1	-4.7	963.4	153.3	-113.1	509.6	-565.1
Maternal dietary index	0.056	-0.038	-0.097**	-0.247***	-0.326***	-0.353	-0.299	-0.046	0.191	0.221
%	-52.0	15.3	40.5	74.6	58.7	1160.4	1438.0	-856.2	-1108.6	-576.4
Empowerment	0.016**	0.009**	0.001	-0.002	0.022**	0.013	0.008	0.008	0.009	0.009
%	-14.5	-3.7	-0.6	0.5	-4.0	-43.1	-37.9	141.6	-51.9	-23.6
Media exposure	0.048**	0.013	0.003	0.007	-0.032	-0.007	-0.075	-0.132	-0.055	-0.035
%	-44.1	-5.3	-1.1	-2.0	5.7	21.6	360.6	-2442.8	320.4	92.1
Religion and caste composition										
Hindu/ SC/ST										
Hindu/Others	0.001	0.004	0.002	-0.011	-0.010	0.162*	0.053	0.111**	0.047	0.168
%	-1.3	-1.7	-0.8	3.4	1.8	-531.3	-256.6	2047.5	-273.0	-439.9
Muslim/Others	-0.017	-0.007	0.000	0.009	0.011	0.087**	0.035	0.026	0.022	0.022
%	16.1	2.9	0.0	-2.6	-2.0	-285.0	-167.1	476.1	-129.5	-57.9
Wealth index	-0.046****	-0.026***	-0.015***	-0.010	0.001	0.036	-0.004	-0.020	-0.008	0.097
%	42.1	10.7	6.3	3.0	-0.1	-117.7	21.4	-377.1	47.7	-253.6
Place of residence										
Urban										
Rural	0.003	0.006	0.007*	0.007*	0.015*	-0.033	-0.018	-0.025	-0.001	-0.007
%	-2.6	-2.4	-2.9	-2.1	-2.7	106.9	88.0	-460.8	5.0	18.1
Constant						-0.321	-1.709	-0.477	-0.042	0.986
Total	-0.108	-0.245***	-0.239***	-0.331***	-0.555***	-0.030	-0.021	0.005	-0.017	-0.038
Residuals	0.040	0.108	0.112	0.162	0.268	-0.142	-0.054	-0.211	-0.059	0.071

*p<0.05; **p<0.01;***p<0.001