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**Supplemental Table 1. Description of a nationally representative sample population of adults in India in 1993-1994 and in 2011-2012 by place of residence.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Urban | |  | Rural | |
|  | 1993-94 | 2011-12 |  | 1993-94 | 2011-12 |
| All Households (N) | 46254 | 41967 |  | 69491 | 59695 |
| Covariates | Mean or % | Mean or % |  | Mean or % | Mean or % |
| Bottom wealth quartile | 32.8 | 28.4 |  | 27.6 | 27.4 |
| Second wealth quartile | 19.3 | 25.2 |  | 25.3 | 24.7 |
| Third wealth quartile | 24.4 | 22.9 |  | 24.7 | 24.6 |
| Top wealth quartile | 23.5 | 23.5 |  | 22.4 | 23.4 |
| Illiterate | 32.2 | 23.8 |  | 64.0 | 41.4 |
| Primary education and below (<=5 years) | 12.8 | 10.4 |  | 12.8 | 13.6 |
| Middle school education (6-10 years) | 30.2 | 31.4 |  | 17.4 | 29.3 |
| Secondary education (11-12 years) | 8.7 | 11.9 |  | 2.9 | 7.4 |
| College and above (>12 years) | 16.1 | 22.5 |  | 2.9 | 8.4 |
| Scheduled tribes | 6.7 | 8.6 |  | 15.0 | 16.8 |
| Scheduled caste | 11.5 | 13.1 |  | 18.9 | 17.1 |
| Other backward classesa | - | 38.5 |  | - | 39.8 |
| Other case designation | 81.8 | 39.7 |  | 66.2 | 26.4 |
| Self-employed in non-agriculture | 35.9 | 37.3 |  | 12.4 | 25.6 |
| Agricultural labor | 0 | 0 |  | 25.0 | 8.2 |
| Other manual labor | 11.8 | 12.8 |  | 7.6 | 14.7 |
| Self-employed in agriculture | 0 | 0 |  | 43.5 | 28.1 |
| Other occupations | 8.7 | 10.9 |  | 11.6 | 23.4 |
| Regular wage/salaryc | 43.7 | 39.0 |  | - | - |
| Female headed households | 10.5 | 12.7 |  | 9.3 | 10.8 |
| Household size up to 4 individuals | 52.4 | 59.6 |  | 43.4 | 49.5 |
| Household size 5 or 6 | 31.0 | 28.2 |  | 32.7 | 33.6 |
| Total number of females in household | 2.2 | 2.1 |  | 2.5 | 2.3 |
| Muslim households | 13.1 | 14.5 |  | 8.8 | 11.8 |
| Christian households | 6.1 | 6.6 |  | 5.4 | 7.2 |
| Other religious groups | 4.1 | 3.9 |  | 4.9 | 4.6 |
| Total meals at employera | 0.7 | 0.8 |  | 0.8 | 0.4 |
| Total meals at schoola | 0.8 | 3.2 |  | 0.8 | 8.2 |
| Total meals paida | 3.1 | 3.6 |  | 0.9 | 1.5 |
| Total other mealsa | 4.5 | 4.4 |  | 3.7 | 4.5 |
| Total meals to servantsa | 1.5 | 2.9 |  | 1.0 | 4.0 |
| Total meals served to non-household members | 1.7 | 5.5 |  | 2.0 | 6.4 |

**a**Sum across all household members

**Supplemental Table 2. Average per capita meals consumed at home and outside the home in 1993-1994 and in 2011-2012 by urban/ rural residence in India.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Urban | | | |  | Rural | | | |
|  | 1993-94 | | 2011-12 | |  | 1993-94 | | 2011-12 | |
|  | Mean | (SD) | Mean | (SD) |  | Mean | (SD) | Mean | (SD) |
| Number of meals consumed at home/person/month | 65.4 | (19.1) | 67.2 | (19.2) |  | 70.8 | (14.9) | 72.2 | (14.6) |
| Number of meals consumed outside the home /person/month | 4.1 | (13.4) | 5.0 | (14.5) |  | 1.6 | (6.3) | 3.3 | (7.2) |
| Percentage of meals consumed outside the home | 6.0 | (19.5) | 6.9 | (19.8) |  | 2.2 | (8.9) | 4.3 | (9.5) |

**Appendix A. Explanation of Choice of Calorie Consumption Threshold Cut-off to Indicate Insufficient Consumption**

A challenging area for estimating undernourishment using consumption derived calories is the cut-off threshold at which an individual is considered undernourished. In our study, we have used 80 percent of India’s traditional cut-offs,[1](#_ENREF_1) which translates into new undernourishment thresholds of 1920 for rural areas and 1680 for urban areas. Our choice of using an 80 percent threshold is based on two factors. First, the Rangarajan Committee (2014) on poverty measurement recommends the use of lower cut-offs than the traditional calorie thresholds to account for a reduction in the proportion of the population in the occupational categories that require a relatively higher calorie intake.[2](#_ENREF_2) Second, the Committee on World Food Security (CFS) Round Table (2011) on hunger measurement recommends using a threshold of 1945 kcal per-capita per day in India to measure the proportion of individuals who do not meet minimum calorie requirements,[3](#_ENREF_3) which is also well below recommended thresholds.[1](#_ENREF_1) Admittedly, this threshold issue raises concerns about the sensitivity of our estimates in this study.

To allay the aforementioned concerns, we conducted sensitivity analyses to gauge the extent of different thresholds on undernourishment estimates. First, we graphically plotted the cumulative distribution of average daily calorie intake per-capita for the years 1993-94 and 2011-12. The cumulative distribution around the range of the thresholds is very steep and largely time-invariant, therefore the proportion of the population that is calorie-deficient is very sensitive to small changes in the cut-off (Figure A1).

Second, to observe the degree of sensitivity we re-calculated the prevalence of undernourishment for all SES strata based on different thresholds (Table A1). Using the recommended cut-offs,[1](#_ENREF_1) over two-thirds of the population in the first three SES quartiles in rural areas in 1993-94 was estimated to be undernourished. Using the same cut-off for 2011-12, we estimated that undernourishment increases to over 70 percent in the bottom three rural SES quartiles. If we used 90 percent of those thresholds, then we estimate that over half the population was undernourished in both 1993-94 and 2011-12 in the bottom three rural SES quartiles. We find a similar pattern across urban areas as well.

Finally, we find that using the FAO cut-offs[3](#_ENREF_3) gives us similar estimates to using an 80 percent threshold for rural areas. However, estimates are slightly higher for urban areas because FAO doesn’t provide separate thresholds for rural and urban areas.

Therefore, undernourishment estimates are very sensitive to the choice of the threshold. Our 80 percent threshold, however, ensures that our estimates are in line with the substantial prevalence of low body mass index (BMI) in India. According to India’s National Family Health Survey (2005-06) the prevalence of low BMI was 33 and 28 percent among women and men respectively,[4](#_ENREF_4) which closely aligns around our estimate of 27 percent undernourishment for 2011-12 using the 80 percent cut-off.

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**2.** *Report of the expert group to review the methodology for measurement of poverty.* Government of India Planning Commission 2014.

**3.** FAO. Food Security Indicators. *Committee on World Food Security (CFS): Round Table on Hunger Measurement.* 2016.

**4.** IIPS, Macro-International. *National Family Health Survey (NFHS-3), 2005-2006: India: Volume I.* Mumbai: International Institute for Population Sciences;2007.

**Figure A1. Cumulative distribution of average daily calorie intake per-capita among households in India in 1993-94 and 2011-12.**

1993-94 2011-12



**Table A1. The percentage of the population that is undernourished in rural and urban India in 1993-94 and 2011-12 according to different calorie threshold cutoffs.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Rural | | | | | | | |
|  | 1993-94 | | | | 2011-12 | | | |
|  | 100% threshold | 90% cutoff | 80% cutoff | FAO threshold | 100% threshold | 90% cutoff | 80% cutoff | FAO threshold |
|  | <2400 kcal | <2160 kcal | <1920 kcal | <1872 kcal | <2400 kcal | <2160 kcal | <1920 kcal | <1948 kcal (FAO) |
| Lowest wealth quartile | 68.9 | 54.9 | 27.6 | 35.3 | 75.3 | 59.6 | 27.4 | 41.6 |
| Second | 66.5 | 52.5 | 25.3 | 33.3 | 72.5 | 54.5 | 24.7 | 35.9 |
| Third | 67.5 | 53.2 | 24.7 | 32.5 | 70.2 | 53.0 | 24.6 | 34.4 |
| Top wealth quartile | 53.8 | 38.2 | 22.4 | 20.1 | 62.3 | 43.8 | 23.4 | 25.8 |
|  | Urban | | | | | | | |
|  | 1993-94 | | | | 2011-12 | | | |
|  | <2100 kcal | <1890 kcal | <1680 kcal | <1872 kcal | <2100 kcal | <1890 kcal | <1680 kcal | <1948 kcal |
| Lowest wealth quartile | 49.7 | 36.7 | 32.8 | 35.4 | 54.3 | 39.5 | 28.4 | 44.1 |
| Second | 50.0 | 37.3 | 19.3 | 36.1 | 58.2 | 40.7 | 25.2 | 45.4 |
| Third | 52.6 | 37.2 | 24.4 | 36.0 | 49.2 | 31.3 | 22.9 | 36.0 |
| Top wealth quartile | 35.3 | 21.2 | 23.5 | 20.4 | 35.8 | 20.0 | 23.5 | 24.3 |

Notes: Cut-offs based on the Lakdawala report and FAO.

**Supplemental Table 3. Linear regression estimates of the relationship between per capita calorie consumption per day per household** **and socioeconomic indicators and other explanatory factors among a nationally representative sample of households across India in 1993-94 and in 2011-12.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1993-94 Pooled |  | 2011-12 Pooled |  | 1993-94 Rural |  | 2011-12 Rural |  | 1993-94 Urban |  | 2011-12 Urban |  |
|  | β | SE | β | SE | β | SE | β | SE | β | SE | β | SE |
| Household wealth index |  |  |  |  |  |  |  |  |  |  |  |  |
| Bottom wealth quartile | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - |
| Quartile 2 | 73.9\*\*\* | (13.0) | 53.0\*\*\* | (10.8) | 85.6\*\*\* | (14.1) | 73.7\*\*\* | (10.9) | 67.4\*\*\* | (16.8) | 18.8 | (23.9) |
| Quartile 3 | 113.9\*\*\* | (13.8) | 79.4\*\*\* | (12.0) | 139.8\*\*\* | (13.3) | 85.9\*\*\* | (12.1) | 85.9\*\*\* | (21.1) | 88.2\*\* | (28.6) |
| Top quartile | 279.3\*\*\* | (18.8) | 170.2\*\*\* | (17.8) | 294.4\*\*\* | (20.3) | 172.7\*\*\* | (19.8) | 264.6\*\*\* | (25.7) | 186.6\*\*\* | (33.0) |
| Education of household head |  |  |  |  |  |  |  |  |  |  |  |  |
| Illiterate | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - |
| Primary and below (1-5 years) | 27.4\* | (10.6) | -7.7 | (8.7) | 33.9\*\* | (11.7) | -10.5 | (9.6) | 14.9 | (14.9) | -5.7 | (15.8) |
| Middle (6-10 years) | 97.0\*\*\* | (13.4) | 19.6\* | (9.8) | 120.5\*\*\* | (15.8) | 24.3\*\* | (9.2) | 63.7\*\*\* | (13.7) | 4.7 | (17.5) |
| Secondary (11-12 years) | 168.5\*\*\* | (20.3) | 50.6\*\* | (18.2) | 209.5\*\*\* | (24.4) | 53.5\*\* | (19.7) | 126.2\*\*\* | (23.6) | 36.6 | (23.2) |
| College and above (>12 years) | 292.6\*\*\* | (19.7) | 112.2\*\*\* | (17.9) | 262.4\*\*\* | (29.0) | 84.9\*\*\* | (20.5) | 291.1\*\*\* | (22.5) | 111.8\*\*\* | (22.2) |
| Household caste |  |  |  |  |  |  |  |  |  |  |  |  |
| Scheduled tribes | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - |
| Scheduled caste | 34.7 | (19.3) | 39.7 | (21.5) | 31.7 | (22.4) | 40.2 | (23.1) | -65.1\*\* | (23.4) | -27.6 | (29.2) |
| Other backward classes | na | na | 88.7\*\*\* | (19.9) | na | na | 95.0\*\*\* | (22.1) |  |  | 6.4 | (27.7) |
| Other | 150.6\*\*\* | (19.0) | 120.7\*\*\* | (23.4) | 164.9\*\*\* | (20.5) | 125.9\*\*\* | (23.1) | 21.9 | (23.5) | 45.6 | (36.9) |
| Occupation of household head |  |  |  |  |  |  |  |  |  |  |  |  |
| Self-employed in non-agriculture | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - |
| Agricultural labor | -107.9\*\*\* | (14.3) | 10.2 | (13.0) | -93.9\*\*\* | (15.9) | 5.6 | (13.9) | na | na | na | na |
| Other manual labor | -108.2\*\*\* | (16.0) | -38.1\*\*\* | (9.5) | -94.2\*\*\* | (22.9) | -47.7\*\*\* | (11.4) | -160.2\*\*\* | (14.3) | -37.6\*\* | (13.2) |
| Self-employed in agriculture | 275.0\*\*\* | (22.5) | 143.4\*\*\* | (13.2) | 265.0\*\*\* | (21.6) | 132.4\*\*\* | (12.4) | na | na | na | na |
| Other occupations | 75.6\*\*\* | (14.2) | 47.3\*\*\* | (12.2) | 69.4\*\*\* | (16.8) | 38.9\*\* | (14.2) | 58.0\*\* | (18.5) | 67.7\*\* | (24.0) |
| Regular wage salary | -11.2 | (10.8) | 11.3 | (18.7) | na | na | na | na | -26.3\* | (11.5) | 10.2 | (15.5) |
| Female headed household (vs. Male) | 4.4 | (11.7) | 100.2\*\*\* | (12.7) | -21.3 | (15.6) | 86.9\*\*\* | (14.5) | 48.6\*\*\* | (10.6) | 124.1\*\*\* | (18.7) |
| Household size |  |  |  |  |  |  |  |  |  |  |  |  |
| Household size up-to 4 individuals | 296.1\*\*\* | (16.2) | 222.9\*\*\* | (16.4) | 286.6\*\*\* | (20.7) | 243.3\*\*\* | (19.1) | 292.4\*\*\* | (13.6) | 169.8\*\*\* | (23.1) |
| Household size 5 or 6 | 35.8\*\*\* | (8.4) | 17.9 | (14.7) | 48.1\*\*\* | (10.5) | 38.8\* | (17.0) | 16.2 | (9.5) | -34.8\* | (17.1) |
| Household size more than 6 | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - |
| Total number of females in household | -42.5\*\*\* | (4.4) | -105.4\*\*\* | (7.1) | -36.7\*\*\* | (4.6) | -96.8\*\*\* | (7.3) | -65.3\*\*\* | (4.0) | -124.7\*\*\* | (10.2) |
| Religion |  |  |  |  |  |  |  |  |  |  |  |  |
| Hindu | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - | -ref- | - |
| Muslim | -103.2\*\*\* | (13.5) | -52.3\*\*\* | (14.8) | -105.7\*\*\* | (18.0) | -45.9\* | (19.8) | -91.0\*\*\* | (18.2) | -57.6\*\* | (19.6) |
| Christian | -0.7 | (20.7) | 1.3 | (18.2) | 2.2 | (31.7) | 14.8 | (25.2) | 2.5 | (19.2) | -24.3 | (26.4) |
| Other religious groups | 121.5\*\* | (44.9) | 88.7\*\* | (27.7) | 160.2\*\* | (56.8) | 98.6\*\* | (37.0) | 45.6 | (26.2) | 80.2\* | (32.7) |
| Total meals at employer (all members) | 0.6 | (0.6) | 8.7\*\*\* | (1.0) | 1.1 | (0.7) | 8.7\*\*\* | (1.2) | -1.1 | (1.0) | 8.5\*\*\* | (1.4) |
| Total meals at school (all members) | -3.4\*\*\* | (0.4) | 5.6\*\*\* | (0.3) | -3.4\*\*\* | (0.6) | 5.4\*\*\* | (0.3) | -3.0\*\*\* | (0.6) | 5.9\*\*\* | (0.6) |
| Total meals paid (all members) | 3.0\*\*\* | (0.5) | 9.1\*\*\* | (0.8) | 2.3\*\*\* | (0.6) | 8.0\*\*\* | (1.1) | 3.3\*\*\* | (0.8) | 9.2\*\*\* | (0.9) |
| Total other meals (all members) | -1.4\*\*\* | (0.3) | -3.3\*\*\* | (0.3) | -0.8\* | (0.4) | -2.9\*\*\* | (0.3) | -2.2\*\*\* | (0.3) | -4.4\*\*\* | (0.5) |
| Total meals to servants (all members) | 2.2\*\*\* | (0.3) | 0.6\* | (0.2) | 2.7\*\*\* | (0.4) | 0.4 | (0.3) | 1.3\*\*\* | (0.4) | 1.2\*\* | (0.4) |
| Number of meals served to any non-household member | 2.5\*\*\* | (0.7) | 12.2\*\*\* | (1.0) | 3.4\*\*\* | (0.7) | 12.0\*\*\* | (1.1) | 1.4 | (0.7) | 12.5\*\*\* | (1.9) |
| Urban (vs. rural) | -57.9\*\* | (17.9) | -8.9 | (15.6) |  |  |  |  |  |  |  |  |
| Constant | 2079.1\*\*\* | (54.8) | 2280.8\*\*\* | (118.1) | 2038.0\*\*\* | (66.1) | 2234.0\*\*\* | (135.3) | 2255.1\*\*\* | (42.8) | 2443.7\*\*\* | (71.1) |
| R2 | 0.2 |  | 0.4 |  | 0.2 |  | 0.3 |  | 0.2 |  | 0.4 |  |
| N | 112903 |  | 101615 |  | 67413 |  | 59670 |  | 45490 |  | 41945 |  |

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Notes: Estimates are adjusted for state fixed effects, sampling weights and standard errors clustered at the region level for which NSS data are representative. na means not applicable as those data were not available in a given round.

**Supplemental Table 4. Relative risk estimates of the relationship between having insufficient caloric intake and socioeconomic indicators and other explanatory factors among a nationally representative sample of households across India in 1993-94 and in 2011-12.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1993-94 Pooled |  | 2011-12 Pooled |  | 1993-94 Rural |  | 2011-12 Rural |  | 1993-94 Urban |  | 2011-12 Urban |  |
|  | AOR | 95% CI | AOR | 95% CI | AOR | 95% CI | AOR | 95% CI | AOR | 95% CI | AOR | 95% CI |
| Household wealth index |  |  |  |  |  |  |  |  |  |  |  |  |
| Bottom wealth quartile | 1.779\*\*\* | [1.6,1.9] | 1.923\*\*\* | [1.8,2.1] | 1.644\*\*\* | [1.5,1.8] | 1.654\*\*\* | [1.5,1.8] | 2.148\*\*\* | [1.9,2.5] | 2.542\*\*\* | [2.1,3.1] |
| Quartile 2 | 1.558\*\*\* | [1.4,1.7] | 1.515\*\*\* | [1.4,1.6] | 1.444\*\*\* | [1.3,1.6] | 1.307\*\*\* | [1.2,1.4] | 1.879\*\*\* | [1.6,2.1] | 2.040\*\*\* | [1.7,2.4] |
| Quartile 3 | 1.443\*\*\* | [1.4,1.5] | 1.366\*\*\* | [1.3,1.5] | 1.343\*\*\* | [1.3,1.4] | 1.255\*\*\* | [1.2,1.4] | 1.686\*\*\* | [1.5,1.9] | 1.494\*\*\* | [1.3,1.7] |
| Top quartile (ref) |  |  |  |  |  |  |  |  |  |  |  |  |
| Education of household head |  |  |  |  |  |  |  |  |  |  |  |  |
| Illiterate | 2.066\*\*\* | [1.9,2.3] | 1.279\*\*\* | [1.2,1.4] | 1.668\*\*\* | [1.5,1.9] | 1.234\*\* | [1.1,1.4] | 2.164\*\*\* | [1.9,2.4] | 1.195\*\* | [1.0,1.4] |
| Primary and below (1-5 years) | 1.976\*\*\* | [1.8,2.2] | 1.277\*\*\* | [1.2,1.4] | 1.575\*\*\* | [1.4,1.8] | 1.237\*\* | [1.1,1.4] | 2.092\*\*\* | [1.9,2.4] | 1.149\* | [1.0,1.3] |
| Middle (6-10 years) | 1.713\*\*\* | [1.6,1.9] | 1.271\*\*\* | [1.2,1.4] | 1.374\*\*\* | [1.2,1.5] | 1.219\*\*\* | [1.1,1.4] | 1.852\*\*\* | [1.7,2.0] | 1.221\*\* | [1.1,1.4] |
| Secondary (11-12 years) | 1.384\*\*\* | [1.3,1.5] | 1.106\* | [1.0,1.2] | 1.094 | [0.9,1.3] | 1.060 | [0.9,1.2] | 1.568\*\*\* | [1.4,1.7] | 1.076 | [0.9,1.2] |
| College and above (>12 years) (ref) |  |  |  |  |  |  |  |  |  |  |  |  |
| Household caste |  |  |  |  |  |  |  |  |  |  |  |  |
| Scheduled tribes | 1.253\*\*\* | [1.2,1.3] | 1.278\*\*\* | [1.2,1.4] | 1.276\*\*\* | [1.2,1.4] | 1.272\*\*\* | [1.1,1.4] | 1.003 | [0.9,1.1] | 1.027 | [0.8,1.2] |
| Scheduled caste | 1.229\*\*\* | [1.2,1.3] | 1.157\*\*\* | [1.1,1.2] | 1.243\*\*\* | [1.2,1.3] | 1.171\*\*\* | [1.1,1.3] | 1.184\*\*\* | [1.1,1.3] | 1.065 | [1.0,1.2] |
| Other backward classes |  |  | 1.027 | [1.0,1.1] |  |  | 1.041 | [1.0,1.1] |  |  | 0.963 | [0.9,1.1] |
| Other (ref) |  |  |  |  |  |  |  |  |  |  |  |  |
| Occupation of household head |  |  |  |  |  |  |  |  |  |  |  |  |
| Self-employed in non-agriculture (ref) |  |  |  |  |  |  |  |  |  |  |  |  |
| Agricultural labor | 1.150\*\*\* | [1.1,1.2] | 0.986 | [0.9,1.1] | 1.139\*\*\* | [1.1,1.2] | 0.975 | [0.9,1.0] |  |  |  |  |
| Other manual labor | 1.222\*\*\* | [1.2,1.3] | 1.083\*\* | [1.0,1.1] | 1.173\*\*\* | [1.1,1.3] | 1.089\*\* | [1.0,1.2] | 1.304\*\*\* | [1.2,1.4] | 1.071 | [1.0,1.2] |
| Self-employed in agriculture | 0.641\*\*\* | [0.6,0.7] | 0.721\*\*\* | [0.7,0.8] | 0.636\*\*\* | [0.6,0.7] | 0.742\*\*\* | [0.7,0.8] |  |  |  |  |
| Other occupations | 0.897\*\*\* | [0.9,0.9] | 0.999 | [0.9,1.1] | 0.849\*\*\* | [0.8,0.9] | 0.980 | [0.9,1.0] | 1.010 | [0.9,1.1] | 1.086 | [0.9,1.3] |
| Regular wage salary | 0.969 | [0.9,1.0] | 0.940 | [0.9,1.0] |  |  |  |  | 1.031 | [1.0,1.1] | 0.986 | [0.9,1.1] |
| Female headed household (vs. Male) | 1.007 | [1.0,1.1] | 0.889\*\* | [0.8,1.0] | 1.036 | [1.0,1.1] | 0.907\* | [0.8,1.0] | 0.938\* | [0.9,1.0] | 0.852\* | [0.7,1.0] |
| Household size |  |  |  |  |  |  |  |  |  |  |  |  |
| Household size up-to 4 individuals | 0.629\*\*\* | [0.6,0.7] | 0.522\*\*\* | [0.5,0.6] | 0.675\*\*\* | [0.6,0.7] | 0.539\*\*\* | [0.5,0.6] | 0.549\*\*\* | [0.5,0.6] | 0.461\*\*\* | [0.4,0.5] |
| Household size 5 or 6 | 0.919\*\*\* | [0.9,1.0] | 0.862\*\*\* | [0.8,0.9] | 0.946\*\* | [0.9,1.0] | 0.845\*\*\* | [0.8,0.9] | 0.870\*\*\* | [0.8,0.9] | 0.918 | [0.8,1.0] |
| Household size more than 6 (ref) |  |  |  |  |  |  |  |  |  |  |  |  |
| Total number of females in household | 1.065\*\*\* | [1.0,1.1] | 1.160\*\*\* | [1.1,1.2] | 1.057\*\*\* | [1.0,1.1] | 1.164\*\*\* | [1.1,1.2] | 1.103\*\*\* | [1.1,1.1] | 1.170\*\*\* | [1.1,1.2] |
| Religion |  |  |  |  |  |  |  |  |  |  |  |  |
| Hindu (ref) |  |  |  |  |  |  |  |  |  |  |  |  |
| Muslim | 1.257\*\*\* | [1.2,1.3] | 1.127\*\* | [1.0,1.2] | 1.250\*\*\* | [1.2,1.3] | 1.104 | [1.0,1.2] | 1.190\*\*\* | [1.1,1.3] | 1.114\* | [1.0,1.2] |
| Christian | 1.054 | [1.0,1.1] | 0.998 | [0.9,1.1] | 1.046 | [1.0,1.1] | 0.930 | [0.8,1.1] | 1.034 | [0.9,1.1] | 1.184\* | [1.0,1.4] |
| Other religious groups | 0.844\* | [0.7,1.0] | 0.915 | [0.8,1.1] | 0.798\*\*\* | [0.7,0.9] | 0.962 | [0.8,1.2] | 0.946 | [0.8,1.1] | 0.934 | [0.7,1.2] |
| Total meals at employer (all members) | 1.000 | [1.0,1.0] | 0.972\*\*\* | [1.0,1.0] | 0.998 | [1.0,1.0] | 0.975\*\*\* | [1.0,1.0] | 1.005\*\*\* | [1.0,1.0] | 0.968\*\*\* | [1.0,1.0] |
| Total meals at school (all members) | 1.003\*\*\* | [1.0,1.0] | 0.984\*\*\* | [1.0,1.0] | 1.003\*\*\* | [1.0,1.0] | 0.984\*\*\* | [1.0,1.0] | 1.004\*\*\* | [1.0,1.0] | 0.982\*\*\* | [1.0,1.0] |
| Total meals paid (all members) | 0.995\*\*\* | [1.0,1.0] | 0.978\*\*\* | [1.0,1.0] | 0.997\* | [1.0,1.0] | 0.982\*\*\* | [1.0,1.0] | 0.993\*\*\* | [1.0,1.0] | 0.975\*\*\* | [1.0,1.0] |
| Total other meals (all members) | 1.002\*\*\* | [1.0,1.0] | 1.003\*\*\* | [1.0,1.0] | 1.001\*\*\* | [1.0,1.0] | 1.003\*\*\* | [1.0,1.0] | 1.003\*\*\* | [1.0,1.0] | 1.005\*\*\* | [1.0,1.0] |
| Total meals to servants (all members) | 0.996\*\*\* | [1.0,1.0] | 0.999 | [1.0,1.0] | 0.994\*\*\* | [1.0,1.0] | 1.000 | [1.0,1.0] | 0.999 | [1.0,1.0] | 0.998 | [1.0,1.0] |
| Number of meals served to any non-household member | 0.992\* | [1.0,1.0] |  |  | 0.992\* | [1.0,1.0] | 0.973\*\*\* | [1.0,1.0] | 0.992 | [1.0,1.0] |  |  |
| Urban (vs. rural) | 0.638\*\*\* | [0.6,0.7] | 0.537\*\*\* | [0.5,0.6] |  |  |  |  |  |  |  |  |
| N | 112903 |  | 101615 |  | 67413 |  | 59670 |  | 45490 |  | 41945 |  |

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Notes: Estimates are adjusted for state fixed effects, sampling weights and standard errors clustered at the region level for which NSS data are representative. Na means not applicable and such data were not included in that round.

**Supplemental Table 5. Linear regression estimates predicting per capita calorie consumption per day per household, including the interaction effect between year of survey and household wealth index among a nationally representative sample of households across India in 1993-94 and in 2011-12.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Average Calorie Consumed per Capita per Household | | | |
|  | Rural | | Urban | |
|  | β | SE | β | SE |
| Year 2012 dummy | -135.8\*\* | (37.9) | -144.5\*\* | (41.1) |
| Household wealth index |  |  |  |  |
| Bottom wealth quartile (ref) | - | - | - | - |
| Quartile 2 | 62.9\*\*\* | (14.5) | 35.6 | (32.2) |
| Quartile 3 | 98.5\*\*\* | (20.3) | 41.7 | (28.4) |
| Top quartile | 273.6\*\*\* | (27.1) | 231.6\*\*\* | (38.8) |
| Year 2012 interaction with household wealth index |  |  |  |  |
| Bottom wealth quartile (ref) | - | - | - | - |
| Quartile 2 | 0.4 | (21.4) | -34.5 | (50.1) |
| Quartile 3 | -18.7 | (32.7) | 6.7 | (43.8) |
| Top quartile | -116.7\* | (45.5) | -105.6 | (54.6) |
| N | 127,085 |  | 87,435 |  |

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Notes: Estimates are adjusted for education, caste, occupation of household head, sex of household head, household size, total number of females in the household, religion, free meals at employer, free meals at school, total meals paid, total meals outside the house, number if meals to servants, number of meals to non-household members, state fixed effects, sampling weights and standard errors clustered at the state level.

**Supplemental Table 6. Linear regression estimates predicting per capita calorie consumption per day per household, including the interaction effect between year of survey and education of household head among a nationally representative sample of households across India in 1993-94 and in 2011-12.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Average Calorie Consumed per Capita per Household | | | |
|  | Rural | | Urban | |
|  | β | SE | β | SE |
| Year 2012 dummy | -103.8\*\* | (31.9) | -69.3\* | (33.3) |
| Education of household head |  |  |  |  |
| Illiterate (ref) | - | - | - | - |
| Primary and below (1-5 years) | 44.2\* | (19.2) | 33.1 | (17.4) |
| Middle (6-10 years) | 141.2\*\*\* | (24.1) | 103.8\*\*\* | (19.9) |
| Secondary (11-12 years) | 252.3\*\*\* | (30.8) | 193.0\*\*\* | (27.9) |
| College and above (>12 years) | 327.4\*\*\* | (39.6) | 401.0\*\*\* | (39.4) |
| Year 2012 interaction with education of household head |  |  |  |  |
| Illiterate (ref) | - | - | - | - |
| Primary and below (1-5 years) | -56.6\* | (24.2) | -28.0 | (17.2) |
| Middle (6-10 years) | -134.5\*\*\* | (27.0) | -90.4\*\*\* | (22.4) |
| Secondary (11-12 years) | -226.1\*\*\* | (33.4) | -155.9\*\*\* | (29.1) |
| College and above (>12 years) | -244.5\*\*\* | (45.9) | -284.3\*\*\* | (41.7) |
| N | 127,085 |  | 87,435 |  |

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Notes: Estimates are adjusted for sex of wealth, caste, occupation of household head, sex of household head, household size, total number of females in the household, religion, free meals at employer, free meals at school, total meals paid, total meals outside the house, number if meals to servants, number of meals to non-household members, state fixed effects, sampling weights and standard errors clustered at the state level.

**Supplemental Table 7. Relative risk regression estimates predicting insufficient caloric intake, including the interaction effect between year of survey and household wealth index among a nationally representative sample of households across India in 1993-94 and in 2011-12.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Undernourished, binary outcome | | | |
|  | Rural | | Urban | |
|  | AOR | 95% CI | AOR | 95% CI |
| Year 2012 dummy | 1.342\*\*\* | [1.1,1.6] | 1.064 | [0.9,1.3] |
| Household wealth index |  |  |  |  |
| Bottom wealth quartile (ref) | 0.973 | [0.8,1.1] | 1.200 | [0.9,1.6] |
| Quartile 2 | 0.861 | [0.7,1.0] | 1.027 | [0.8,1.3] |
| Quartile 3 | 0.859\* | [0.8,1.0] | 0.822\* | [0.7,1.0] |
| Top quartile | - | - | - | - |
| Year 2012 interaction with household wealth index |  |  |  |  |
| Bottom wealth quartile (ref) | 1.758\*\*\* | [1.5,2.0] | 1.897\*\*\* | [1.5,2.3] |
| Quartile 2 | 1.566\*\*\* | [1.4,1.8] | 1.856\*\*\* | [1.6,2.2] |
| Quartile 3 | 1.503\*\*\* | [1.4,1.6] | 1.758\*\*\* | [1.6,2.0] |
| Top quartile | - | - | - | - |
| N | 127,085 |  | 87,435 |  |

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Notes: Estimates are adjusted for education, caste, occupation of household head, sex of household head, household size, total number of females in the household, religion, free meals at employer, free meals at school, total meals paid, total meals outside the house, number if meals to servants, number of meals to non-household members, state fixed effects, sampling weights and standard errors clustered at the state level. na=not applicable

**Supplemental Table 8. Relative risk estimates insufficient caloric intake, including the interaction effect between year of survey and education of household head among a nationally representative sample of households across India in 1993-94 and in 2011-12.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Undernourished, binary outcome | | | |
|  | Rural | | Urban | |
|  | AOR | 95% CI | AOR | 95% CI |
| Year 2012 dummy | 1.881\*\*\* | [1.5,2.3] | 1.756\*\*\* | [1.4,2.1] |
| Education of household head |  |  |  |  |
| Illiterate (ref) | 1.980\*\*\* | [1.7,2.3] | 2.287\*\*\* | [2.0,2.6] |
| Primary and below (1-5 years) | 1.825\*\*\* | [1.6,2.1] | 2.210\*\*\* | [1.9,2.5] |
| Middle (6-10 years) | 1.503\*\*\* | [1.3,1.7] | 1.912\*\*\* | [1.7,2.1] |
| Secondary (11-12 years) | 1.108 | [0.9,1.3] | 1.562\*\*\* | [1.4,1.7] |
| College and above (>12 years) | - | - | - | - |
| Year 2012 interaction with education of household head |  |  |  |  |
| Illiterate (ref) | 0.609\*\*\* | [0.5,0.7] | 0.552\*\*\* | [0.5,0.7] |
| Primary and below (1-5 years) | 0.663\*\*\* | [0.5,0.8] | 0.540\*\*\* | [0.5,0.6] |
| Middle (6-10 years) | 0.792\*\* | [0.7,0.9] | 0.661\*\*\* | [0.6,0.8] |
| Secondary (11-12 years) | 0.950 | [0.8,1.2] | 0.707\*\*\* | [0.6,0.8] |
| College and above (>12 years) | - | - | - | - |
| N | 127,085 |  | 87,435 |  |

\* *p* < 0.05, \*\* *p* < 0.01, \*\*\* *p* < 0.001

Notes: Estimates are adjusted for sex of wealth, caste, occupation of household head, sex of household head, household size, total number of females in the household, religion, free meals at employer, free meals at school, total meals paid, total meals outside the house, number if meals to servants, number of meals to non-household members, state fixed effects, sampling weights and standard errors clustered at the state level.

**Supplemental Table 9. The percentage of households in each wealth quartile using a wealth index constructed using a common set of assets from the pooled nationally representative sample of households across India in 1993-94 and in 2011-12, stratified by rural and urban areas.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Rural – 1993-94 | Rural – 2011-12 | Urban – 1993-94 | Urban – 2011-12 |
| Poorest wealth quintile | 35.4 | 0.1 | 40.1 | 0.5 |
| Quartile 2 | 28.8 | 2.2 | 14.8 | 3.1 |
| Quartile 3 | 24.6 | 20.9 | 36.3 | 23.9 |
| Richest wealth quintile | 11.2 | 76.8 | 8.9 | 72.4 |
| N | 356289 | 285796 | 208248 | 179164 |

**Supplemental Table 10. Linear and relative risk estimates of the relationship between household wealth\* and caloric consumption among rural and urban households in India in 1993-94 and 2011-12.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Linear Outcome:  Average Calorie Consumed per Capita per  Urban Household | | | | | |  | Binary Outcome:  Having Insufficient Caloric Intake in an  Urban Household | | | | | |
|  | 1993-94 | | | 2011-12 | | |  | 1993-94 | | | 2011-12 | | |
|  | β |  | SE | β |  | SE |  | AOR |  | 95% CI | AOR |  | 95% CI |
| Household wealth index |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bottom wealth quartile | -ref- |  | - | -ref- |  | - |  | 2.823\*\*\* |  | [2.3,3.5] | 2.853\*\*\* |  | [1.7,4.8] |
| Quartile 2 | 36.3\* |  | (14.3) | 13.8 |  | (79.8) |  | 2.640\*\*\* |  | [2.2,3.2] | 1.906\*\*\* |  | [1.4,2.5] |
| Quartile 3 | 112.3\*\*\* |  | (20.1) | 123.5 |  | (71.0) |  | 2.057\*\*\* |  | [1.7,2.4] | 1.421\*\*\* |  | [1.3,1.6] |
| Top quartile | 352.2\*\*\* |  | (29.8) | 173.4\* |  | (71.7) |  | -ref- |  | - | -ref- |  | - |
|  | Rural Household | | | | | |  | Rural Household | | | | | |
|  | 1993-94 | | | 2011-12 | | |  | 1993-94 | | | 2011-12 | | |
|  | β |  | SE | β |  | SE |  | AOR |  | 95% CI | AOR |  | 95% CI |
| Household wealth index |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Bottom wealth quartile | -ref- |  | - | -ref- |  | - |  | 1.880\*\*\* |  | [1.7,2.1] | 1.393 |  | [0.8,2.4] |
| Quartile 2 | 50.1\*\*\* |  | (13.2) | -30.3 |  | (115.2) |  | 1.742\*\*\* |  | [1.5,2.0] | 1.523\*\*\* |  | [1.4,1.7] |
| Quartile 3 | 164.8\*\*\* |  | (17.5) | 21.9 |  | (109.9) |  | 1.457\*\*\* |  | [1.3,1.6] | 1.264\*\*\* |  | [1.2,1.3] |
| Top quartile | 326.5\*\*\* |  | (25.5) | 99.0 |  | (109.1) |  | -ref- |  | - | -ref- |  | - |

\* For these models, the indicator of household wealth was constructed using a common set of assets from the pooled samples of both time periods (stratified by rural and urban areas) to observe changes in wealth over time.