

Supplementary file

Methodology: about the DHS data:

This paper uses data obtained from India Demographic and Health Survey 2019-21, funded jointly by Government of India and USAID. DHS provides sample survey data. DHS sample designs are usually two-stage probability samples drawn from an existing sample frame, generally the most recent census frame. DHS data included following units of analysis; Household, Individual, Children age 0-5 years, Woman aged 15-49 years and Man aged 15 to 54. The data is collected through four main questionnaires: the Household Questionnaire, the Biomarker Questionnaire, the Woman's Questionnaire, and the Man's Questionnaire. This data is then organized into flat files for ease of analysis, with separate files for each unit of analysis (e.g., household, individual). This paper use children 0-5 data file for analysis.

The DHS' spatial data repository provides data on the geospatial covariate that link survey cluster locations to ancillary data - known as covariates – and contain data on topics including population, climate, and environmental factors. Geospatial data is linked to clusters in regular DHS data and can be merged to do further data analysis.

Table S1. Sample characteristics.

	Mean	Linearized Std. Err.
Children aged 6-59 months who are stunted	0.3712	0.0019325
Mean HAZ score	-1.457	0.0073819
Anemia among children		
Severe	0.213	0.0020329
Moderate	0.3588	0.0019325
Mild	0.2873	0.0018005
No anemia	0.3326	0.0020324
Mean WDD	7.80	0.0085052
Household water access		
Optimal	0.7409101	0.0025306
Intermediate	0.2465788	0.0024636
Low	0.0125112	0.0005641
Access to improved water sources	0.9588274	0.0010959
Access to improved toilet	0.6454354	0.002784
Maternal education		
No education	0.2005265	0.0021791
Primary	0.1147787	0.0015594
Secondary	0.515301	0.0027501

Higher	0.1693938	0.0024389
Gender of household head		
Male	0.8503	0.0019476
Female	0.1497	0.0020354
Gender of child		
Male	51.48	0.0023303
Female	48.52	0.0039253
Age of child in months	20.57651	0.0383442
Religion		
Hindu	0.8179956	0.0029482
Muslim	0.1375893	0.0028564
Christian	0.021602	0.0007312
Other	0.0228131	0.0007667
Asset class		
Lowest	0.1967322	0.0021529
Lower	0.1930198	0.0020147
Middle	0.1953712	0.0020508
Higher	0.2077268	0.0022796
Highest	0.20715	0.0024948
Residence		
Rural	0.7340676	0.0025158
Urban	0.2659324	0.0025158
Caste		
Schedule caste	0.2465458	0.0028731
Schedule tribe	0.1063436	0.0017958
OBC	0.4575198	0.0030711
General	0.1895907	0.0026411
Child has health card	0.9539454	0.0010937
Child received last Vitamin A	0.789461	0.0022988
Number of under- five children	1.770689	0.005142
Water availability region		
High	0.1838194	0.0017438
Medium	0.4542893	0.0024342
Low	0.3618913	0.0021559
Anomaly in rain (10 percent)		
Normal	0.094609	0.0023052
Deficit	0.3509378	0.0030819

Excess	0.5544533	0.0032395
Anomaly in rain (20 percent)		
Normal	0.2598454	0.0030261
Deficit	0.3180158	0.0030645
Excess	0.4221388	0.0032031
Mean of maximum temperature	31.67	0.0074828
Mean of aridity index	0.3049	0.00304425
Season		
Monsoon	0.2768	0.0015372
Pre-monsoon	0.4724	0.0029074
Post monsoon	0.2508	0.0019286

Sensitivity analysis

1) Likelihood Ratio test after GSEM

LR test for modles with and without temperature variable			
Likelihood-ratio test	LR chi2(3)	=	4933.14
(Assumption: model1 nested in model2)	Prob > chi2	=	0.0000
LR test for modles with and without aridity index			
Likelihood-ratio test	LR chi2(2)	=	206.97
(Assumption: model1 nested in model2)	Prob > chi2	=	0.0000
LR test for modles with and without rain fall variable			
Likelihood-ratio test	LR chi2(6)	=	1243.99
(Assumption: model2 nested in model1)	Prob > chi2	=	0.0000
LR test for models with and without all climatic variables			
Likelihood-ratio test	LR chi2(11)	=	6357.83
(Assumption: model1 nested in model2)	Prob > chi2	=	0.0000

2) Hausman test

Coefficients				
	(b)	(B)	(b-B)	$\sqrt{\text{diag}(V_b - V_B)}$
	Efficient model	Complex model	Difference	S.E.
WDD	0.0015064	0.0015064	0	0
Anemia (severity)				
Moderate	-0.0675315	-0.0675315	0	0
Mild	-0.1215615	-0.1215615	0	0
No anemia	-0.1498414	-0.1498414	0	0
Time to water				
Intermediate	0.019549	0.019549	0	0
Low	0.0055239	0.0055239	0	0
Number of under Five children	0.028038	0.028038	0	0
Child's gender	-0.0441827	-0.0441827	0	0
Child's age	0.0057467	0.0057467	0	0
Caste (SC)				
ST	-0.0139714	-0.0139714	0	0
OBC	-0.0191985	-0.0191985	0	0
General	-0.0635986	-0.0635986	0	0
Rural residence	0.0018674	0.0018674	0	0
Vitamin A	0.0077413	0.0077413	0	0
Wealth index (poorest)				
Poorer	-0.0150748	-0.0150748	0	0
Middle	-0.0553037	-0.0553037	0	0
Richer	-0.0742318	-0.0742318	0	0
Richest	-0.1118388	-0.1118388	0	0
Access to WHO toilet	-0.0272391	-0.0272391	0	0
Maternal education [no education]				
Primary	-0.0163644	-0.0163644	0	0
Secondary	-0.058683	-0.058683	0	0
Higher	-0.1072275	-0.1072275	0	0
Religion (Hindu)				
Muslim	0.0028413	0.0028413	0	0
Christian	-0.0187441	-0.0187441	0	0
Season (Monsoon)				
Pre-monsoon	-0.026723	-0.026723	0	0
Post-monsoon	0.0094392	0.0094392	0	0

b = consistent under H_0 and H_a ; obtained from gsem

B = inconsistent under H_a , efficient under H_0 ; obtained from gsem

Test: H_0 : difference in coefficients not systematic

$\text{Chi2}(0) = (b-B)'[(V_b - V_B)^{-1}](b-B) = 0.00$

Prob. > chi2 = . ($V_b - V_B$ is not positive definite)