Supplementary Table 1: Model Fit Diagnostics Across Survey Waves

Diagnostic Test	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	NFNSS
Model Fit Statistics						
Wald χ^2 (df)	135.96 (19)	165.65 (19)	74.40 (16)	182.65 (19)	237.03 (19)	60.85 (17)
Wald χ^2 p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Pseudo R^2	0.0856	0.1242	0.1344	0.1256	0.1482	0.1139
Log Pseudolikelihood	-10,645,409	-8,797,982.6	-2,761,225	-10,475,777	-10,303,126	-463.485
Specification Tests						
Link Test: _hat p-value	0.018	<0.001	0.030	0.002	<0.001	0.902
Link Test: _hatsq p-value	0.571	0.954	0.873	0.141	0.339	0.288
Hosmer-Lemeshow χ^2 (8 df)	7.29	3.36	11.14	16.40	6.51	8.25
Hosmer-Lemeshow p-value	0.505	0.910	0.194	0.037	0.590	0.410
Discrimination						
Area Under ROC Curve (AUC)	0.6637	0.6988	0.6881	0.7058	0.7180	0.7601
Classification Accuracy						
Overall Correct (%)	99.11	99.34	99.12	99.06	97.68	100.00
Sensitivity (%)*	99.34	99.71	99.28	99.36	98.78	100.00
Specificity (%)*	1.64	2.38	1.94	97.71	7.38	100.00
Multicollinearity						

Mean Variance Inflation Factor (VIF)	2.14	2.15	2.53	2.17	2.16	5.10
Maximum VIF	8.86 (Educ)	8.76 (Educ)	11.89 (Educ)	8.54 (Educ)	8.58 (Educ)	33.32 (Educ)
SES Joint Significance						
Wald χ^2 (4 df) for SES	42.22	70.07	12.26	77.81	89.43	13.70
p-value for SES	<0.001	<0.001	0.016	<0.001	<0.001	0.008

Note: Classification based on 0.5 probability cutoff. Sensitivity = correctly classified households with no hunger; Specificity = correctly classified households with hunger.

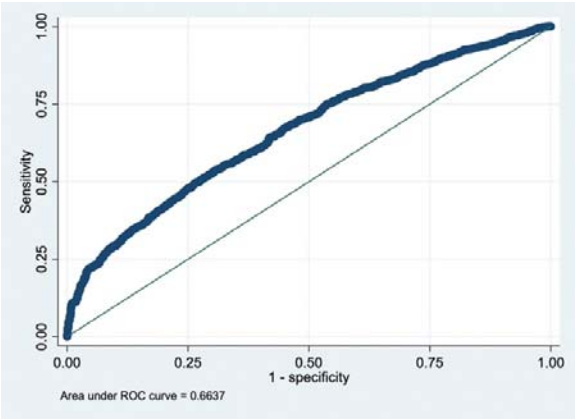
Supplementary Table 2: Sensitivity of Results to Socioeconomic Status (SES) Specification

Model Specification	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	NFNSS
A. Categorical SES (Ref: Poorest Quintile)						
Odds Ratio (95% CI)						
Poorer (Q2)	1.06 (0.77-1.47)	1.58 (1.09-2.31)	1.07 (0.58-2.00)	2.69 (1.89-3.83)	1.55 (1.07-2.23)	2.98 (1.18-7.53)
Middle (Q3)	1.62 (1.14-2.29)	2.00 (1.31-3.05)	1.29 (0.68-2.44)	2.19 (1.41-3.41)	2.02 (1.37-2.99)	3.46 (1.22-9.80)
Richer (Q4)	1.51 (1.07-2.13)	2.67 (1.73-4.11)	1.86 (0.88-3.90)	3.05 (2.02-4.62)	4.96 (3.22-7.64)	2.90 (1.13-7.42)
Richest (Q5)	3.75 (2.43-5.79)	9.45 (5.53-16.12)	5.29 (1.91-14.60)	11.93 (6.62-21.48)	10.06 (5.70-17.74)	6.80 (2.23-20.72)
Joint test p-value	<0.001	<0.001	0.016	<0.001	<0.001	0.008
B. Continuous SES (Per Quintile Increase)						
Odds Ratio (95% CI)	1.30 (1.19-1.42)	1.54 (1.38-1.72)	1.35 (1.12-1.62)		1.71 (1.53-1.90)	1.50 (1.16-1.95)
Wald test p-value	<0.001	<0.001	0.001		<0.001	0.002
C. Model Fit Comparison						
Pseudo R^2 (Categorical)	0.0856	0.1242	0.1344	0.1256	0.1482	0.1139
Pseudo R^2 (Continuous)	0.0803	0.1190	0.1283		0.1448	0.1047
Δ Pseudo R^2	-0.0053	-0.0052	-0.0061		-0.0034	-0.0092

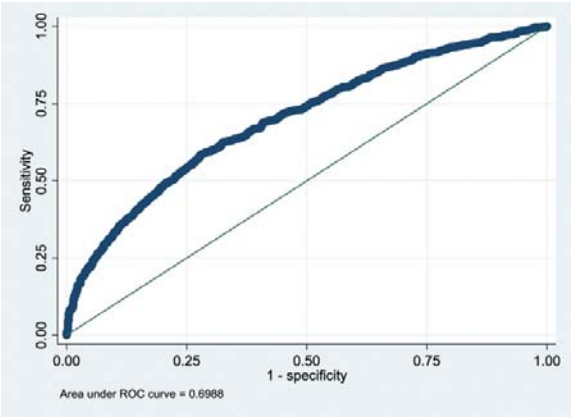
Note: *All models include full covariate set: employment status, race, dwelling type, electricity access, piped water access, education, gender, household size, and respondent age. Odds ratios >1 indicate higher odds of household food security (no hunger).*

Supplementary figures 1-6: Receiver Operating Characteristic (ROC) curves for logistic regression models predicting household food security (no household hunger) across NIDS-CRAM Waves 1–5 and the NFNSS.

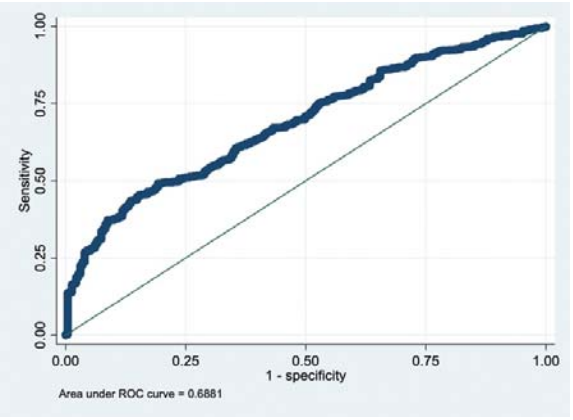
Wave 1



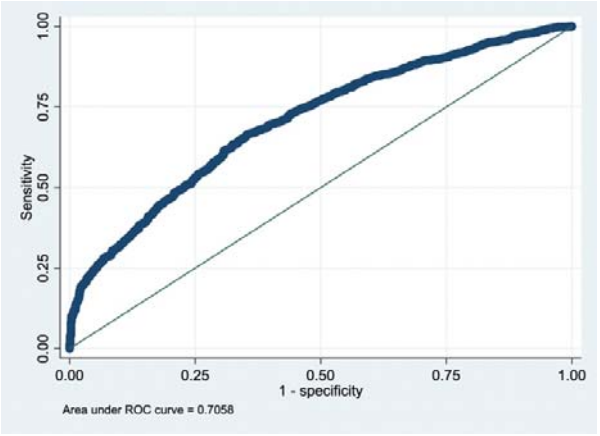
Wave 2



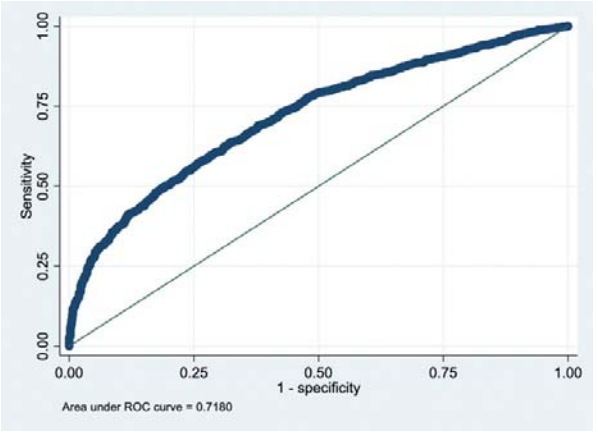
Wave 3



Wave 4



Wave 5



NFNSS