Supplementary Material for:

Nutrition-Sensitive Agricultural Interventions, Agricultural Diversity, Food Access and Child Dietary Diversity: Evidence from Rural Zambia

By

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Appendix Table 1: Participation in and Exposure to RAIN

	Control	Treatment	Agriculture and BCC	Agriculture Only
Respondent has Heard of Intervention	0.156	0.897	0.956	0.838
	[1079]	[2456]	[1212]	[1244]
Member of Household in Women's Group	0.007	0.343	0.359	0.327
or has heard of intervention	[1079]	[2456]	[1212]	[1244]
Respondent has Attended Meeting	0.001	0.242	0.266	0.22
	[1079]	[2455]	[1212]	[1243]
Number of Meetings Attended since January 1st	0.002	1.007	1.127	0.888
	[1079]	[2419]	[1200]	[1219]
Was the Smallholder Model Farmer at Last meeting	0.001	0.222	0.242	0.203
	[1079]	[2419]	[1200]	[1219]
Ever Home Visit by Smallholder Model Farmer	0	0.122	0.142	0.102
	[1079]	[2419]	[1200]	[1219]
Was the Community Health Volunteer at Last meeting	0	0.059	0.074	0.044
	[1078]	[2118]	[1049]	[1069]
Ever Home Visit Community Health Volunteer	0.022	0.11	0.136	0.084
	[1079]	[2456]	[1212]	[1244]
Discuss Plant-Based Agriculture	0	0.169	0.182	0.157
at Meeting since January 1st	[1079]	[2456]	[1212]	[1244]
Discuss Animal-Based Agriculture	0	0.059	0.071	0.047
at Meeting since January 1st	[1079]	[2456]	[1212]	[1244]
Discuss Health and Nutrition	0.001	0.053	0.058	0.047
at Meeting since January 1st	[1079]	[2456]	[1212]	[1244]
Maximum number of households	1079	2456	1212	1244

Note: Table provides information on participation in the RAIN program. "Control" refers the control group and "Treatment" denotes the combined treatment group. "Agriculture only" and "Agriculture and BCC" are the two groups that comprise "Treatment." The number of non-missing observations avilable for the calcualtion of each statistic is reported in brackets.

Appendix Table 2: Baseline Summary Statistics

	(1) Treatment	(2) Control	(3) T-C Standardized Difference	(4) Treatment N; Control N
Panel A: Household Demographics				
Number of household members	6.868	7.326	-0.146*	2003; 1041
	(2.840)	(3.142)		
Number of children < 60 months	1.868	2.062	-0.237*	2003; 1041
	(0.734)	(0.815)		
Youngest child 6–24 months	0.468	0.563	-0.191*	2003; 1041
Mother is married	0.846	0.841	0.014	2003; 1041
Mother's age (years)	30.779	30.692	0.010	2001; 1036
	(15.899)	(9.144)		
Household head is female	0.165	0.175	-0.027	2003; 1041
Household head age (years)	37.904	38.329	-0.032	2003; 1041
	(21.190)	(13.484)		
Household head schooling (grades)	7.082	6.999	0.028	2003; 1041
	(2.995)	(2.937)		
Panel B: Household Economic Well-being				
Housing characteristics index score	-0.085	-0.103	0.010	1993; 1031
	(1.726)	(1.712)		
Home assets index score	0.195	0.283	-0.045	2000; 1036
	(1.964)	(1.969)		
Productive assets index score	-0.172	0.004	-0.135	2000; 1036
	(1.571)	(1.295)		
Received external assistance in past year	0.358	0.388	-0.062	1999; 1035
Experienced a negative shock in past year	0.199	0.266	-0.153*	2000; 1034
Panel C: Household Agriculture				
Has a plot	0.843	0.934	-0.366*	2003; 1041
Has an animal	0.817	0.875	-0.175	2003; 1041
Has a plot and animal	0.7789	0.855	-0.216*	2003; 1041
Grows maize	0.792	0.885	-0.291*	2003; 1041
Number of agricultural activities (of 4)	2.495	2.742	-0.229*	2003; 1041
	(1.226)	(1.075)		
Number of food groups produced (of 7)	2.372	2.617	-0.159	2003; 1041
	(1.645)	(1.534)		
Total number of food crops grown	2.203	2.647	-0.250*	2003; 1041
	(1.714)	(1.775)		
Grow seed cotton	0.52	0.504	0.032	2003; 1041
Number of months with *any* foodgroup produced	4.997	5.093	-0.023	2003; 1041
	(4.305)	(4.154)		
Panel D: Individual Dietary Diversity and Household Food Access and Security				
Number of foodgroups in child's diet (24 hr)	2.950	2.934	0.014	925; 575
[Treatment N=925, Control=575]	(1.151)	(1.192)		
Number of foodgroups in mother's diet (24 hr)	3.130	3.108	0.022	923; 576
[Treatment N=925, Control=575]	(0.949)	(1.004)		
Total number of foodgroups eaten in household (24 hr)	4.343	4.389	-0.031	2000; 1035
	(1.505)	(1.511)		
Mild or no household hunger (HHS)	0.918	0.910	0.028	2000; 1034
Moderate household hunger (HHS)	0.067	0.078	-0.044	2000; 1034
Severe household hunger (HHS)	0.015	0.012	0.036	2000; 1034
Maximum Number of Households, except where noted	2003	1041	3044	

Note: Table reports means (and standard deviations for non-binary variables) for households assigned to treatment and the control at baseline in 2011. The standardized difference is the difference between the treatment and control means divided by the control standard deviation. The indices used in Panel B are produced from principal component analyses of mutually exclusive sets of household characteristics and assets (see Supplementary Appendix). The four agricultural activities in panel C include: 1) Production of field crops; 2) Production of fruits or vegetables; 3) Rearing of animals; and 4) Production of animal source foods. The seven food groups in Panel C include: 1) Grains, roots, and tubers; 2) Pulses, legumes and nuts; 3) Vitamin A rich fruits and vegetables; 4) Other fruits and vegetables; 5) Dairy products; 6) Eggs; and 7) Meats and fish. The food groups in the child's and mother's diet are reported for the youngest child in the household when that child is between 6 and 24 months of age. The number of households on which these statistics are based is given in the last row of the table unless otherwise noted. Due to incomplete reporting, the exact number of observations is as many as 10 observations lower than the reported maximum. Exact sample sizes are provided for each measure and group in the fourth column. * indicates a difference between the means at $p < 0.05$ when accounting for geographic clustering within the 131 SEAs used for sampling.

Appendix Table 3: Baseline Agricultural Characteristics for Households with Plots

	Treatment	Control
Has crop	0.98	0.98
Has animal	0.92	0.92
Grows maize	0.94	0.95
Agricultural activities (of 4)	2.89	2.90
	(0.84)	(0.90)
Food groups produced (of 7)	2.78	2.78
	(1.45)	(1.44)
Crops grown	2.70	2.94
	(1.72)	(1.88)
Number of Households	1688	972

Note: Table presents means and standard deviations (for non-binary variables) for households assigned to the treatment and the control in 2011 that have a plot of land for agricultural use. The agricultural activities in panel C include 1) Production of field crops 2) Production of fruits or vegetables 3) Rearing of animals and 4) Production of animal source foods. The food groups in panel C include 1) Grains, roots and tubers; 2) Pulses, legumes and nuts; 3) Vitamin A rich fruits and vegetables; 4) Other fruits and vegetables; 5) Dairy products; 6) Eggs; 7) Meats and fish. No means are statistically different at the 95 percent confidence level when accounting for geographic clustering within the 131 SEAs used for sampling.

Appendix Table 4: Program Effects on Household Economic Status and Gross Agricultural Revenues

	(1)	(2)	(3a)	(3b)	(4)	(5)
	Control 2011	T-C Standardized Difference	ITT-DD	ITT-DD	ITT-SD	TOT-2SLS
Panel A: Well-being						
Housing characteristics index scor	-0.103	0.010	0.020	-0.0001	0.038	0.114
	(1.711)		(0.160)	(0.160)	(0.137)	(0.406)
	[1031]	[3024]	[6555]	[6555]	[3531]	[3531]
Home assets index score	0.283	-0.045	0.190	0.173	0.101	0.302
	(1.969)		(0.123)	(0.122)	(0.087)	(0.256)
	[1036]	[3036]	[6571]	[6571]	[3535]	[3535]
Productive assets index score	0.004	-0.135	0.604**	0.572**	0.429**	1.279**
	(1.295)		(0.135)	(0.132)	(0.066)	(0.204)
	[1036]	[3036]	[6571]	[6571]	[3535]	[3535]
Panel B: Gross Revenue						
All crops and animal products	2822	0.031	-54.02	-148.7	89.70	260.8
	(4700)		(279.1)	(285.1)	(188.7)	(558.5)
	[965]	[2906]	[6397]	[6397]	[3491]	[3490]
Non-food agriculture	1153	0.214*	-39.97	-90.82	380.2**	1,135**
	(1926)		(151.9)	(155.1)	(93.71)	(275.9)
	[965]					
Food-based agriculture	1520	-0.053	-98.10	-138.9	-276.3*	-831.7
	(3353)		(180.5)	(184.6)	(139.5)	(430.5)
	[986]	[2952]	[6456]	[6456]	[3504]	[3503]
RAIN-targeted crops	166.5	-0.114**	145.8**	145.1**	51.95**	154.8**
	(826.6)		(32.20)	(34.10)	(17.92)	(52.69)
	[1029]	[3017]	[6539]	[6539]	[3522]	[3521]
Sampling zone fixed effects	No	No	No	Yes	No	No
Maximum Number of Households	1041	3044	6580	6580	3536	3536

Note: Table reports program effects on economic well-being and gross revenue from the sale of own-produced agricultural products. Column (1) reports the control mean in 2011 and the standard deviation in parentheses. Column (2) reports the difference between treatment and control means in 2011 divided by the control standard deviation in 2011. The stars in column (2) correspond to the results of a hypothesis test for equality between the two means in 2011 when accounting for geographic clustering within the 131 SEAs used for sampling. Columns (3a) and (3b) report ITT double-difference estimated effects from equation (1). Column (4) reports the 2015 ITT single-difference estimated effects from equation (2). Column (5) reports the 2015 2SLS TT estimated effects from equation (3). Standard errors shown in parentheses allow for geographic clustering within the 131 SEAs used for sampling. The indices used in Panel A are produced from principal component analyses of mutually exclusive sets of binary indicators for household characteristics and assets (see Supplementary Appendix). Gross revenue in Panel B is denominated in 2014 Kwacha and truncated at the 99th percentile. The RAIN-targeted crops are groundnuts, rape, tomatoes and sweet potatoes. Due to incomplete reporting, the exact number of observations is as many as 25 observations fewer than the reported maximum for variables in Panel A and 183 lower for variables in Panel B. Exact sample sizes are provided in brackets. Statistically different from 0: * p<0.05, **<0.01.

Appendix Table 5a: Program Effects on Household Production of Specific Agricultural Items

	(1)	(2)	(3a)	(3b)	(4)	(5)
	Control 2011	T-C Standardized Difference	ITT-DD	ITT-DD	ITT-SD	TOT-2SLS
Panel A: Crops						
Grow groundnuts	0.356	-0.149*	0.281**	0.279**	0.210**	0.625**
	(0.479)		(0.038)	(0.038)	(0.028)	(0.085)
Grow rape	0.315	-0.213**	0.253**	0.249**	0.154**	0.459**
	(0.465)		(0.034)	(0.035)	(0.032)	(0.084)
Grow tomatoes	0.128	-0.116*	0.163**	0.164**	0.124**	0.371**
	(0.334)		(0.026)	(0.027)	(0.020)	(0.049)
Grow sweet potatoes	0.036	-0.041	0.020	0.019	0.012	0.036
	(0.185)		(0.011)	(0.011)	(0.007)	(0.023)
Grow maize	0.885	-0.291**	0.053	0.046	-0.040*	-0.121*
	(0.320)		(0.034)	(0.034)	(0.016)	(0.050)
Grow seed cotton	0.504	0.032	0.185**	0.181**	0.200**	0.597**
	(0.500)		(0.042)	(0.042)	(0.034)	(0.100)
Grow any crop	0.919	-0.334**	0.057	0.05	-0.034*	-0.105*
	(0.272)		(0.033)	(0.032)	(0.014)	(0.045)
Panel B: Animal Products						
Produce eggs	0.524	0.047	0.052	0.054	0.076*	0.224*
	(0.500)		(0.056)	(0.057)	(0.032)	(0.096)
Produce dairy	0.170	0.013	0.082**	0.077**	0.086**	0.257**
	(0.376)		(0.025)	(0.025)	(0.015)	(0.049)
Produce any animal product	0.565	0.038	0.055	0.058	0.074*	0.219*
	(0.496)		(0.059)	(0.060)	(0.034)	(0.103)
Sampling zone fixed effects	No	No	No	Yes	No	No
Number of households	1041	3044	6580	6580	3536	3536

Note: Table reports program effects on whether households produce specific crops and animal-source foods. Each outcome is a dummy variable indicating whether a household produced that particular agricultural item. Column (1) reports the control mean in 2011 and the standard deviation in parentheses. Column (2) reports the difference between treatment and control means in 2011 divided by the control standard deviation in 2011. The stars correspond to the results of a hypothesis test for equality between the two means in 2011 when accounting for geographic clustering within the 131 SEAs used for sampling. Columns (3a) and (3b) report ITT double-difference estimated effects from equation (1). Column (4) reports the 2015 ITT single-difference estimated effects from equation (3). Column (5) reports the 2015 2SLS TT estimated effects from equation (3). Standard errors shown in parentheses allow for geographic clustering within the 131 SEAs used for sampling. Panel A presents results for the four crops that were targeted by RAIN in addition to maize, seed cotton and the production of any crop. Panel B presents results for animal-source foods. Statistically different from 0: * p<0.05, **<0.01.

Appendix Table 5b: Program Effects on Household-Level Sale of Own-Produce

	(1)	(2)	(3a)	(3b)	(4)	(5)
	Control 2011	T-C Std Diff	ITT-DD	ITT-DD	ITT-SD	TOT-2SLS
Panel A: Crops						
Sell own groundnuts	0.115	-0.122*	0.099**	0.097**	0.060**	0.179**
	(0.320)		(0.022)	(0.022)	(0.015)	(0.045)
	[1040]	[3043]	[6578]	[6578]	[3535]	[3534]
Sell own rape	0.192	-0.209**	0.168**	0.166**	0.085**	0.254**
	(0.394)		(0.029)	(0.029)	(0.027)	(0.074)
	[1041]	[3044]	[6580]	[6580]	[3536]	[3535]
Sell own tomatoes	0.070	-0.108*	0.097**	0.098**	0.070**	0.208**
	(0.255)		(0.018)	(0.019)	(0.014)	(0.039)
	[1041]	[3044]	[6580]	[6580]	[3536]	[3535]
Sell own sweet potatoes	0.012	-0.080*	0.014**	0.014**	0.006*	0.017*
	(0.107)		(0.004)	(0.004)	(0.003)	(0.008)
	[1041]	[3044]	[6580]	[6580]	[3536]	[3535]
Sell own maize	0.484	-0.138*	0.051	0.041	-0.018	-0.0561
	(0.500)		(0.037)	(0.038)	(0.030)	(0.091)
	[1038]	[3044]	[6575]	[6575]	[3535]	[3534]
Sell own seed cotton	0.488	0.024	0.168**	0.162**	0.180**	0.536**
	(0.500)		(0.042)	(0.042)	(0.034)	(0.097)
	[1018]	[2989]	[6521]	[6521]	[3532]	[3531]
Sell own any crop	0.786	-0.260**	0.149**	0.140**	0.042	0.123
	(0.410)		(0.036)	(0.037)	(0.027)	(0.076)
	[1041]	[3044]	[6580]	[6580]	[3536]	[3535]
Panel B: Animal Products						
Sell own eggs	0.029	-0.113*	-0.009	-0.007	-0.028*	-0.082*
	(0.168)		(0.015)	(0.015)	(0.014)	(0.041)
	[1037]	[3033]	[6569]	[6569]	[3536]	[3535]
Sell own dairy	0.061	0.0226	0.012	0.010	0.017	0.052
	(0.239)		(0.018)	(0.018)	(0.009)	(0.027)
	[1039]	[3038]	[6574]	[6574]	[3536]	[3535]
Sell own any animal product	0.098	0.005	-0.034	-0.034	-0.032	-0.097
	(0.297)		-0.03	-0.03	-0.021	-0.064
	[1041]	[3044]	[6580]	[6580]	[3536]	[3535]
Sampling zone fixed effects	No	No	No	Yes	No	No
Maximum number of households	1041	3044	6580	6580	3536	3536

Note: Table reports program effects on the sale of the specific agricultural items in Table 5. Each outcome is a dummy variable indicating whether a household sold any of their own production of that particular agricultural item. Column (1) reports the control mean in 2011 and the standard deviation in parentheses. Column (2) reports the difference between treatment and control means in 2011 divided by the control standard deviation in 2011. The stars correspond to the results of a hypothesis test for equality between the two means in 2011 when accounting for geographic clustering within the 131 SEAs used for sampling. Columns (3a) and (3b) report ITT double-difference estimated effects from equation (1). Column (4) reports the 2015 ITT single-difference estimated effects from equation (3). Column (5) reports the 2015 2SLS TT estimated effects from equation (3). Standard errors shown in parentheses allow for geographic clustering within the 131 SEAs used for sampling. Panel A presents results for the four crops that were targeted by RAIN in addition to maize, seed cotton and the sale of any own-produced crop. Panel B presents results for animal-source foods. Due to incomplete reporting, the exact number of observations is as many as 59 observations fewer than the reported maximum. Exact sample sizes are provided in brackets. Statistically different from 0: * p<0.05, **<0.01.

Appendix Table 5c: Program Effects on Household-Level Consumption of Own-Produce

	(1)	(2) T-C Standardized Difference	(3a)	(3b)	(4)	(5)
	Control 2011		ITT-DD	ITT-DD	ITT-SD	TOT-2SLS
Panel A: Crops						
Eat own groundnuts	0.341	-0.129*	0.265**	0.263**	0.204**	0.608**
	(0.474)		(0.037)	(0.038)	(0.027)	(0.082)
	[1040]	[3042]	[6578]	[6578]	[3536]	[3535]
Eat own rape	0.302	-0.195**	0.245**	0.242**	0.156**	0.464**
	(0.459)		(0.036)	(0.036)	(0.032)	(0.083)
	[1033]	[3033]	[6569]	[6569]	[3536]	[3535]
Eat own tomatoes	0.116	-0.0861	0.155**	0.156**	0.128**	0.381**
	(0.32)		(0.027)	(0.028)	(0.020)	(0.048)
	[1035]	[3038]	[6574]	[6574]	[3536]	[3535]
Eat own sweet potatoes	0.035	-0.039	0.019	0.019	0.012	0.037
	(0.183)		(0.011)	(0.011)	(0.007)	(0.020)
	[1041]	[3043]	[6579]	[6579]	[3536]	[3535]
Eat own maize	0.863	-0.229*	0.033	0.025	-0.045**	-0.137*
	(0.344)		(0.036)	(0.035)	(0.017)	(0.054)
	[1038]	[3039]	[6575]	[6575]	[3536]	[3535]
Eat own any crop	0.902	-0293**	0.050	0.044	-0.037*	-0.112*
	(0.298)		(0.033)	(0.033)	(0.015)	(0.048)
	[1038]	[3039]	[6575]	[6575]	[3536]	[3535]
Panel B: Animal Products						
Eat own dairy	0.166	0.013	0.089**	0.084**	0.094**	0.279**
	(0.372)		(0.025)	(0.025)	(0.015)	(0.048)
	[1041]	[3043]	[6579]	[6579]	[3536]	[3535]
Eat own eggs	0.473	0.033	0.070	0.073	0.086**	0.257**
	(0.499)		(0.054)	(0.054)	(0.030)	(0.092)
	[1041]	[3044]	[6578]	[6578]	[3534]	[3533]
Eay own any animal product	0.530	0.024	0.072	0.075	0.084*	0.249*
	(0.499)		(0.057)	(0.058)	(0.033)	(0.101)
	[1041]	[3044]	[6580]	[6580]	[3536]	[3535]
Sampling zone fixed effects	No	No	No	Yes	No	No
Maximum number of households	1041	3044	6580	6580	3536	3536

Note: Table reports program effects on the own-consumption of the specific agricultural items in Table 5. Each outcome is a dummy variable indicating whether household members consumed any of their own production of that particular agricultural item. Column (1) reports the control mean in 2011 and the standard deviation in parentheses. Column (2) reports the difference between treatment and control means in 2011 divided by the control standard deviation in 2011. The stars correspond to the results of a hypothesis test for equality between the two means in 2011 when accounting for geographic clustering within the 131 SEAs used for sampling. Columns (3a) and (3b) report ITT double-difference estimated effects from equation (1). Column (4) reports the 2015 ITT single-difference estimated effects from equation (3). Column (5) reports the 2015 2SLS TT estimated effects from equation (3). Standard errors shown in parentheses allow for geographic clustering within the 131 SEAs used for sampling. Panel A presents results for the four crops that were targeted by RAIN in addition to maize and the consumption of any crop. Panel B presents results for animal-source foods. Due to incomplete reporting, the exact number of observations is as many as 11 observations fewer than the reported maximum. Exact sample sizes are provided in brackets. Statistically different from 0: * p<0.05, **<0.01.

Appendix Table 5d: Program Effects on Intensity of Household-Level Consumption of Own-Produce

	(1)	(2)	(3a)	(3b)	(4)	(5)
	Control 2011	T-C Standardized Difference	ITT-DD	ITT-DD	ITT-SD	TOT-2SLS
Panel A: Crops						
Eat own groundnuts	0.304	-0.102	0.192**	0.192**	0.145**	0.432**
(>= 1/2)	(0.460)		(0.034)	(0.034)	(0.022)	(0.067)
	[1040]	[3042]	[6578]	[6578]	[3536]	[3535]
Eat own rape	0.213	-0.124*	0.154**	0.153**	0.103**	0.307**
(>= 1/2)	(0.410)		(0.029)	(0.030)	(0.025)	(0.068)
	[1033]	[3033]	[6569]	[6569]	[3536]	[3535]
Eat own tomatoes	0.076	-0.041	0.107**	0.108**	0.096**	0.286**
(>= 1/2)	(0.266)		(0.022)	(0.022)	(0.016)	(0.039)
	[1035]	[3038]	[6574]	[6574]	[3536]	[3535]
Eat own sweet potatoes	0.029	-0.011	0.012	0.012	0.010	0.030
(>= 1/2)	(0.167)		(0.010)	(0.011)	(0.007)	(0.020)
	[1041]	[3043]	[6579]	[6579]	[3536]	[3535]
Eat own maize	0.618	-0.064	0.022	0.024	-0.009	-0.028
(>= 1/2)	(0.486)		(0.042)	(0.042)	(0.027)	(0.080)
	[1038]	[3039]	[6575]	[6575]	[3536]	[3535]
Panel B: Animal Products						
Eat own dairy	0.136	-0.007	0.095**	0.092**	0.093**	0.277**
(>= 1/2)	(0.343)		(0.023)	(0.023)	(0.015)	(0.049)
	[1041]	[3043]	[6579]	[6579]	[3536]	[3535]
Eat own eggs	0.291	-0.034	0.056	0.056	0.040	0.119
(>= 1/2)	(0.454)		(0.043)	(0.044)	(0.033)	(0.100)
	[1041]	[3044]	[6578]	[6578]	[3534]	[3533]
Sampling zone fixed effects	No	No	No	Yes	No	No
Maximum number of households	1041	3044	6580	6580	3536	3536

Note: Table reports program effects on the intensity of own-consumption of the specific agricultural items in Table 5. Each outcome is a dummy variable indicating whether household members consumed at least half of their own production of that particular agricultural item. Column (1) reports the control mean in 2011 and the standard deviation in parentheses. Column (2) reports the difference between treatment and control means in 2011 divided by the control standard deviation in 2011. The stars correspond to the results of a hypothesis test for equality between the two means in 2011 when accounting for geographic clustering within the 131 SEAs used for sampling. Columns (3a) and (3b) report ITT double-difference estimated effects from equation (1). Column (4) reports the 2015 ITT single-difference estimated effects from equation (3). Column (5) reports the 2015 2SLS TT estimated effects from equation (3). Standard errors shown in parentheses allow for geographic clustering within the 131 SEAs used for sampling. Panel A presents results for the four crops that were targeted by RAIN in addition to maize. Panel B presents results for animal-source foods. Due to incomplete reporting, the exact number of observations is as many as 11 observations fewer than the reported maximum. Exact sample sizes are provided in brackets. Statistically different from 0: * p<0.05, **<0.01.

Appendix Table 6: Program Effects on Household-Level Economic Well-being and Household Food Access and Security

	(1)	(2)	(3a)	(3b)	(4)	(5)
	Control 2011	T-C Standardized Difference	ITT-DD	ITT-DD	ITT-SD	TOT-2SLS
Panel A: Household member food group consumption (24 hours)						
Grains, roots and tubers	0.997	-0.021	-0.008	-0.008	-0.009	-0.028
	(0.054)		(0.005)	(0.005)	(0.005)	(0.014)
	[1035]	[3035]	[6570]	[6570]	[3535]	[3535]
Pulses, legumes and nuts	0.521	-0.053	0.125**	0.137**	0.099**	0.296**
	(0.500)		(0.046)	(0.047)	(0.028)	(0.086)
	[1035]	[3035]	[6570]	[6570]	[3535]	[3535]
Vitamin A rich fruits and vegetables	0.623	-0.152	0.067	0.076	-0.007	-0.021
	(0.485)		(0.040)	(0.04)	(0.015)	(0.043)
	[1035]	[3035]	[6570]	[6570]	[3535]	[3535]
Other fruits and vegetables	0.793	-0.041	0.032	0.039	0.015	0.045
	(0.405)		(0.035)	(0.035)	(0.021)	(0.064)
	[1035]	[3035]	[6570]	[6570]	[3535]	[3535]
Dairy products	0.337	0.062	0.028	0.0266	0.057	0.170
	(0.473)		(0.049)	(0.05)	(0.036)	(0.107)
	[1035]	[3035]	[6570]	[6570]	[3535]	[3535]
Eggs	0.337	-0.062	0.072	0.079	0.043	0.129
	(0.473)		(0.051)	(0.052)	(0.025)	(0.074)
	[1035]	[3035]	[6570]	[6570]	[3535]	[3535]
Meat and fish	0.781	0.172*	0.009	0.016	0.080**	0.238**
	(0.414)		(0.035)	(0.035)	(0.026)	(0.0818)
	[1035]	[3035]	[6570]	[6570]	[3535]	[3535]
Total number of food groups in household	4.389	-0.031	0.325	0.366*	0.278**	0.829**
	(1.511)		(0.176)	(0.177)	(0.0863)	(0.269)
	[1035]	[3035]	[6570]	[6570]	[3535]	[3535]
Panel B: Household perceptions (30 days)						
Household hunger (0–6)	0.365	0.006	0.150	0.148	0.155	0.463
	(0.856)		(0.122)	(0.122)	(0.100)	(0.298)
	[1034]	[3034]	[6567]	[6567]	[3533]	[3533]
Moderate or severe household hunger	0.090	-0.280	0.0645	0.0627	0.0565	0.169
	(0.286)		(0.0367)	(0.0370)	(0.0313)	(0.0932)
	[1034]	[3034]	[6567]	[6567]	[3533]	[3533]
Household Food Insecurity (0-27)	-	-	-	-	0.404	1.206
					(0.409)	(1.217)
					[3533]	[3533]
Moderate or Severe Household	-	-	-	-	0.0693*	0.207*
Food Insecurity					(0.0345)	(0.104)
					[3533]	[3533]
SEA-level fixed effects			No	Yes	No	No
Maximum number of households	1041	3044	6580	6580	3536	3536

Note: Table reports program effects on household food access and insecurity. Column (1) reports the control mean in 2011 and the standard deviation in parentheses. Column (2) reports the difference between treatment and control means in 2011 divided by the control standard deviation in 2011. The stars correspond to the results of a hypothesis test for equality between the two means in 2011 when accounting for geographic clustering within the 131 SEAs used for sampling. Columns (3a) and (3b) report ITT double-difference estimated effects from equation (1). Column (4) reports the 2015 ITT single-difference estimated effects from equation (3). Column (5) reports the 2015 2SLS TT estimated effects from equation (3). Standard errors shown in parentheses allow for geographic clustering within the 131 SEAs used for sampling. The seven food groups at the top of Panel A are dummy variables indicating whether anyone in the household consumed any food in that food group over the past 24 hours. The total number of food groups is the sum of the seven food group indicators. The 30-day recall-based measures in Panel B are the Household Hunger Scale (HHS) and Household Food Insecurity Access Scale (HFIAS). We discretize the HFIAS responses according to Coates et al. (2007) to measure moderate or severe household food insecurity. The data needed to construct the HFIAS measure are only available for 2015. Due to incomplete reporting, the exact number of observations is as many as 25 observations fewer than the reported maximum. Exact sample sizes are provided in brackets. Statistically different from 0: * p<0.05, **<0.01. □

Appendix Table 7: Program Effects on Diet of Children 6-24 months their Mothers (24-hour recall)

	(1)	(2)	(3a)	(3b)	(4)	(5)
	Control 2011	T-C Standardized Difference	ITT-DD	ITT-DD	ITT-SD	TOT-2SLS
Panel A: Child Individual food groups						
Grains, roots, and tubers	0.967	-0.016	-0.007	-0.003	-0.010	-0.029
	(0.178)		(0.013)	(0.015)	(0.008)	(0.023)
	[580]	[1507]	[2839]	[2839]	[1332]	[1332]
Pulses, legumes, and nuts	0.151	-0.115	0.109**	0.114**	0.063*	0.181*
	(0.403)		(0.039)	(0.040)	(0.029)	(0.086)
	[579]	[1506]	[2836]	[2836]	[1330]	[1330]
Vitamin A rich fruits and vegetables	0.602	0.011	0.008	0.0001	0.013	0.036
	(0.460)		(0.040)	(0.042)	(0.023)	(0.067)
	[579]	[1505]	[2837]	[2837]	[1332]	[1332]
Other fruits and vegetables	0.116	0.052	-0.045	-0.043	-0.024	-0.069
	(0.404)		(0.040)	(0.041)	(0.025)	(0.073)
	[579]	[1506]	[2836]	[2836]	[1330]	[1330]
Dairy products	0.081	0.070	0.005	0.002	0.031	0.089
	(0.378)		(0.045)	(0.045)	(0.040)	(0.115)
	[580]	[1506]	[2836]	[2836]	[1330]	[1330]
Eggs	0.101	-0.074	0.045	0.051	0.018	0.051
	(0.368)		(0.043)	(0.044)	(0.032)	(0.092)
	[578]	[1505]	[2836]	[2836]	[1331]	[1331]
Meats and fish	0.388	0.072	-0.003	-0.006	0.033	0.094
	(0.499)		(0.042)	(0.044)	(0.032)	(0.093)
	[580]	[1507]	[2838]	[2838]	[1331]	[1331]
Total number of food groups in child's diet	2.327	0.014	0.105	0.111	0.121	0.349
	(1.192)		(0.129)	(0.134)	(0.092)	(0.268)
	[575]	[1500]	[2830]	[2830]	[1330]	[1330]
At least four food groups	0.156**	-0.016	0.042	0.048	0.034	0.099
	(0.460)		(0.051)	(0.051)	(0.040)	(0.116)
	[578]	[1506]	[2838]	[2838]	[1332]	[1332]
Panel B: Mother's Aggregated food groups						
Total number of food groups in mother's diet	3.108	0.022	0.045	0.068	0.067	0.193
	(1.004)		(0.121)	(0.123)	(0.0936)	(0.271)
	[576]	[1499]	[2830]	[2830]	[1330]	[1330]
At least four food groups	0.313	0.014	0.014	0.027	0.020	0.058
	(0.464)		(0.057)	(0.056)	(0.044)	(0.127)
	[579]	[1506]	[2838]	[2838]	[1332]	[1332]
Sampling Zone Fixed Effects	No	No	No	Yes	No	No
Quarter of birth fixed effects (Panels A&B)	No	No	Yes	Yes	Yes	Yes
Maximum number of households	586	1524	2867	2867	1343	1343

Note: Table reports program effects on dietary diversity of children 6–24 months and their mothers. Column (1) reports the control mean in 2011 and the standard deviation in parentheses. Column (2) reports the difference between treatment and control means in 2011 divided by the control standard deviation in 2011. The stars in column (2) correspond to the results of a hypothesis test for equality between the two means in 2011 when accounting for geographic clustering within the 131 SEAs used for sampling. Columns (3a) and (3b) report ITT double-difference estimated effects from equation (1). Column (4) reports the 2015 ITT single-difference estimated effects from equation (2). Column (5) reports 2015 2SLS TT estimated effects from equation (3). Standard errors shown in parentheses allow for geographic clustering within the 131 SEAs used for sampling. Estimates in Panel A include indicator controls for age of the child in quarters. The individual food groups in Panel A are dummy variables indicating consumption of that food group in the prior 24 hours. The total number of food groups is the sum of these seven indicators, and at least four food groups is a dummy variable indicating that this sum is four or greater. The aggregates are constructed identically for mothers in panel B. Due to incomplete reporting, the exact number of observations is as many as 37 observations fewer than the reported maximum. Exact sample sizes are provided in brackets. Statistically different from 0: * p<0.05, **<0.01.

Appendix Table 8: Construction of Household Well-Being Indices

Input	Loading	Input	Loading
Panel A: Household Characteristic Index		**Panel B: Household Asset Index**	
Improved Traditional Dwelling	-0.5085	Motorvehicle	0.1962
Modern Dwelling	0.3196	Motorcycle	0.1467
Other Dwelling	0.3452	Bicycle	0.2081
Wall - Brick	0.4135	Radio	0.2721
Wall - Synthetic	0.0413	Television	0.3282
Roof - Synthetic	0.461	Mobile phone	0.2603
Floor - Synthetic	0.3635	Mattress	0.2508
Protected Well	-0.003	Pressing iron	0.2786
Borehole Water	-0.0021	Bed	0.2901
Piped Water	0.0528	Chair	0.213
		Table	0.3383
Number of households	6555	Cupboard	0.309
Principal component eigenvalue	3.22	Sofa	0.3231
Share of total variation	0.32	Clock	0.2507
		Number of households	6571
		Principal component eigenvalue	3.19
		Share of total variation	0.23

Panel C: Productive Asset Index	
Wheel barrow	0.0841
Hoe/axe	0.5126
Fishing rod	-0.4705
Plough	0.5018
Crop sprayer	0.507
Number of households	6571
Principal component eigenvalue	1.64
Share of total variation	0.33

Notes: Each panel presents the variables used in the construction of a household well-being index through principal component analysis. Each variable is a demeaned and standardized binary indicator (Maluccio et al. 2001). We break the three categorical variables with more than two categories (dwelling type, wall material, and water source) into binary indicators and exclude the indicator for the lowest status characteristic from our analysis (Maluccio et al. 2001). In particular, we exclude indicators for traditional housing, natural wall materials (e.g. mud or grass), and unprotected wells. We try alternative polychoric specifications to maintain ordinal information (Kolenikov and Angeles 2009) and yield similar results. To maintain a stable interpretation over time, all specifications pool together all households from the baseline and follow-up (McKenzie 2005). Similarly, we do not exclude households without a valid height or weight measurement for a child between 24 and 48 months, so our measures remain interpretable for all households. However, the number of households for which we have the necessary input data varies slightly across the indices. The share of total variation explained by each principal component and the number of inputs used to construct each index follows rules of thumb for this procedure (Kolenikov and Angeles 2009).