Appendix B. Online Appendix

B.1. Online Appendix Tables

TABLE B.1: BALANCE ON SECONDARY OUTCOMES

	Gikuriro Village	GD Main Village	GD Large Village	Control Mean	Observations	R^2
A. Household outcomes						
Stock of borrowing†	−0.459	−0.007	−0.262	5.96	1751	0.04
	(0.363)	(0.409)	(0.408)			
	[0.89]	[1.00]	[1.00]			
Stock of saving†	−0.157	−0.665*	−0.269	5.18	1751	0.02
	(0.378)	(0.364)	(0.421)			
	[1.00]	[0.89]	[1.00]			
Health knowledge index	−0.590	−0.119	−0.225	0.19	1751	0.03
	(0.366)	(0.412)	(0.520)			
	[0.89]	[1.00]	[1.00]			
Sanitation practices index	0.285*	−0.105	−0.069	−0.23	1751	0.04
	(0.169)	(0.190)	(0.210)			
	[0.89]	[1.00]	[1.00]			
Productive assets†	0.281**	0.195	0.231*	11.41	1751	0.12
	(0.125)	(0.132)	(0.122)			
	[0.89]	[0.89]	[0.89]			
Consumption assets†	0.158	−0.034	0.426	8.71	1751	0.08
	(0.290)	(0.316)	(0.300)			
	[1.00]	[1.00]	[0.89]			
House value†	−0.042	−0.012	−0.067	13.59	1751	0.09
	(0.059)	(0.074)	(0.066)			
	[1.00]	[1.00]	[1.00]			
Housing quality index	0.018	−0.195	−0.014	0.02	1751	0.04
	(0.112)	(0.132)	(0.198)			
	[1.00]	[0.89]	[1.00]			
B. Individual outcomes						
Pregnancy	−0.018	−0.031	−0.021	0.28	2358	0.03
	(0.025)	(0.022)	(0.024)			
	[1.00]	[1.00]	[1.00]			
Live Birth	−0.017	−0.007	0.085	0.81	645	0.10
	(0.050)	(0.049)	(0.061)			
	[1.00]	[1.00]	[1.00]			
Birth in Facility	0.011	−0.056	−0.024	0.93	544	0.11
	(0.038)	(0.043)	(0.044)			
	[1.00]	[1.00]	[1.00]			
Any Vaccinations in past year	0.009	−0.006	0.001	0.93	1349	0.01
	(0.019)	(0.021)	(0.030)			
	[1.00]	[1.00]	[1.00]			
Completed Vaccinations	−0.015	−0.015	0.017	0.72	1347	0.02
	(0.037)	(0.045)	(0.042)			
	[1.00]	[1.00]	[1.00]			
Disease Burden	0.030	0.004	0.007	0.42	1146	0.02
	(0.040)	(0.032)	(0.043)			
	[1.00]	[1.00]	[1.00]			

NOTES—See prior table. Indexes are unweighted sums of z-scores of their underlying components. Individual secondary outcomes all measured as rates within respective populations.

Table B.2: Balance on Household Covariates

	Gikuriro Village	GD Main Village	GD Large Village	Control Mean	Observations	R^2
Female Headed	0.036	0.043*	−0.018	0.16	1751	0.06
	(0.025)	(0.026)	(0.029)			
	[1.00]	[0.84]	[1.00]			
Agricultural	0.017	−0.027	0.002	0.85	1751	0.04
	(0.028)	(0.029)	(0.035)			
	[1.00]	[1.00]	[1.00]			
Wage Worker	−0.002	−0.063**	−0.084**	0.25	1751	0.04
	(0.029)	(0.031)	(0.035)			
	[1.00]	[0.63]	[0.46]			
Microenterprise	−0.015	0.008	−0.024	0.13	1751	0.02
	(0.025)	(0.024)	(0.023)			
	[1.00]	[1.00]	[1.00]			
Savings Group	−0.013	−0.022	0.026	0.25	1751	0.02
	(0.038)	(0.039)	(0.044)			
	[1.00]	[1.00]	[1.00]			
Village Eligibility Ratio	−0.015	0.037	0.017	0.16	1751	0.50
	(0.025)	(0.029)	(0.033)			
	[1.00]	[1.00]	[1.00]			
Age of Head	2.186**	2.868**	1.415	34.16	1751	0.07
	(1.047)	(1.200)	(1.487)			
	[0.63]	[0.46]	[1.00]			
Schooling of Head	−0.006	−0.002	−0.005	0.00	1751	0.02
	(0.005)	(0.006)	(0.004)			
	[1.00]	[1.00]	[1.00]			
Dependency Ratio	0.008	−0.007	0.003	0.59	1751	0.04
	(0.012)	(0.012)	(0.016)			
	[1.00]	[1.00]	[1.00]			
Household Size	−0.082	−0.054	−0.183	5.18	1751	0.02
	(0.134)	(0.151)	(0.163)			
	[1.00]	[1.00]	[1.00]			
Poorest Category	−0.040	−0.002	−0.068*	0.22	1751	0.05
	(0.033)	(0.045)	(0.039)			
	[1.00]	[1.00]	[0.84]			
Next Poorest Category	0.067*	0.056	0.061	0.50	1751	0.12
	(0.040)	(0.046)	(0.051)			
	[0.84]	[1.00]	[1.00]			

Notes—Columns present coefficients and standard errors from a regression of baseline covariates on treatment indicators, with fixed effects for blocks. Asterices denote significance at the 10, 5, and 1 percent levels, and are based on clustered standard errors, in parentheses. Anderson (2008) sharpened q-values presented in brackets.

Table B.3: Determinants of Receiving Gikuriro

	Nutrition Training	Cooking Training	Farmer Training	Farmer Harvest	Received Livestock
Number of Children	-0.0639	-0.0594	-0.0344	-0.0496	0.0351
	(0.0436)	(0.0390)	(0.0448)	(0.0551)	(0.0341)
Number of Members	0.0815*	0.0894**	0.0679	0.0806	-0.0271
	(0.0423)	(0.0367)	(0.0409)	(0.0518)	(0.0301)
Female headed HH	0.0190	-0.00581	-0.102	-0.0392	-0.0472
	(0.0691)	(0.0628)	(0.0762)	(0.0693)	(0.0650)
Age of HH head	-0.00543***	-0.00436**	-0.00153	-0.00178	-0.00377**
	(0.00204)	(0.00190)	(0.00182)	(0.00182)	(0.00143)
Poorest poverty group	0.150**	0.190**	0.222***	0.162**	0.238***
	(0.0746)	(0.0766)	(0.0740)	(0.0756)	(0.0745)
Next poorest group	0.165**	0.147**	0.151**	0.0869	0.211***
	(0.0632)	(0.0589)	(0.0612)	(0.0687)	(0.0509)
HH in Agriculture	0.0212	-0.0215	-0.0462	-0.0895	-0.0458
	(0.0812)	(0.0762)	(0.0815)	(0.0808)	(0.0711)
HH in Wage Work	0.0159	0.0539	0.0795	0.0994*	0.139***
	(0.0584)	(0.0532)	(0.0483)	(0.0554)	(0.0487)
HH in Microenterprise	-0.0460	0.0294	-0.0501	0.0194	-0.00755
	(0.0688)	(0.0802)	(0.0604)	(0.0645)	(0.0662)
Mean DV	0.628	0.511	0.568	0.480	0.335
N	524	524	524	529	529

Notes—Outcome is a dummy variable indicating that household received different components of Gikuriro. First three columns are indicators for receiving training in proper nutrition (1), hygenic cooking habits (2), agricultural extension (3). Column 4 is an indicator that the household has successfully harvested a farm garden as instructed by FFLS, and Column 5 for the receipt of livestock from Gikuriro. Regressions are run among all households defined as eligible at baseline based on intended targeting criteria.

Table B.4: Anthropometric Impacts using Attrition IPW

	Gikuriro	Main	Large	Mean	Obs.	R^2
Height-for-age	0.051	−0.021	0.091**	−2.06	2125	0.71
	(0.045)	(0.039)	(0.046)			
	[0.62]	[1.00]	[0.35]			
Weight-for-age	0.038	0.010	0.067*	−1.06	2104	0.68
	(0.040)	(0.034)	(0.036)			
	[0.69]	[1.00]	[0.35]			
Mid-upper arm circumference	0.022	−0.007	0.135*	−0.58	1629	0.50
	(0.056)	(0.065)	(0.078)			
	[1.00]	[1.00]	[0.35]			

Notes—Regressions weighted using the product of standard survey weights and inverse propensity weights calculated from the probability that a child with baseline anthropometrics attrites from the endline.

Table B.5: Cost Equivalent Total Causal Effects, primary outcomes

	Gikuriro: Differential	Cost-equivalent GD impact	Transfer Cost	Control Mean	Observations	R^2
A. Household outcomes						
Consumption†	−0.016	−0.125	0.001	10.39	2717	0.15
	(0.096)	(0.097)	(0.002)			
	[0.93]	[0.81]	[0.85]			
Household dietary diversity score	0.184	−0.056	−0.003	4.12	2718	0.21
	(0.122)	(0.121)	(0.002)			
	[0.81]	[0.85]	[0.81]			
Household non-land wealth†	0.169	−0.354	−0.001	13.28	2718	0.29
	(0.248)	(0.254)	(0.004)			
	[0.85]	[0.81]	[0.93]			
B. Individual outcomes						
Height-for-Age	−0.013	−0.001	0.001	−1.75	2618	0.74
	(0.053)	(0.051)	(0.001)			
	[1.00]	[1.00]	[1.00]			
Weight-for-Age	−0.057	−0.009	0.000	−0.87	2594	0.74
	(0.047)	(0.037)	(0.001)			
	[1.00]	[1.00]	[1.00]			
Mid-Upper Arm Circ	−0.065	−0.007	0.001	−0.61	1981	0.57
	(0.067)	(0.064)	(0.001)			
	[1.00]	[1.00]	[1.00]			

Notes—Analysis pools eligible and ineligible households and is weighted to be representative of the population in study villages. First column is a dummy for Gikuriro treatment, giving the differential effect of Gikuriro over cash at equivalent cost. Second column is a dummy for either treatment, giving the impact of cash at the cost of Gikuriro. Third column is the cost slope, measured as the dollar-value deviation (in hundreds of dollars) of the treatment received from the cost of Gikuriro. Astericies denote significance at the 10, 5, and 1 percent levels, and are based on clustered standard errors, in parentheses. Anderson (2008) sharpened q-values presented in brackets. Variables marked with a † are in inverse hyperbolic sines.

TABLE B.6: COST EQUIVALENT TOTAL CAUSAL EFFECTS, SECONDARY OUTCOMES

	Gikuriro: Differential	Cost-equivalent GD impact	Transfer Cost	Control Mean	Observations	R^2
A. Household outcomes						
Stock of borrowing†	0.495	−0.354	0.001	5.75	2715	0.11
	(0.361)	(0.365)	(0.005)			
	[0.93]	[1.00]	[1.00]			
Stock of saving†	0.264	−0.482	−0.004	5.38	2718	0.15
	(0.363)	(0.354)	(0.005)			
	[1.00]	[0.93]	[1.00]			
Health knowledge index	0.952**	0.497	−0.014**	−0.01	2718	0.06
	(0.382)	(0.373)	(0.007)			
	[0.19]	[0.93]	[0.44]			
Sanitation practices index	0.326	−0.162	0.007	0.03	2718	0.07
	(0.206)	(0.218)	(0.005)			
	[0.93]	[1.00]	[0.93]			
Productive assets†	0.035	−0.116	0.005**	11.65	2718	0.30
	(0.129)	(0.134)	(0.002)			
	[1.00]	[1.00]	[0.19]			
Consumption assets†	0.054	0.047	0.004	9.08	2718	0.32
	(0.227)	(0.225)	(0.004)			
	[1.00]	[1.00]	[1.00]			
House value†	−0.024	0.021	0.001	13.70	2531	0.39
	(0.070)	(0.060)	(0.001)			
	[1.00]	[1.00]	[1.00]			
Housing quality index	−0.165	−0.007	−0.000	0.12	2718	0.16
	(0.139)	(0.148)	(0.002)			
	[1.00]	[1.00]	[1.00]			
B. Individual outcomes						
Child Mortality	0.006	−0.002	−0.000	0.01	3373	0.02
	(0.006)	(0.002)	(0.000)			
	[1.00]	[1.00]	[1.00]			
Pregnancy	0.019	0.001	−0.000	0.12	4137	0.11
	(0.020)	(0.018)	(0.000)			
	[1.00]	[1.00]	[1.00]			
Live Birth	0.053	−0.047	0.000	0.70	594	0.13
	(0.088)	(0.082)	(0.001)			
	[1.00]	[1.00]	[1.00]			
Birth in Facility	−0.071	0.042	−0.001	0.90	416	0.17
	(0.052)	(0.060)	(0.001)			
	[0.83]	[1.00]	[1.00]			
Any Vaccinations in past year	0.023	0.092*	0.001	0.73	1479	0.31
	(0.044)	(0.054)	(0.001)			
	[1.00]	[0.81]	[0.81]			
Completed Vaccinations	0.094*	0.104*	0.002**	0.48	1479	0.17
	(0.057)	(0.060)	(0.001)			
	[0.81]	[0.81]	[0.81]			
Disease Burden	0.039	−0.021	0.000	0.54	3366	0.06
	(0.043)	(0.045)	(0.001)			
	[1.00]	[1.00]	[1.00]			
Diarrheal Prevalence	−0.026	0.033	−0.000	0.09	3366	0.05
	(0.021)	(0.021)	(0.000)			
	[0.87]	[0.81]	[1.00]			

NOTES—See previous table.

Table B.7: Heterogeneity by Baseline Malnutrition

	(1) Height-for-Age	(2) Weight-for-Age	(3) Mid-Upper Arm Circ
Baseline outcome x Gikuriro	-0.0416	-0.0349	0.0852
	(0.0444)	(0.0619)	(0.0564)
Baseline outcome x GD Main	-0.0247	-0.0654	0.0776
	(0.0457)	(0.0445)	(0.0653)
Baseline outcome x GD Large	0.0220	0.00599	0.0804
	(0.0433)	(0.0461)	(0.0603)
Gikuriro	0.0434	0.0323	0.0253
	(0.0428)	(0.0362)	(0.0557)
GD Main	-0.0252	0.00182	-0.00498
	(0.0398)	(0.0357)	(0.0647)
GD Large	0.0940*	0.0641	0.135*
	(0.0517)	(0.0392)	(0.0795)
Baseline Outcome	0.768***	0.748***	0.600***
	(0.0336)	(0.0355)	(0.0425)
Observations	2125	2104	1629
Mean of DV	-2.031	-1.043	-0.572
R squared	0.696	0.673	0.507

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes—Regressions with both baseline and endline outcome measurement are ANCOVA with lagged dependent variables as controls, run on the panel sample. Regressions include fixed effects for the randomization blocks, and are weighted to be representative of all households in study villages. Anthropometric outcomes are demeaned prior to interaction so that the uninteracted treatment terms provide impact at average level of baseline anthro measure..

Table B.8: Heterogeneity by Baseline Age

	First Thousand Days			Newborn		
	(1)	(2)	(3)	(4)	(5)	(6)
	Height-for-Age	Weight-for-Age	Mid-Upper Arm Circ	Height-for-Age	Weight-for-Age	Mid-Upper Arm Circ
Indicator x Gikuriro	-0.00731	-0.0206	0.115	0.599	0.251	0.282
	(0.138)	(0.113)	(0.109)	(0.645)	(0.505)	(0.491)
Indicator x GD Main	-0.300**	-0.152	0.159	0.382	0.594	0.666
	(0.138)	(0.115)	(0.104)	(0.522)	(0.495)	(0.506)
Indicator x GD Large	-0.115	-0.0159	0.160	0.407	0.729	0.304
	(0.139)	(0.122)	(0.144)	(0.396)	(0.469)	(0.281)
Gikuriro	0.0105	0.0114	-0.0813	0.00489	0.00325	-0.0263
	(0.106)	(0.0801)	(0.0822)	(0.0833)	(0.0629)	(0.0690)
GD Main	0.115	0.0779	-0.108	-0.0171	0.00905	-0.0346
	(0.119)	(0.0829)	(0.0905)	(0.0988)	(0.0678)	(0.0723)
GD Large	0.246**	0.191**	0.0773	0.196**	0.185***	0.159**
	(0.105)	(0.0817)	(0.111)	(0.0848)	(0.0668)	(0.0783)
Indicator	0.141	0.123	-0.0101	-0.0102	0.0247	0.177
	(0.148)	(0.117)	(0.142)	(0.254)	(0.295)	(0.270)
Observations	2360	2347	2020	2360	2347	2020
Mean of DV	-2.031	-1.043	-0.572	-2.031	-1.043	-0.572
R squared	0.0722	0.0356	0.0726	0.0699	0.0358	0.0740

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes—First three columns present an interaction with an indictor for a child in the 'First Thousand Days' (<33 months at endline) and the last three columns present interactions with an indicator for 'Newborn' (<13 months at endline). Regressions are endline cross-sections, run on the panel sample, and do not include the lagged outcome variable so as to be able to consider children who are newborns in R2. Regressions include fixed effects for the randomization blocks, and are weighted to be representative of eligible households in study villages.

Table B.9: Cash versus Kind Heterogeneity by Behavioral Attributes

	(1) Consumption† b/se	(2) Diet Diversity b/se	(3) Wealth† b/se	(4) Borrowing† b/se	(5) Saving† b/se	(6) Health b/se	(7) Sanitation b/se	(8) Prod assets† b/se	(9) Cons assets† b/se
Inconsistent x GK	0.22	0.37	-0.34	0.85	1.04	-0.34	0.54	0.56**	0.23
	(0.20)	(0.25)	(0.39)	(0.77)	(0.82)	(0.68)	(0.42)	(0.27)	(0.42)
Inconsistent x GD	0.42*	0.31	0.00021	0.25	0.69	0.40	0.68	0.56*	0.66
	(0.23)	(0.27)	(0.50)	(0.77)	(0.87)	(0.70)	(0.47)	(0.30)	(0.52)
Impatient x GK	-0.044	-0.49	0.025	-0.86	-0.57	0.78	-0.90*	-0.59**	-1.06*
	(0.20)	(0.32)	(0.52)	(0.85)	(0.87)	(0.78)	(0.53)	(0.26)	(0.57)
Impatient x GD	0.30	-0.037	-0.19	-0.29	-0.072	-0.020	0.21	0.11	-0.86*
	(0.22)	(0.32)	(0.52)	(1.02)	(0.83)	(0.90)	(0.47)	(0.33)	(0.48)
Lack Other Cont x GK	0.16	-0.33	-0.67*	0.89	-0.54	-1.51***	0.28	-0.32	-0.060
	(0.22)	(0.26)	(0.40)	(0.64)	(0.54)	(0.57)	(0.39)	(0.24)	(0.48)
Lack Other Cont x GD	0.16	-0.27	-0.63	-0.34	-0.44	-0.60	-0.11	-0.34	-0.23
	(0.22)	(0.28)	(0.45)	(0.68)	(0.65)	(0.73)	(0.43)	(0.29)	(0.52)
Time Inconsistent	-0.17	-0.22	-0.041	-0.41	-0.98	-0.19	-0.67**	-0.61***	-0.67**
	(0.17)	(0.20)	(0.25)	(0.61)	(0.70)	(0.42)	(0.27)	(0.17)	(0.29)
Impatient	-0.18	0.34	-0.10	0.088	0.62	-0.27	0.094	0.14	1.07***
	(0.16)	(0.27)	(0.33)	(0.72)	(0.62)	(0.60)	(0.38)	(0.20)	(0.36)
Lack Other Control	-0.16	0.050	0.25	0.20	1.01**	0.77*	-0.045	0.20	-0.16
	(0.16)	(0.19)	(0.21)	(0.47)	(0.41)	(0.39)	(0.27)	(0.19)	(0.27)
Gikuriro	-0.29*	0.16	0.43	-0.54	0.69	0.43	-0.51	-0.12	-0.31
	(0.16)	(0.21)	(0.33)	(0.63)	(0.60)	(0.68)	(0.32)	(0.19)	(0.32)
GiveDirectly	-0.33**	0.011	0.23	-0.81	-0.47	0.14	-0.39	-0.080	0.10
	(0.16)	(0.23)	(0.49)	(0.60)	(0.63)	(0.69)	(0.39)	(0.22)	(0.42)
Control Mean	10.4	4.16	12.9	5.96	5.18	0.19	-0.23	11.4	8.71
Observations	1508	1509	1509	1509	1509	1509	1509	1509	1509
R^2	0.15	0.18	0.22	0.12	0.17	0.049	0.079	0.32	0.38
Self_control_GD=GK	0.29	0.80	0.52	0.38	0.61	0.35	0.77	0.98	0.42
Other_control_GD=GK	0.97	0.85	0.95	0.066	0.88	0.22	0.38	0.93	0.77

Notes—Analysis excludes the GD Large arm, and uses interaction with three behavioral parameters to ask whether the effect of GD Main or Gikuriro are heterogeneous by Impatience, Time Inconsistency, or Other Control Problems. SEs clustered at the village level are in parentheses.

Table B.10: Lump Sum vs Flow Heterogeneity by Behavioral Attributes

	(1) Consumption† b/se	(2) Diet Diversity b/se	(3) Wealth† b/se	(4) Borrowing† b/se	(5) Saving† b/se	(6) Health b/se	(7) Sanitation b/se	(8) Prod assets† b/se	(9) Cons assets† b/se
Inconsistent x Lump Sum	0.37	0.34	0.74	0.097	0.48	0.061	1.10**	0.77**	0.96
	(0.25)	(0.30)	(0.70)	(1.05)	(0.91)	(0.97)	(0.48)	(0.33)	(0.69)
Inconsistent x Flow	0.35*	0.13	0.72	0.17	0.51	-0.48	0.58	1.13***	1.09*
	(0.19)	(0.30)	(0.61)	(0.89)	(0.80)	(0.86)	(0.38)	(0.27)	(0.61)
Impatient x Lump Sum	0.31	-0.27	0.27	-1.61	-0.58	0.047	0.47	0.49	-0.42
	(0.26)	(0.32)	(0.76)	(1.10)	(1.12)	(0.80)	(0.48)	(0.56)	(0.77)
Impatient x Flow	0.18	-0.40	-1.17*	1.23	-0.059	0.21	0.086	-0.41	-0.95
	(0.23)	(0.34)	(0.68)	(1.06)	(0.83)	(0.90)	(0.48)	(0.36)	(0.73)
Lack Other Cont x Lump Sum	0.28	0.11	-0.75	0.087	-0.27	-0.78	-0.68	0.093	0.41
	(0.21)	(0.33)	(0.88)	(1.08)	(0.71)	(0.75)	(0.71)	(0.34)	(0.80)
Lack Other Cont x Flow	0.19	-0.25	-0.028	0.076	0.15	0.33	-0.54	-0.21	-0.64
	(0.23)	(0.30)	(0.55)	(0.81)	(0.70)	(0.84)	(0.49)	(0.29)	(0.48)
Time Inconsistent	-0.13	-0.19	-0.25	-0.32	-0.72	0.22	-0.73***	-0.81***	-0.61*
	(0.15)	(0.18)	(0.23)	(0.55)	(0.64)	(0.42)	(0.23)	(0.18)	(0.36)
Impatient	-0.15	0.40*	-0.029	-0.064	0.53	-0.48	0.10	0.090	0.56
	(0.17)	(0.23)	(0.28)	(0.61)	(0.58)	(0.59)	(0.31)	(0.19)	(0.43)
Lack Other Control	-0.12	-0.067	0.082	0.054	0.86**	0.48	0.019	0.14	-0.13
	(0.16)	(0.18)	(0.21)	(0.43)	(0.43)	(0.36)	(0.27)	(0.18)	(0.26)
GD Lump Sum	-0.27	-0.0054	-0.35	0.35	0.54	0.34	-0.26	-0.20	0.15
	(0.20)	(0.29)	(0.69)	(0.82)	(0.72)	(0.76)	(0.51)	(0.29)	(0.61)
GD Flow	-0.21	0.47*	-0.28	-1.08*	0.050	-0.029	-0.14	-0.094	-0.0084
	(0.16)	(0.25)	(0.54)	(0.64)	(0.62)	(0.65)	(0.31)	(0.22)	(0.44)
Control Mean	10.4	4.16	12.9	5.96	5.18	0.19	-0.23	11.4	8.71
Observations	1131	1131	1131	1131	1131	1131	1131	1131	1131
R^2	0.15	0.19	0.25	0.16	0.18	0.060	0.091	0.31	0.38
Self_control_LS=Flow	0.93	0.60	0.97	0.95	0.97	0.61	0.31	0.27	0.85
Other_control_LS=Flow	0.65	0.31	0.49	0.99	0.58	0.26	0.85	0.40	0.26

Notes—Analysis uses only the control and the GD Main arm assigned to Lump Sum or Flow transfers to ask whether the impact of Lump Sum or FLow transfers is heterogeneous by Impatience, Time Inconsistency, or Other Control Problems. SEs clustered at the village level are in parentheses. .

Table B.11: Getting Flow when one Chose It, Heterogeneity by Behavioral Attributes

	(1) Consumption† b/se	(2) Diet Diversity b/se	(3) Wealth† b/se	(4) Borrowing† b/se	(5) Saving† b/se	(6) Health b/se	(7) Sanitation b/se	(8) Prod assets† b/se	(9) Cons assets† b/se
Inconsistent x Got It	0.61	0.075	1.93	-0.28	0.52	-2.14	-1.07	0.77	1.46
	(0.41)	(0.84)	(1.41)	(1.86)	(1.45)	(1.73)	(1.06)	(0.69)	(1.20)
Impatient x Got It	-0.32	-0.79	-3.60*	3.60	0.78	1.94	-0.056	-1.03	-2.85**
	(0.46)	(0.71)	(1.85)	(2.74)	(2.58)	(1.80)	(1.35)	(0.81)	(1.28)
Lack Other Cont x Got It	0.084	0.29	1.54	-0.86	0.53	-1.57	-1.46	0.12	-0.095
	(0.48)	(0.74)	(2.13)	(2.01)	(1.77)	(1.76)	(0.99)	(0.78)	(1.24)
Time Inconsistent	-0.38	0.18	-0.24	0.49	-0.039	1.76	0.80	-0.40	-0.43
	(0.36)	(0.79)	(0.71)	(1.33)	(1.30)	(1.30)	(0.91)	(0.61)	(0.91)
Impatient	0.42	0.30	2.78**	-2.92	-0.34	-2.75*	0.59	0.71	1.84*
	(0.41)	(0.62)	(1.37)	(2.21)	(2.40)	(1.50)	(1.14)	(0.71)	(1.02)
Lack Other Control	-0.22	-0.86	-2.81	-0.38	-0.95	2.40*	0.34	-0.53	-1.97**
	(0.37)	(0.59)	(2.03)	(1.66)	(1.63)	(1.42)	(0.87)	(0.72)	(0.97)
Got Choice in Choice Experiment	-0.41	-0.0070	-1.50	-1.37	-1.40	0.40	1.18	-0.75	-1.39
	(0.40)	(0.86)	(1.15)	(1.49)	(1.29)	(1.31)	(0.81)	(0.66)	(0.96)
Control Mean	10.4	4.16	12.9	5.96	5.18	0.19	-0.23	11.4	8.71
Observations	200	200	200	200	200	200	200	200	200
R^2	0.27	0.36	0.33	0.21	0.31	0.25	0.27	0.33	0.37

Notes—Analysis uses only the GD Main households that chose Flow transfers, and asks whether the impact of actually getting this choice (rather than being assigned to Lump Sum) is heterogeneous by Impatience, Time Inconsistency, or Other Control Problems. SEs clustered at the village level are in parentheses.

B.2. Online Appendix Figures

FIGURE B.1: ACTUAL AND ASSIGNED TREATMENT AMOUNTS

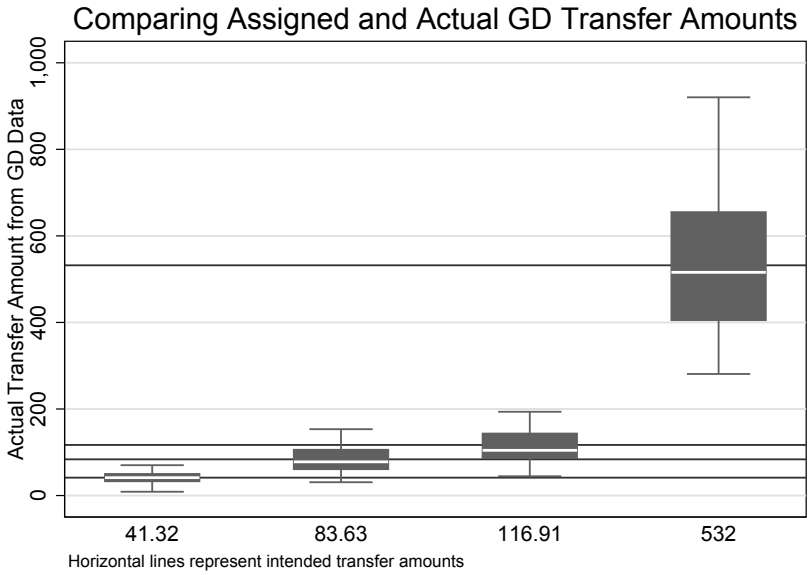


Figure B.2: Fan Regression Impacts by Age

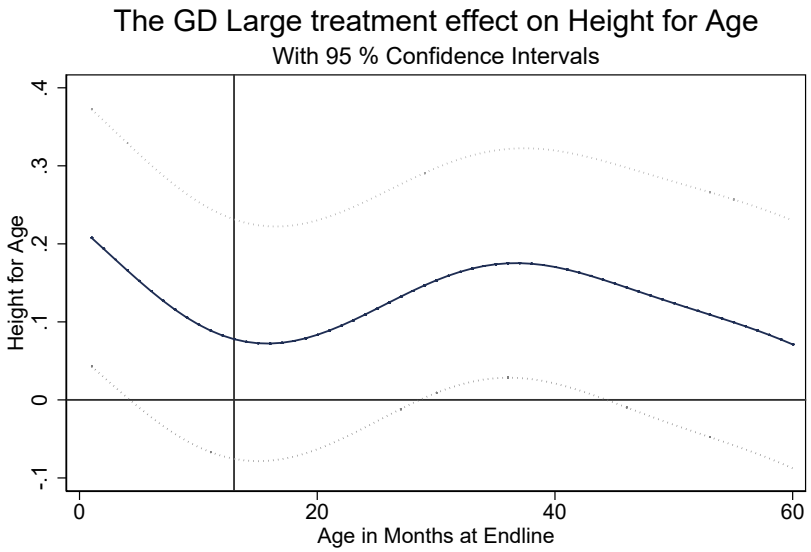


Figure B.3: Fan Regression Impacts by Age

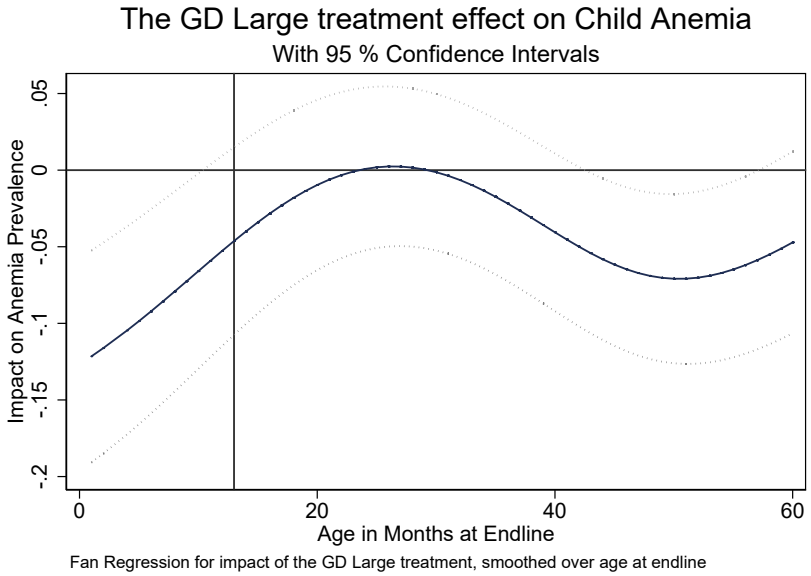
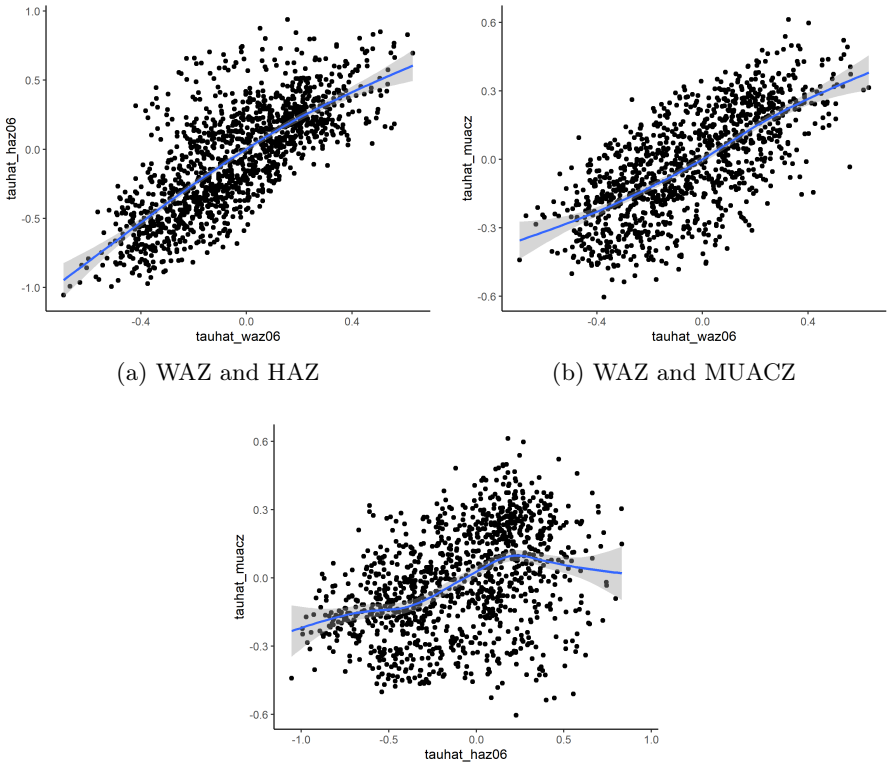


FIGURE B.4: PREDICTED IMPACTS ON DIMENSIONS OF CHILD HEALTH OUTCOMES ARE POSITIVELY ASSOCIATED WITH ONE ANOTHER



(a) WAZ and HAZ

(b) WAZ and MUACZ

(c) HAZ and MUACZ

Notes: Figure displays associations between predicted impacts of cash relative to kind on weight-for-age z-scores, height-for-age z-scores, and mid-upper-arm-circumference z-scores. Loess fit and associated 95 percent confidence interval overlaid.

B.3. Eligibility for the Study

The study aims to compare nutrition and health gains among poor households with young children across the two programs and a control. We therefore used a definition of eligibility tailored to Gikuriro's stated target population: namely, households that contained malnourished children, or pregnant and lactating mothers. A core challenge of the benchmarking endeavor is the need to use a measure of eligibility in a manner that can be defined identically across arms.[34] As a result, we established a set of 'hard' eligibility criteria on the basis of which beneficiaries would be selected and the survey would be stratified. Households meeting these criteria would be identified by the survey firm, Innovations for Poverty Action (IPA), prior to sampling for the baseline study, to establish a comparable population of eligible households in all arms—including control—of the study.

CRS and USAID agreed that the following criteria represent the target population for Gikuriro:

- Criteria 1. All households in a village with a malnourished child (defined by a threshold value of weight/age) were enrolled.
  - Weight/age is used because it is believed that this data is more consistently available than data on middle-upper arm circumference (MUAC) and height/age, and because it is used by CHWs as a basis for referring children to their local Health Centers.
  - The threshold weight/age value for inclusion was determined using the Rwandan Ministry of Health standards for malnutrition. The data used to identify eligibles was based on the Community Health Worker data from Growth Monitoring and Promotion visits.
- Criteria 2. All households in Ubudehe 1 or 2 with children under the age of 5 (Ubudehe is the Rwandan government household-level poverty classification, with 1 being the poorest, 3 being non-poor, and rural areas containing very few of the wealthiest Ubudehe 4 households).
- Criteria 3. All households in Ubudehe 1 or 2 with a pregnant or lactating mother.

Both implementers agreed to attempt to treat all eligible households that were identified as meeting any of these criteria. CRS anticipated an average of 30 eligible households per village, and in principle had established a rationing rule in case that number was exceeded. As will be described below, the number of households per village that could be identified by the survey firm as meeting these targets turned out to be substantially lower. We did not try to impose restrictions on how Gikuriro would target outside of the households identified by the survey firm to be eligible.

We asked IPA to identify the universe of households that they could locate who met these criteria, using three sources. First, CHW records from the national 'Growth Monitoring and Promotion' exercise, which is intended to provide monthly height and weight measurements for all children under two and annual measurements for all children under five; second, government (census) records of household *Ubudehe* classifications; and finally local health facility information, which provides an alternative data point on children's nutritional status.[35] Children were defined as malnourished if they had at least one measurement that met government thresholds for malnourishment definitions in the past year, and households were defined as eligible if they had any individual meeting the criteria above. In each village we recorded the number of households in each stratum and sampled up to eight eligibles and four ineligibles for inclusion in the study. Throughout this document we

[34] We did not intend the scope of the benchmarking exercise to include the implementers' (potentially different) ability to cost-effectively identify this target population, so as to maintain the interpretation of impacts as being differential impacts on a consistently defined beneficiary group.

[35] In practice, most children attending local clinics are referred by a CHW and so are also recorded as malnourished in the Growth Monitoring process.

use the words 'eligible' and 'ingeligible' to refer to the classification made by the survey firm at baseline.

B.4. Study Outcomes

Primary Outcomes. The study focuses on five dimensions. Here we briefly summarize each; details of the construction of these outcomes are included in Appendix A.

1. Household monthly consumption per capita (inverse hyperbolic sine—henceforth IHS—to deal with skewness).
2. Household Dietary Diversity, measured using hte WHO standard Household Dietary Diversity Score.
3. Anemia: measured with a biomarker test following DHS protocols at endline only.
4. Child growth and development: measured using in height-for-age, weight-for-age and Mid Upper Arm Circumference at baseline and endline for children under the age of 6 in eligible households.
5. Value of household non-land net wealth. This outcome is the sum of productive and consumption assets; the value of the household's dwelling, if owned; and the value of the stock of net savings, less the stock of debt (IHS).

Secondary Outcomes. Three types of outcomes are selected to be secondary: proximate outcomes of one or both interventions that do not have an intrinsic welfare interpretation (such as borrowing and saving stocks); outcomes that have welfare weight but are not within the causal chain of both programs (such as investments in health-seeking behavior, which Gikuriro seeks to impact, or housing quality, which has been identified as a dimension of benefit in prior evaluations of GiveDirectly (Haushofer and Shapiro, 2016)); or outcomes of common interest on which power is limited (such as disease burden and mortality).

1. Stock of borrowing and stock of savings (IHS).
2. Birth outcomes: the likelihood of pregnancy and likelihood of live birth within 12 months prior to endline.
3. Health knowledge and sanitation practices.
4. Disease burden and mortality. Mortality is measured as the likelihood that an individual member of the household from baseline has died prior to endline. Disease burden is measured as the prevalence of fever, fever with diarrhea or vomiting, or coughing with blood at endline,
5. Health-seeking behavior/preventative care. We focus on the share of pregnancies resulting in births in medical facilities, the share of children under two years of age with at least one vaccination in the prior year, and the share of children under two years of age with a complete dose of vaccines.
6. Household productive assets (IHS).
7. Housing quality. Two measures are used: the self-reported replacement cost of the current dwelling (irrespective of ownership status, IHS), and an index of housing construction quality, constructed from measures of wall and roof materials and from the number of rooms in the dwelling.

The inverse hyperbolic sine is commonly used in analysis of outcomes such as consumption, savings, and asset values that tend to be highly right-skewed and also to contain zeros. The IHS transformation preserves the interpretation of a log (meaning that impacts can be interpreted as percent changes) but does not drop zeros. Only outcomes that we expected to be skewed were pre-registered to be analyzed using IHS. All non-binary outcomes are also Winsorized at the 1 percent and 99 percent level (values above the 99th percentile are overwritten with the value at the 99th percentile to reduce skewness and increase statistical power). Because we restrict the analysis in this paper to the pre-specified primary and secondary outcomes only, we do not correct the results for multiple inference (Anderson, 2008).

B.5. Pre-committed Analysis of Heterogeneity

B.5.1 Anthropometric effects by baseline malnourishment

We hypothesized in the Pre-Analysis Plan that the benefits of the treatments in terms of child anthropometrics would be largest for those who began the study most malnourished. To test this, we run a regression with child anthropometrics (HAZ, WAZ, and MUAC) as the outcomes, using the structure of Equation 1 above and controlling for our battery of baseline covariates, a dummy for all three treatments (GK, GD, and GD large), the baseline biometric outcome, and the interaction between the treatments and baseline biometrics. The hypothesis is that the interaction terms will be negative, meaning that the programs are most effective for those who had the worst baseline biometric outcomes. Table B.7 the results of this analysis. The interpretation of the impacts in this table are as follows: rows 4-6 give the simple impact of the programs when the interacted term is zero (which, in this case, is at the mean). Rows 1-3 provide a test of the differential impact of the program across baseline anthropometric measures, so the lack of significance in these rows means that the impacts are not heterogeneous by nutrition status at baseline. The implication is that the improvement in anthropometrics induced by the GD large treatment were experienced broadly across the baseline distribution of HAZ and WAZ, and were not concentrated among those who began the study most malnourished.

B.6. Selection of Control Variables.

In our pre-analysis plan, we state that control variables for the primary specification "will be selected on the basis of their ability to predict the primary outcomes". In doing so, we seek to build on recent developments that balance the challenge of using baseline data to select variables that will reduce residual variance with the danger that researcher freedom in the selection of control variables can lead to p-hacking, in which right-hand-side variables are selected specifically on the basis of the statistical significance of the coefficient of interest (Card and Krueger, 1995; Casey et al., 2012), thereby invalidating inference.

To balance these concerns, we follow the *post-double-selection* approach set forth in Belloni et al. (2014b). Those authors advocate a two-step procedure in which, first, Lasso is used to automate the selection of control variables, and second, the post-Lasso estimator (Belloni et al., 2012) is used to estimate the coefficients of primary interest in in the ITT, effectively using Lasso as a model selection device but *not* imposing the shrunken coefficients that results from the Lasso estimates directly. Belloni et al. (2014b) demonstrate that this approach not only reduces bias in estimated treatment effects better than alternative approaches—less a concern given the successful randomization in our experiment—but that it may improve power while retaining uniformly valid inference.

In the first stage, model selection is undertaken by retaining control variables from the union of those chosen either as predictive of the treatment assignment or of the outcome. This model

selection stage can be undertaken after residualizing to account for a set of control variables that the authors have a priori determined belonw in the model, as in Belloni et al. (2014a); in our case, we retain block fixed effects, lagged values of the outcome, and lagged values of (the inverse hyperbolic sine of) household wealth in all specifications, per our pre-analysis plan. We modify the heteroskedasticity-robust Lasso estimator of Belloni et al. (2012) to incorporate sampling weights consistent with our design, using the Lasso penalty is chosen as a function of the sample size and the number of potential covariates, as in Belloni et al. (2014a).

Resulting covariates selected for each of the primary and secondary outcomes, at household and individual level, are presented in Tables B.12 and B.13, respectively.

Table B.12: Covariates selected in Belloni et al. (2014) post-double-lasso selection procedure for household outcomes

Outcome	Control set
consumption_asinh	Baseline value of consumption_asinh, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
Household dietary diversity score	Baseline value of dietarydiversity, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
	Lsavingsstock_asinh3
	Lconsumpti_x_Ldietarydi
	Lconsumpti_x_Lproductiv
	Ldietarydi_x_Lassetscon
wealth_asinh	Baseline value of wealth_asinh, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
	L.Own dwelling
borrowingstock_asinh	Baseline value of borrowingstock_asinh, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
savingsstock_asinh	Baseline value of savingsstock_asinh, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
	Lconsumpti_x_Lproductiv
	Lconsumpti_x_Lassetscon
Health Knowledge Index	Baseline value of health_knowledge, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
Sanitation Practices Index	Baseline value of sanitation_practices, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
	Lproductiv_x_Lassetscon
productiveassets_asinh	Baseline value of productiveassets_asinh, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
	Lconsumpti_x_Lassetscon
assetsconsumption_asinh	Baseline value of assetsconsumption_asinh, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
	L.Number of rooms
	L.Durables expenditure (12-month recall)
	Ldietarydi_x_Lassetscon

Continued on next page

Table B.12 (continued)

Outcome	Control set
	Lproductiv_x_Lassetscon
selfcostdwell_asinh	Baseline value of selfcostdwell_asinh, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
	L.Number of rooms
	L.Durables expenditure (12-month recall)
Housing Quality Index	Baseline value of housing_quality, present in both rounds
	L.Lhh_wealth_asinh
	L.Fraction of village defined eligible by IPA
	L.Number of rooms

Note: block fixed effects and lag of the relevant outcome included in all specifications. Specifications that include both eligible and ineligible households include an indicator for eligibility status.

Table B.13: Covariates selected in Belloni et al. (2014) post-double-lasso selection procedure for individual outcomes

Outcome	Sample	Control set
haz06, Winsorized fraction .005, high only	Under 5s	L.haz06, Winsorized fraction .005, high only
		female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
		L.Food expenditure (weekly recall)
		L.Food consumption-value own production (weekly recall)
		L.waz06, Winsorized fraction .005, high only
		Lconsumpti_x_Lselfcostd
waz06, Winsorized fraction .005, high only	Under 5s	L.waz06, Winsorized fraction .005, high only
		female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
		L.Food expenditure (weekly recall)
		L.Food consumption-value own production (weekly recall)
		Lconsumpti_x_Lproductiv
muacz, Winsorized fraction .01	Under 5s	L.muacz, Winsorized fraction .01
		female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
		L.waz06, Winsorized fraction .005, high only
		Lconsumpti_x_Lproductiv
anemia_dummy	Under 5s	female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
anemia_dummy	Pregnant/lactating women	agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
mortality	All	female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
Was this women pregnant at any point in the past 12 months	Pregnant/lactating women	agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
		L.Lwealth_asinh

Continued on next page

Table B.13 (continued)

Outcome	Sample	Control set
Did pregnancy conclude in live birth	Pregnant/lactating women	agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
		L.Food expenditure (weekly recall)
		L.Food consumption-value own production (weekly recall)
		Lconsumpti_x_Lwealth_as
facility_birth	Pregnant/lactating women	agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
anthro_vacc_year	Under 3s	female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
		Lconsumpti_x_Lproductiv
anthro_vacc_complete	Under 3s	female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
Any fever, diarrhea, or coughing blood at individual/round level	Under 5s	female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh
		L.Food consumption-value own production (weekly recall)
Individual reported with diarrhea/vomiting/fever now	Under 5s	female
		agemonths
		agemonths_sq
		agemonths_cu
		L.Lhh_wealth_asinh

Note: block fixed effects and lag of the relevant outcome included in all specifications. Specifications that include both eligible and ineligible households include an indicator for eligibility status.

B.7. Flyers from GiveDirectly for Cash Beneficiaries.

Google.org GiveDirectly

GDID: _____ PAYMENT METHOD: _____

RECIPIENT INFORMATION REGARDING NUTRITION AND HYGIENE

GiveDirectly's program is supported by made possible by the generous support of the American people through USAID. The information below is approved by the Rwanda Ministry of Health.

- **Infant Nutrition**
  - Infants less than 6 months old should be fed by breast only. During this period an infant receives only breast milk and no other liquids or solids, not even water, unless medically indicated. A non-breastfed baby is 14 times more likely to die than an exclusively breastfed baby in the first 6 months.
  - Infants 6 to 24 months old should continue to be fed by breast, but should also receive complementary feeding that includes animal-source foods (meats, fish, milk products, eggs) and fruits and vegetables that are rich in vitamin A (such as mango, papaya, oranges, yellow sweet potato and carrots). Guidelines are for kids 6-24 months to eat at least 4 food groups: fruits, vegetables and legumes, grains, meats, dairy.
    - Infants 6 to 8 months old should be fed complementary foods 2-3 times daily;
    - Infants 9 to 24 months old should be fed complementary foods 3-4 times daily, plus 1-2 snacks.
- **Reducing Illness**
  - If you or your children get diarrhoea, use *Oral Rehydration Salts* (ORS) to replace the nutrients being lost. Typical symptoms of diarrhoea include frequent, loose, watery stools, abdominal cramps, and/or abdominal pain. If ORS is not available, a simple solution can be prepared for drinking by mixing one liter of clean drinking water and mix it with ½ teaspoon of salt and 6 teaspoons of sugar.
  - The government has a 6-monthly deworming program and Vitamin A supplementation program. Ask your Community Health Worker for more information.
- **Dietary Diversity**
  - Anemia
    - Anemia is a health condition, commonly caused by nutritional deficiency of iron and other nutrients (folate or vitamin B12). Around 72% of 6-8 months-olds in Rwanda have Anemia. Anemia can be an underlying cause for maternal death and prenatal and perinatal infant loss. Anemia among children is associated with low mental performance and physical development.
    - Examples of iron-rich food: fish, meat, milk products, oranges, lemons, grapefruits, guavas, papayas, and green leafy vegetables. Breast milk for your child is an important source of iron, too.
  - Here are some other examples of food you can produce/buy/eat to cheaply increase nutrition:

        - Breeding small, inexpensive animals such as hens, rabbits and guinea pigs can provide you and your children with important body building protein and other important nutrients.
        - Grow kitchen gardens if you have time. You can grow different vegetables for your family throughout the year, like amaranths, carrots, and dark-green leaves such as spinach and dodo, all of which are important sources of body protecting nutrients.
        - Consume soya beans, yogurt, avocados and dodo (which you could grow)
        - Eat orange-flesh rather than white-flesh sweet potatoes
- **Hygiene**
    - Handwashing with soap or wood ash can kill bacteria/viruses and prevents the spread of disease. Handwashing with soap at critical times is estimated to reduce diarrhoea by 47%. The most important times that hands should be washed with soap and water are:
        - After defecating
        - After cleaning a child who has defecated
        - Before eating or handling food
    - Recommended practices for personal hygiene further include:
        - Washing hair every week with shampoo
        - Washing the face every day after sleeping
        - Brushing teeth twice every day, in the morning and the night after eating
    - Safe disposal of waste means defecating into a latrine, disposing into a latrine, or burial. Inappropriate disposal of human feces, such as open defecation, facilitates the transmission of pathogens and disease.
- **Birth preparedness for delivery**
    - Early initiation of antenatal care (ANC) can reduce common maternal complications and maternal and perinatal mortality. Visit your nearest health facility early during pregnancy for medical tests and more information. The World Health Organization promotes four antenatal clinic visits, one in each trimester, during each pregnancy.