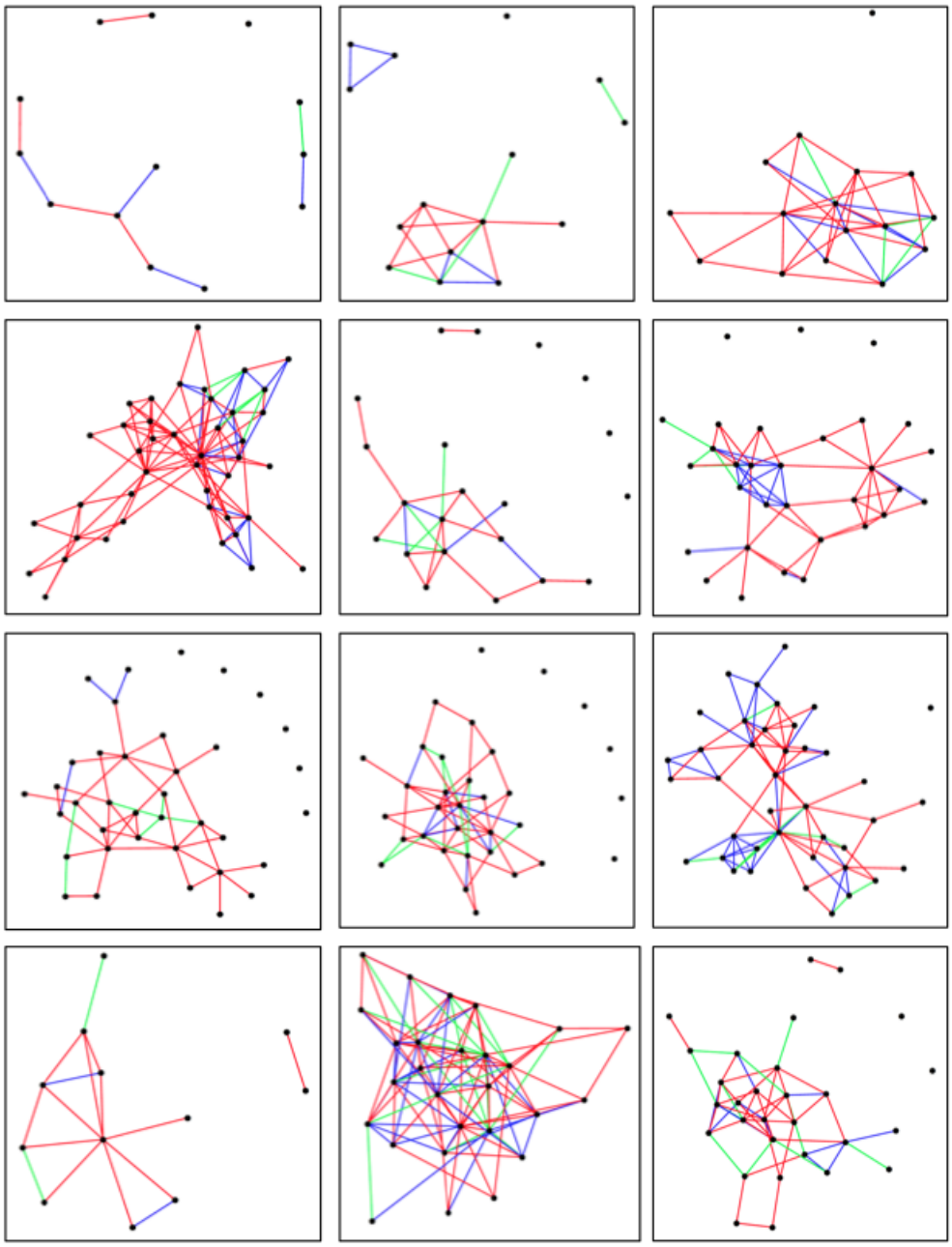
Web Appendix

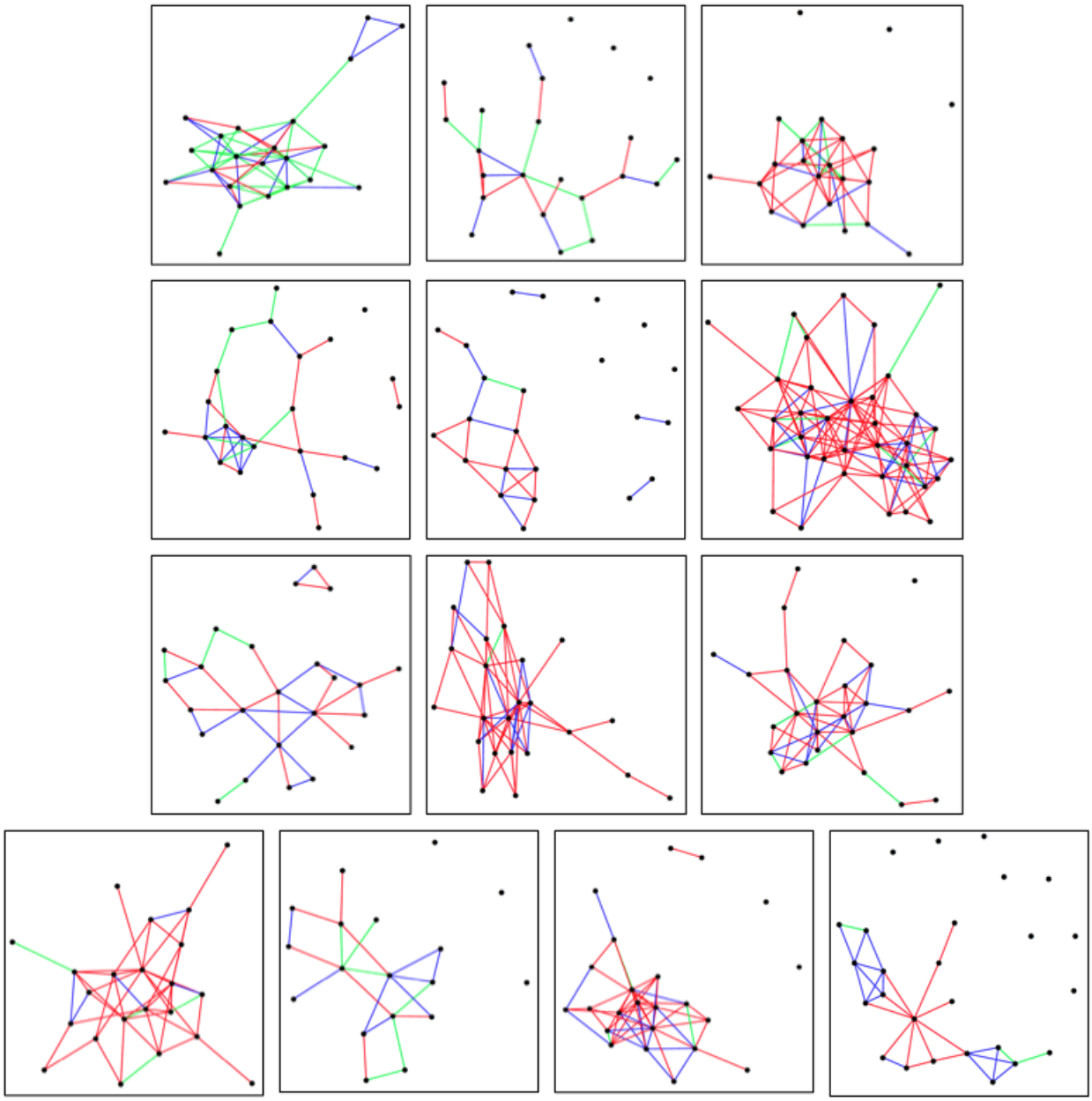
Does Financial Inclusion Exclude? The Effect of Access to Savings on Informal Risk-Sharing in Kenya, Felipe Dizon, Erick Gong, and Kelly Jones (Version: May 2016)

Figure A1: Risk-sharing Networks, Rural Clusters



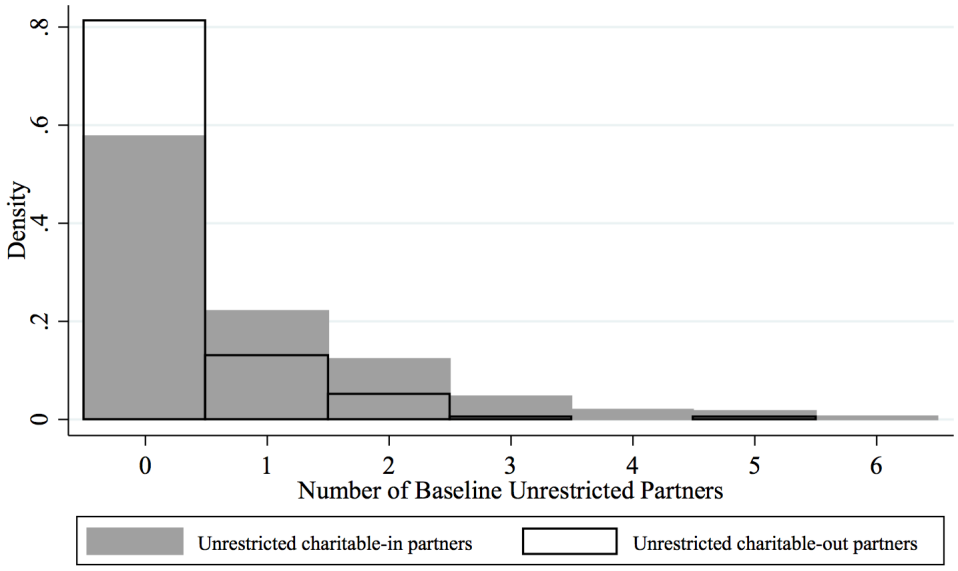
Notes: Each image depicts the 12 rural geographic cluster risk-sharing networks. A red edge indicates a dyad that was risk-sharing only at baseline, a green edge indicates a dyad that was risk-sharing only at endline, and a blue edge indicates a dyad that was risk-sharing at both baseline and endline.

Figure A2: Risk-sharing Networks, Urban Clusters



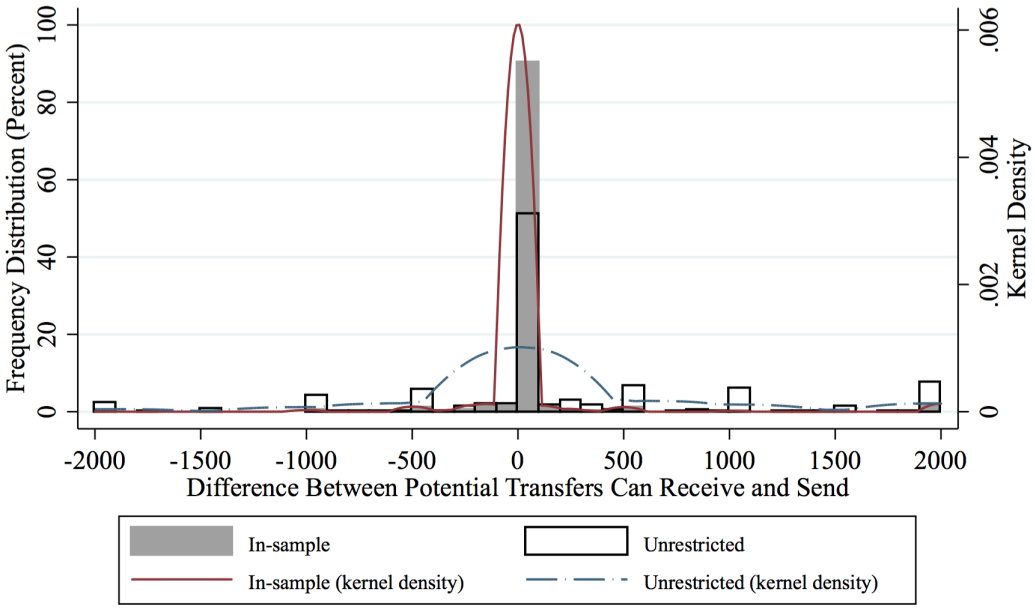
Notes: Each image depicts the 13 urban geographic cluster risk-sharing networks. A red edge indicates a dyad that was risk-sharing only at baseline, a green edge indicates a dyad that was risk-sharing only at endline, and a blue edge indicates a dyad that was risk-sharing at both baseline and endline.

Figure A3: Number of Baseline Financial Support Partners (Unrestricted Charitable)



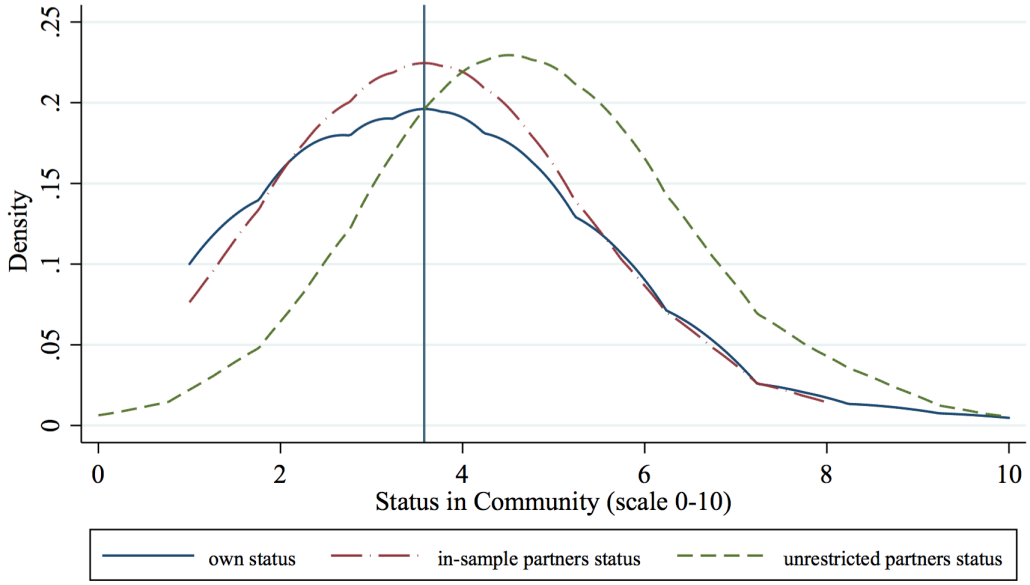
Notes: Each bin indicates the proportion of the sample with that number of reported financial support partners. A charitable-in partner is defined as a person for whom the respondent reported yes to the question (1) could you rely on this person for help if she needed money urgently to pay for an expense?, but no to the question (2) could this person rely on you for help if she needed money urgently to pay for an expense? A charitable-out partner is a person for whom the the respondent instead reported yes to question (2), but no to question (1).

Figure A4: Net Potential Transfers for Baseline Risk-Sharing Pairs



Notes: In-sample refers to in-sample baseline risk-sharing pairs, and unrestricted refers to unrestricted baseline risk-sharing pairs. The frequency distributions refer to a truncated frequency distribution of 100Ksh bin width. The variables are truncated so that any value below (above) -2000 (2000) is replaced with -2000 (2000). The kernel density functions use the same truncated variables. Epanechnikov kernel is used with bandwidth=50 for in-sample pairs and bandwidth=100 for unrestricted pairs.

Figure A5: Status in Community for Baseline Risk-Sharing Partners



Notes: Presented above are kernel density estimates of the status in community at baseline for in-sample and unrestricted partners. Status in community is a subjective measure on a 10-point scale from the survey question: Now think of a ladder in which people in your community are ranked, with the highest status people on the top rung and the lowest status people on the bottom rung. On a ladder with 10 steps, on which step would you place yourself? The measure for an unrestricted partner j is reported by i, whereas the measure for an in-sample partner j is reported by the partner j herself.

Table A1: Correlates of self-reported potential transfers one can send

	(1) Income, past 7 days	(2) Value of non-livestock assets	(3) Value of livestock assets	(4) Total savings balance	(5) Total ROSCA balance
Panel A					
Potential transfers, total	0.12	5.11***	0.67	0.71***	0.49***
	(0.29)	(1.65)	(1.05)	(0.20)	(0.16)
Observations	579	579	579	579	579
Panel B					
Potential transfers, mean	0.03	13.91***	1.30	2.11***	1.61**
	(0.50)	(4.21)	(2.12)	(0.74)	(0.63)
Observations	579	579	579	579	579

Notes: Unit of observation is an individual i. The dependent variables are baseline measures of income, assets, and savings. In panel A, the independent variable is the total endline potential transfers one can send to risk-sharing partners. In panel B, the independent variable is the mean endline potential transfers one can send, averaged across the risk-sharing partners of individual i. Estimation procedure used is OLS with cluster-robust standard errors at the geographic cluster level. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Constant is included in all regressions, but not shown.

Table A2: Treatment effect on the difference between potential transfers one can receive and send (undirectional)

	(1) Net Potential Transfers	(2) Net Potential Transfers
($\hat{\beta}_1$) i and j treatment	-9.0	3.0
	(20.3)	(3.6)
($\hat{\beta}_2$) i or j treatment	4.6	4.8
	(21.6)	(3.6)
Observations	1112	8241
Mean in Control	7.6	-0.5

Notes: Unit of observation is an undirectional dyad ij, where dependent variable is the difference between potential transfers one can receive and send. Sample in column 1 includes all dyads which were risk-sharing at baseline. Sample in column 2 includes all possible dyads within each geographic cluster. Estimation procedure used is OLS with dyadic-robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Included as regressors but not shown: absolute age difference between i and j, sum of age of i and j, geographic cluster fixed effects, and a constant.

Table A3: Baseline risk-sharing dyads, undirectional: alternative specifications for dyad level outcome variable

	(1) Potential Transfers Can Receive	(2) Potential Transfers Can Send	(3) Actual Transfers Received	(4) Actual Transfers Sent
Panel A: mean of i and j reports				
($\hat{\beta}_1$) i and j treatment	-116.1**	-110.5**	-20.3**	-7.6
	(53.7)	(50.2)	(10.1)	(7.6)
($\hat{\beta}_2$) i or j treatment	-73.9	-78.3*	-8.6	-0.3
	(47.2)	(43.1)	(10.8)	(8.0)
Observations	1112	1112	1112	1112
Mean in Control	219.9	219.0	28.3	19.0
Panel B: sum of i and j reports				
($\hat{\beta}_1$) i and j treatment	-233.6**	-221.1**	-40.9**	-15.1
	(107.3)	(100.4)	(20.2)	(15.2)
($\hat{\beta}_2$) i or j treatment	-149.9	-157.3*	-18.3	-0.5
	(94.2)	(86.1)	(21.4)	(15.9)
Observations	1112	1112	1112	1112
Mean in Control	439.1	437.3	56.5	38.0

Notes: Unit of observation is an undirectional dyad ij, where dependent variable is a measure of risk-sharing at endline. In panel A, we take the mean of the reports of i and j as the dyad-level observation. In panel B, we take the sum of the reports of i and j as the dyad-level observation. Sample includes all dyads which were risk-sharing at baseline. Estimation procedure used is OLS with dyadic-robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Included as regressors but not shown: absolute age difference between i and j, sum of age of i and j, geographic cluster fixed effects, and a constant.

Table A4: Baseline risk-sharing dyads: using directional dyadic regressions

	(1) Potential Transfers Can Receive	(2) Potential Transfers Can Send	(3) Actual Transfers Received	(4) Actual Transfers Sent
($\hat{\beta_1}$) i and j treatment	-157.2**	-156.3**	-31.2**	-15.3
	(79.4)	(74.5)	(15.5)	(9.9)
($\hat{\beta_2}$) i treatment, j control	-120.3	-126.9*	-14.3	-9.7
	(77.9)	(73.0)	(18.7)	(12.2)
($\hat{\beta_3}$) i control, j treatment	-99.5	-96.4	-12.2	13.9
	(64.4)	(58.8)	(17.8)	(16.8)
Observations	1292	1292	1292	1292
Mean in Control	329.6	322.3	44.3	26.9

Notes: Unit of observation is a directional dyad ij, where dependent variable is a measure of risk-sharing at endline. Sample includes all dyads which were risk-sharing at baseline. Estimation procedure used is OLS with dyadic-robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Included as regressors but not shown: absolute age difference between i and j, sum of age of i and j, geographic cluster fixed effects, and a constant.

Table A5: All dyads, undirectional: alternative specifications for dyad level outcome variable

	(1) Potential Transfers Can Receive	(2) Potential Transfers Can Send	(3) Actual Transfers Received	(4) Actual Transfers Sent
Panel A: mean of i and j reports				
($\hat{\beta}_1$) i and j treatment	-15.0*	-16.1**	-5.8**	-2.1*
	(8.7)	(8.2)	(2.3)	(1.3)
($\hat{\beta}_2$) i or j treatment	-11.4	-14.2*	-4.1*	-1.4
	(8.8)	(8.2)	(2.1)	(1.2)
Observations	8241	8241	8241	8241
Mean in Control	37.4	38.1	7.4	3.9
Panel B: sum of i and j reports				
($\hat{\beta}_1$) i and j treatment	-30.1*	-32.3**	-11.5**	-4.2*
	(17.4)	(16.4)	(4.7)	(2.5)
($\hat{\beta}_2$) i or j treatment	-24.5	-29.6*	-8.4**	-2.9
	(17.5)	(16.3)	(4.3)	(2.4)
Observations	8241.0	8241.0	8241.0	8241.0
Mean in Control	74.6	76.1	14.9	7.8

Notes: Unit of observation is an undirectional dyad ij, where dependent variable is a measure of risk-sharing at endline. In panel A, we take the mean of the reports of i and j as the dyad-level observation. In panel B, we take the sum of the reports of i and j as the dyad-level observation. Sample includes all possible dyads within each geographic cluster. Estimation procedure used is OLS with dyadic-robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Included as regressors but not shown: absolute age difference between i and j, sum of age of i and j, geographic cluster fixed effects, and a constant.

Table A6: All dyads: using directional dyadic regressions

	(1) Potential Transfers Can Receive	(2) Potential Transfers Can Send	(3) Actual Transfers Received	(4) Actual Transfers Sent
($\hat{\beta_1}$) i and j treatment	-15.8*	-17.0*	-6.3**	-2.3
	(9.5)	(8.9)	(2.6)	(1.4)
($\hat{\beta_2}$) i treatment, j control	-12.1	-14.9	-4.4	-2.6*
	(10.0)	(9.2)	(2.8)	(1.4)
($\hat{\beta_3}$) i control, j treatment	-13.7	-15.3*	-4.8**	-0.6
	(9.8)	(9.2)	(2.1)	(1.7)
Observations	15346	15346	15346	15346
Mean in Control	40.2	40.0	8.0	4.2

Notes: Unit of observation is a directional dyad ij, where dependent variable is a measure of risk-sharing at endline. Sample includes all possible dyads within each geographic cluster. Estimation procedure used is OLS with dyadic-robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Included as regressors but not shown: absolute age difference between i and j, sum of age of i and j, geographic cluster fixed effects, and a constant.

Table A7: All dyads, undirectional: test for formation and net formation of risk-sharing links using dyad fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
	Outcome: risk-sharing link					
	Severance		*Formation*		*Net formation*	
	OLS	Panel dyad fixed effects	OLS	Panel dyad fixed effects	OLS	Panel dyad fixed effects
($\hat{\beta_1}$) i and j treatment	-0.025	-0.028	-0.006	-0.006	-0.007	-0.012
	(0.048)	(0.051)	(0.006)	(0.007)	(0.010)	(0.015)
($\hat{\beta_2}$) i or j treatment	-0.023	-0.028	-0.005	-0.005	-0.006	-0.014
	(0.032)	(0.035)	(0.005)	(0.005)	(0.007)	(0.009)
Endline dummy		-0.692***		0.027***		-0.067***
		(0.033)		(0.005)		(0.010)
Observations	1112	2224	7129	14258	8241	16482
Mean in Control	0.308	1.000	0.027	0.000	0.064	0.135

Notes: In columns 1 and 2, sample includes all possible undirectional dyads within geographic cluster that were risk-sharing at baseline. In columns 3 and 4, sample includes all possible undirectional dyads within geographic cluster that were not risk-sharing at baseline. In columns 5 and 6, sample includes all possible undirectional dyads within geographic cluster. In columns 1, 3 and 5, the dependent variable indicates whether the ij dyad was risk-sharing at endline. Estimation procedure used is OLS with dyadic-robust standard errors. Included as regressors but not shown: age of i, age of j, geographic cluster fixed effects, and a constant. In columns 2, 4, and 6, the dependent variable indicates whether the ij dyad was risk-sharing at time t, where t is baseline or endline. Estimation procedure used is panel dyad fixed effects with two-way clustered standard errors at the i-level and j-level. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10.

Table A8: State-contingent transfers: test for treatment effect on shock experience

	(1) Any Shock	(2) Any Shock (for i)	(3) Any Shock (for j)
($\hat{\beta}_1$) i treatment	-0.01		
	(0.04)		
($\hat{\beta}_1$) i and j treatment		-0.00	-0.00
		(0.04)	(0.04)
($\hat{\beta}_2$) i treatment, j control		-0.00	0.00
		(0.04)	(0.00)
($\hat{\beta}_3$) i control, j treatment		0.00	0.00
		(0.00)	(0.04)
Observations	579	15346	14210
Mean in Control	0.45	0.44	0.44

Notes: In column 1, unit of observation is an individual i. The dependent variable is an indicator of whether individual i experienced a shock in the 4-month period before endline. Estimation procedure is OLS with robust standard errors. Included as regressors but not shown: age, geographic cluster fixed effects, and a constant In columns 2 and 3, unit of observation is a directional dyad ij. The dependent variable is an indicator for whether individual i or j experienced a shock. Estimation procedure used is OLS with dyadic-robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Included as regressors but not shown: absolute age difference between i and j, sum of age of i and j, geographic cluster fixed effects, and a constant.

Table A9: Charitable support: unrestricted i-level regressions

	(1) Number of people respondent can rely on	(2) Total potential transfers can receive	(3) Total actual transfers received	(4) Number of people who can rely on respondent	(5) Total potential transfers can send	(6) Total actual transfers sent
Panel A: sum across all types of unrestricted support partners						
($\hat{\beta}_1$) i treatment	0.1	882.0	782.7*	0.1	618.1	119.4
	(0.2)	(762.3)	(420.0)	(0.2)	(485.1)	(273.6)
Observations	579	579	579	579	579	579
Mean in Control	4.0	6925.6	2584.4	2.8	3338.1	1582.7
Panel B: sum across unrestricted risk-sharing partners at endline						
($\hat{\beta}_1$) i treatment	0.2	861.8	362.3	0.2	661.7*	247.5
	(0.2)	(702.7)	(289.1)	(0.2)	(367.1)	(161.6)
Observations	579	579	579	579	579	579
Mean in Control	3.3	5631.5	1934.0	1.9	2245.3	689.3

Notes: Unit of observation is an individual i, In panel A, the dependent variable is the sum of a support measure across all types of unrestricted support partners. In panel B, the dependent variable is the sum of a support measure across unrestricted risk-sharing partners. Estimation procedure is OLS with robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Included as regressors but not shown: age of i, geographic cluster fixed effects, and a constant.

Table A10: Miscellaneous explanations: test for treatment-induced change in type of risk-sharing partners

	(1) Family Member	(2) Same Ethnicity	(3) Value of Assets	(4) Status in Community
($\hat{\beta}_1$) i treatment	0.00	-0.03	2737.02	0.08
	(0.04)	(0.03)	(6347.64)	(0.14)
Observations	317	317	309	309
Mean in Control	0.15	0.91	74247	3.77

Notes: Unit of observation is an individual i, The dependent variable is the mean of a given characteristic across in-sample risk-sharing partners. Estimation procedure is OLS with robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Included as regressors but not shown: age, geographic cluster fixed effects, and a constant.

Table A11: Welfare effects: components of the HFIAS

	(1) **Domain: Anxiety**	(2) **Domain: Quality**	(3) **Domain: Quantity**	(4) Quantity: Smaller Meals	(5) Quantity: Fewer Meals	(6) Quantity: No Food At Home	(7) Quantity: Sleep Hungry	(8) Quantity: Not Eat Full Day
($\hat{\delta_1}$) i and j treatment and i shock=1	-0.07	-0.02	-0.11**	-0.23**	-0.38***	-0.12	-0.03	-0.01
	(0.06)	(0.05)	(0.05)	(0.12)	(0.12)	(0.09)	(0.08)	(0.09)
($\hat{\delta_2}$) i treatment, j control, and i shock=1	-0.07	-0.02	-0.11**	-0.24**	-0.39***	-0.12	-0.04	-0.01
	(0.06)	(0.05)	(0.06)	(0.12)	(0.12)	(0.10)	(0.09)	(0.09)
($\hat{\delta_3}$) i control, j treatment, and i shock=1	-0.00	0.00	-0.00	-0.01	-0.01	-0.00	-0.01	-0.01
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
($\hat{\delta_4}$) i and j treatment and i shock=0	-0.03	0.04	0.05	0.04	0.11	0.05	0.13*	0.05
	(0.06)	(0.05)	(0.05)	(0.10)	(0.10)	(0.08)	(0.07)	(0.07)
($\hat{\delta_5}$) i treatment, j control, and i shock=0	-0.03	0.04	0.05	0.04	0.12	0.05	0.13*	0.05
	(0.06)	(0.05)	(0.05)	(0.10)	(0.10)	(0.08)	(0.07)	(0.08)
($\hat{\delta_6}$) i control, j treatment, and i shock=0	0.00	0.00	0.00	0.00	0.00	-0.00	0.00	0.00
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)
($\hat{\delta_7}$) i shock=1	0.17***	0.17***	0.24***	0.33***	0.51***	0.23**	0.20***	0.14*
	(0.06)	(0.05)	(0.05)	(0.11)	(0.12)	(0.10)	(0.08)	(0.08)
χ^2 test (δ_1)=(δ_4), p-value	0.65	0.46	0.04	0.09	0.00	0.20	0.14	0.62
χ^2 test (δ_2)=(δ_5), p-value	0.62	0.40	0.04	0.08	0.00	0.21	0.13	0.63
χ^2 test (δ_3)=(δ_6), p-value	0.76	0.98	0.25	0.27	0.31	0.98	0.71	0.75
Observations	15346	15346	15346	15346	15346	15346	15346	15346
Mean in Control, i shock=1	0.65	0.76	0.68	1.04	1.13	0.58	0.43	0.35

Notes: Unit of observation is a directional dyad ij, where dependent variable is a welfare measure for individual i. Sample includes all possible dyads within each geographic cluster. Estimation procedure used is OLS with dyadic-robust standard errors. Standard errors are shown in parentheses. Level of significance: *** p<0.01, ** p<0.05, * p<0.10. Values are reported in Kenyan Shillings (Ksh), 85 Ksh = 1 USD at the time of the study. Included as regressors but not shown: baseline outcome variable, absolute age difference between i and j, sum of age of i and j, geographic cluster fixed effects, and a constant.