Making spouses cooperate in Ugandan agricultural households – Experimental evidence of distributional treatment effects

Figures and Tables

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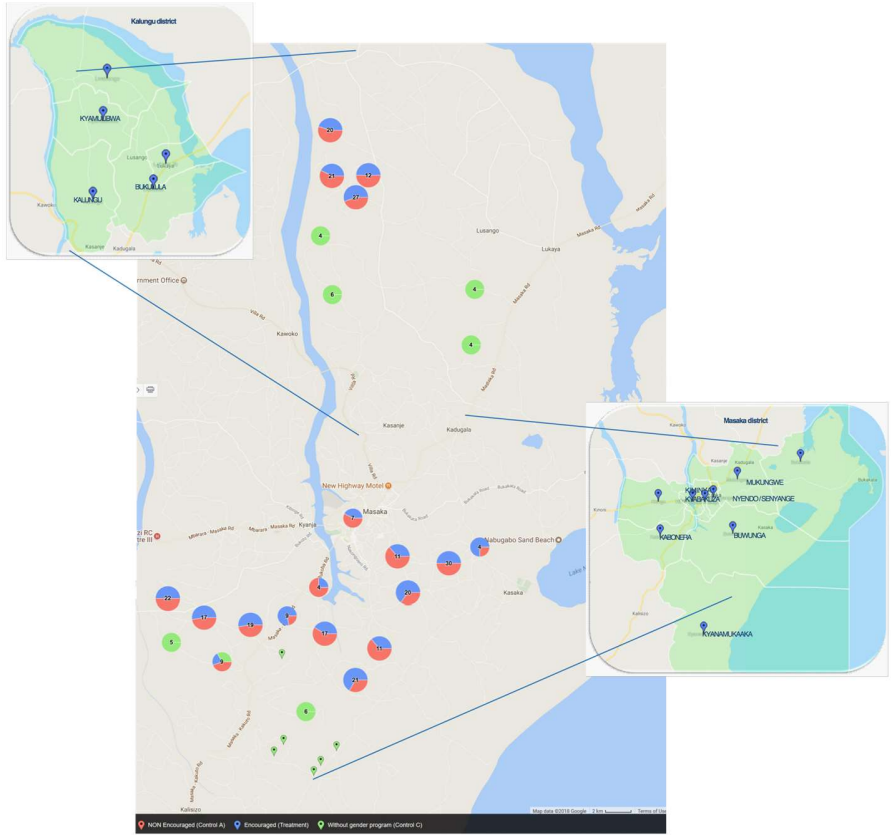
Annex

Figure A: Locations of baseline interviews conducted with couples in the Treatment, Control-A, and Control-C groups in Masaka and Kalungu district

Locations of baseline interviews conducted with couples in the treatment (blue), control-A (red), and control-C (green) group in sub-counties in Kalungu district (inset map in top left corner with pins for sub-counties) and sub-counties in Masaka district (inset map in bottom right corner)
Interview locations of 34 couples have not been plotted due to missing GPS data.



Sources: Own data plotted with BatchGeo LLC and Google Maps; Sub-counties plotted with www.lcmt.org/uganda

Table A: Uganda Bureau of Statistics 2009 statistics aggregated and representative at the sub-county level in the sub-counties in which Control-C, Control-A, and treatment couples were selected

District		Masaka	Masaka	Masaka	Masaka	Masaka	Masaka	Kalungu	Kalungu	Kalungu
Sub-county		KIMINYA / KYABAKUZA*	NYENDO / SENYANGE*	MUKUNGWE	BUWUNGA	KABONERA	KYANAMUKAAKA	KYAMULIBWA**	BUKULULA	KALUNGU
Treatment, Control-A or Control-C		T and CA	T and CA	T and CA	T and CA	T, CA; also CC	CC	T and CA	CC	CC
Total Population		23,540	39,417	35,805	32,050	29,662	51,620	25,204	40,932	33,706
Population by age group	0_5 YRS	17.54	20.4	18.6	19.78	20.11	21.2	19.83	20.07	18.29
	6_17 YRS	29.1	36.15	36.05	38.31	38.42	36.51	40.09	38.95	38.94
	18 Yrs & Above	53.36	43.44	45.35	41.91	41.47	42.29	40.08	40.98	42.77
Population: All household members aged 5 years and above		17,710	40,794	23,390	21,278	-	27,491	16,379	27,309	24,458
Highest education level attained	EDUCP1_P7	44.53	69.97	70.01	77.14	-	82.13	78.3	77.62	77.64
	EDUCJ1_S6	42.6	26.95	25.33	19.75	-	15.47	19.48	20.56	19.09
	EDUC_ABOVS6	12.87	3.08	4.66	3.11	-	2.4	2.22	1.82	3.28
Population: Usual household members aged 5 years and above		16,244	34,960	26,156	26,170	19,894	28,370	16,379	27,309	24,458
Main economic activity	AGRIC	6.95	12.35	28.03	37.28	41.52	53.87	46.48	37.32	55.03
	TRADE	15.04	9.74	4.16	3.35	3.8	7.68	1.81	1.68	1.53
	MANUFACTURE	2.71	3.69	2.83	0.39	0.71	0.32	0.88	0.71	0.84
	SERVICE	22.17	52.87	6.64	3.28	5.49	3.35	2.97	2.69	3.68
	OTHER	53.13	21.35	58.35	55.7	48.49	34.78	47.87	57.6	38.93
Number of households		6,698	9,854	8,215	6,747	5,671	11,325	6,234	8,639	7,488
% of households that grows the specified type of crop	COFFEE	3.97	0.85	28.41	46.39	28.78	32.34	34.23	35.06	36.57
	BEANS	8.35	3.69	31.71	47.98	43.8	52.52	41.35	59.19	51.55
	CASSAVA	4.61	2.97	24.39	33.45	24.6	37.52	39	38.85	38.42
	SPOTATOES	5.15	1.88	1.27	0.03	0.23	45.27	8.44	47.89	3.41
	BANANA	6.06	9.09	0.5	0.31	0.35	43.47	0.26	46.38	1.71
	MAIZE	6	1.66	0.22	-	0.62	26.57	0.06	44.17	0.71
	F/MILLET	-	-	0.01	0.01	-	0.35	0.06	0.24	0.08
	SORGHUM	-	-	3.68	0.25	0.48	0.29	-	0.23	2.9
	I/POTATOES	-	0.06	9.17	3.01	1.89	0.34	0.24	0.38	10.64
	HH_RICE	-	-	-	0.39	0.11	0.06	-	0.05	1.06

	OTHERS	0.54	0.65	1.73	1.94	1.92	4.34	0.47	18.03	1.24
% of households that owns the specified type of livestock	CATTLE	6.4	1.74	17.09	27.21	27.54	24.3	26.07	25.35	26.19
	GOATS	5.64	1.9	28.63	44.24	34.28	17.54	28.18	23.53	41.97
	PIGS	9.17	6.32	41.83	49.86	61.59	39.05	39.69	26.76	61.49
	CHICKEN	8.09	1.58	26.77	38.62	36.03	42.89	49.53	38.8	35.78
% of households that owns the specified type of asset	LAND	35.8	13.94	73.13	68.28	66.58	71.36	63.72	16.02	91.83
	HOUSE	37.07	28.25	71.97	86.73	72.49	70.58	76.37	77.91	85.02
	BICYCLE	28.41	4.37	45.16	49.67	37.74	44.56	43.44	54.39	48.12
	RADIO	91.12	80.08	66.15	45.8	57.87	62.83	39.97	85.67	49.76
	TELEPHONE	92.68	61	38.13	74.7	43.98	34.08	67.69	45.6	44.14

* T and CA only in rural areas while the statistics are for the total sub-county which includes urban and peri-urban areas
** Only in the south of the sub-county

Sources: Uganda Bureau of Statistics (UBOS) (2011). Subcounty Development Programme. Implementation of the Community Information System (CIS). Masaka District Local Government Report based on CIS Summary Results 2009. Volume I. Kampala: Uganda Bureau of Statistics; Uganda Bureau of Statistics (UBOS) (2011). Subcounty Development Programme. Implementation of the Community Information System (CIS). Kalungu District Local Government Report based on CIS Summary Results 2009. Volume I. Kampala: Uganda Bureau of Statistics

Table B: Test of normality of distributions

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
VCM1 - Husbands' contributions	Treatment	.176	166	.000	.917	166	.000
	Control-A	.181	159	.000	.910	159	.000
	Control-C	.190	37	.002	.923	37	.014
VCM1 - Wives' contributions	Treatment	.200	166	.000	.918	166	.000
	Control-A	.179	159	.000	.892	159	.000
	Control-C	.216	37	.000	.907	37	.005
VCM2 with communication - Husbands' contributions	Treatment	.190	109	.000	.903	109	.000
	Control-A	.185	109	.000	.916	109	.000
	Control-C	.244	31	.000	.878	31	.002
VCM2 with communication - Wives' contributions	Treatment	.174	109	.000	.889	109	.000
	Control-A	.214	109	.000	.908	109	.000
	Control-C	.334	31	.000	.813	31	.000
VCM2 without communication - Husbands' contributions	Treatment	.248	57	.000	.871	57	.000
	Control-A	.203	50	.000	.879	50	.000
	Control-C	.293	6	.117	.822	6	.091
VCM2 without communication - Wives' contributions	Treatment	.248	57	.000	.795	57	.000
	Control-A	.287	50	.000	.851	50	.000
	Control-C	.202	6	.200*	.853	6	.167
Sharing game with communication - Husbands' contributions	Treatment	.158	105	.000	.936	105	.000
	Control-A	.168	108	.000	.953	108	.001
	Control-C	.232	31	.000	.871	31	.001
Sharing game with communication - Wives' contributions	Treatment	.183	105	.000	.937	105	.000
	Control-A	.173	108	.000	.949	108	.000
	Control-C	.224	31	.000	.876	31	.002
Sharing game without communication - Husbands' contributions	Treatment	.234	57	.000	.917	57	.001
	Control-A	.178	49	.000	.928	49	.005
	Control-C	.293	6	.117	.822	6	.091
Sharing game without communication - Wives' contributions	Treatment	.210	57	.000	.907	57	.000
	Control-A	.236	49	.000	.901	49	.001
	Control-C	.407	6	.002	.640	6	.001

Figure B: Test of normality of distributions 1st VCM game

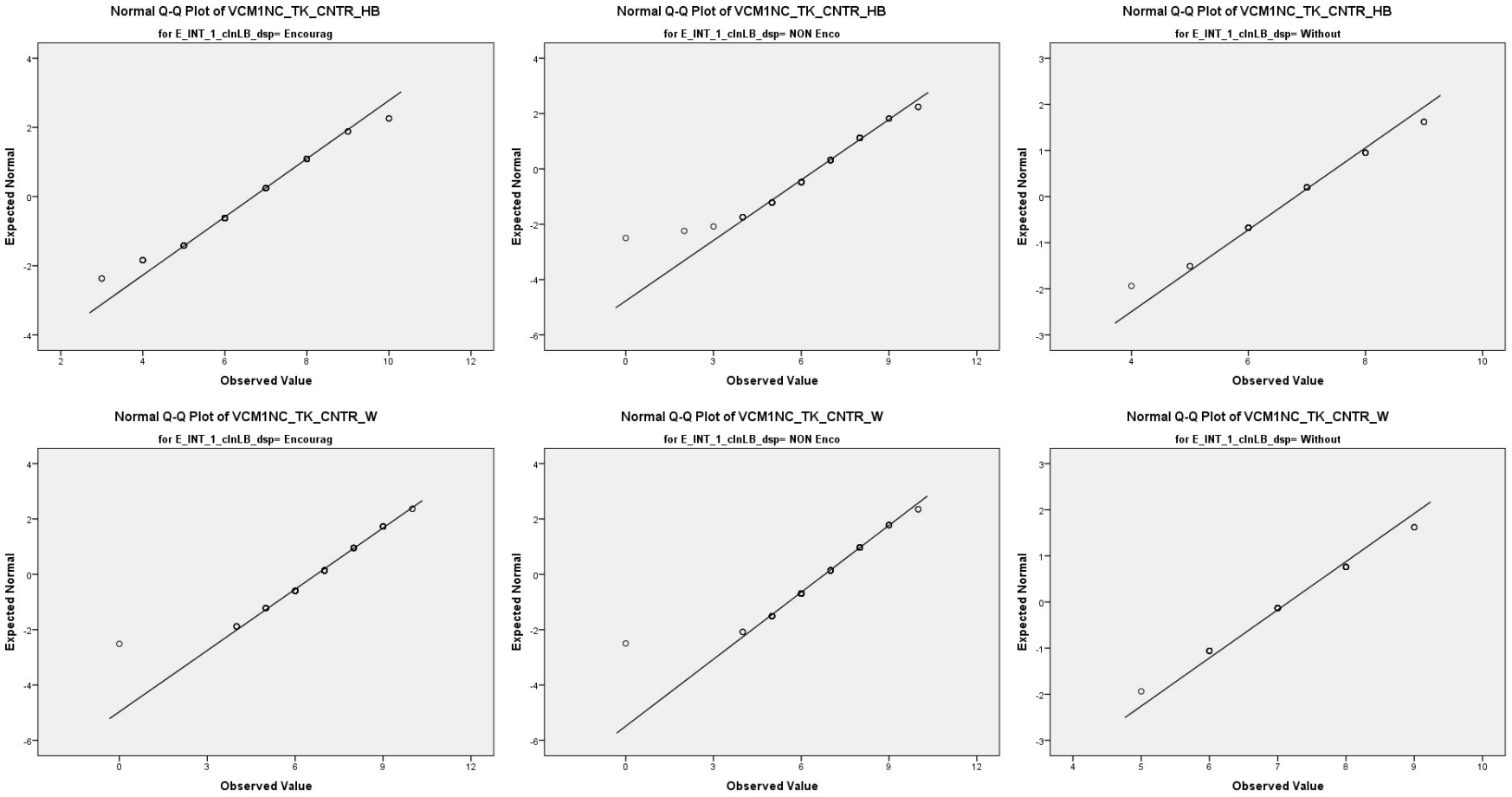


Figure C: Test of normality of distributions 2nd VCM game with communication

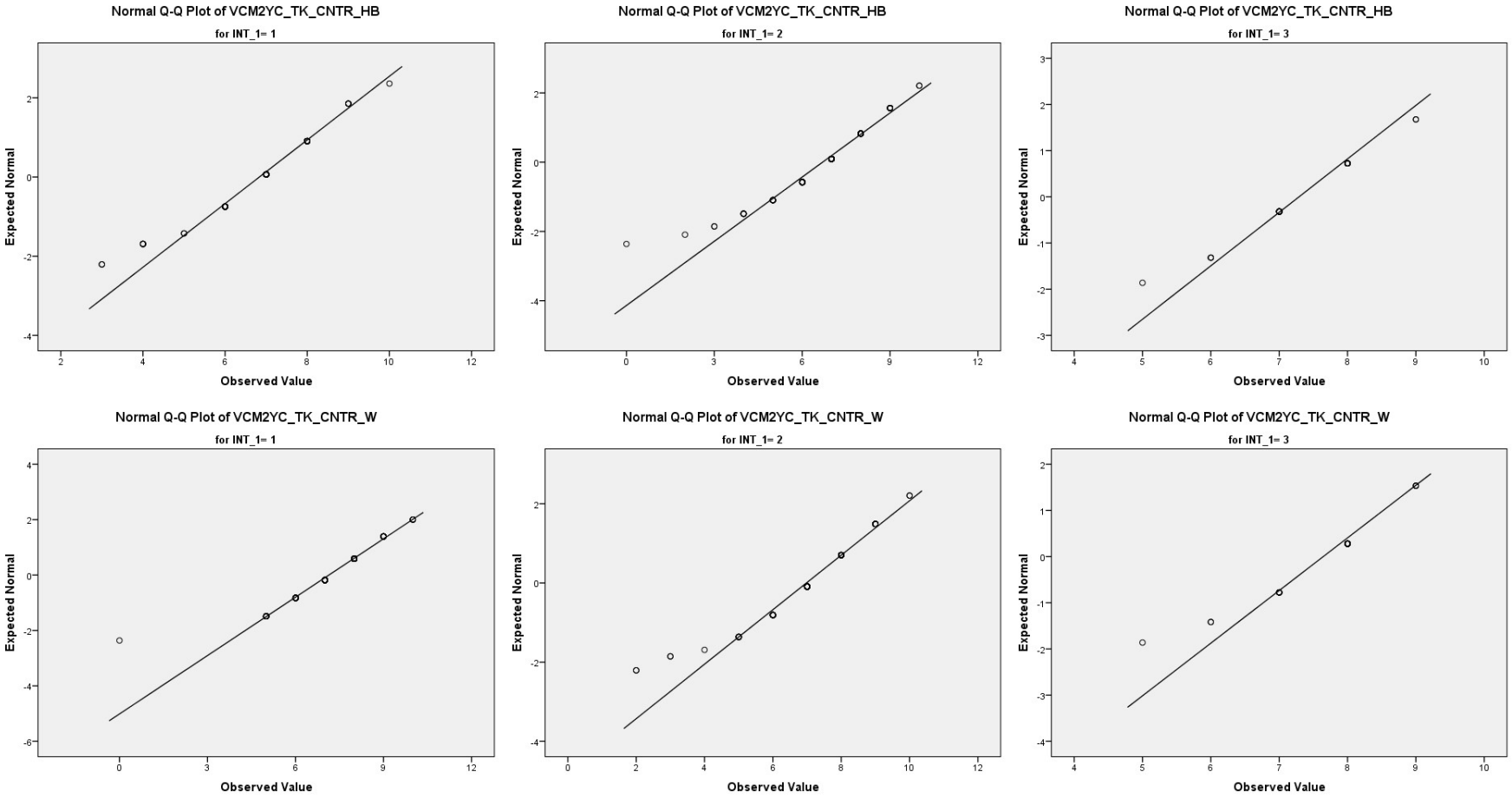


Figure D: Test of normality of distributions 2nd VCM game without communication

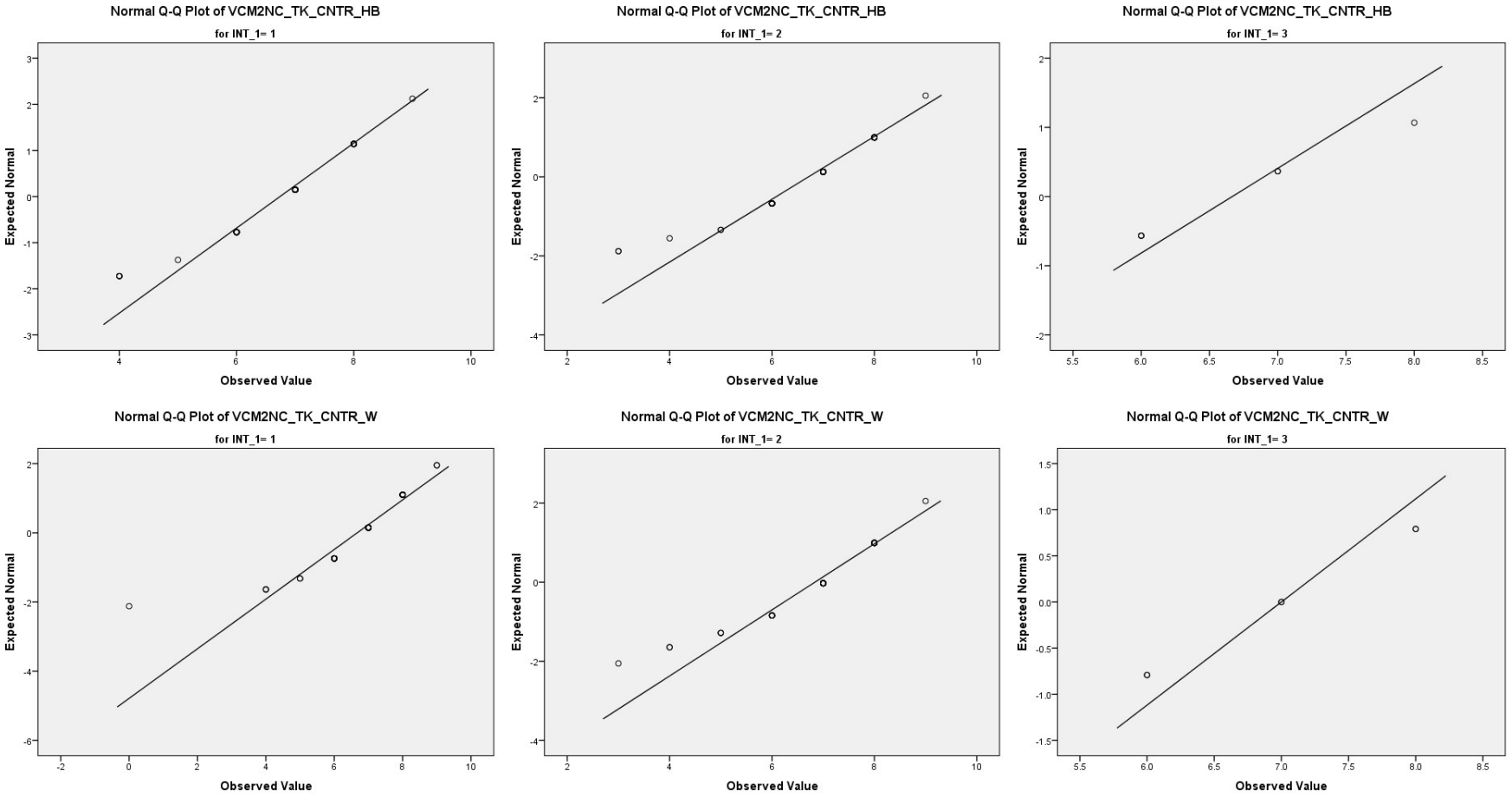


Figure E: Test of normality of distributions sharing game with communication

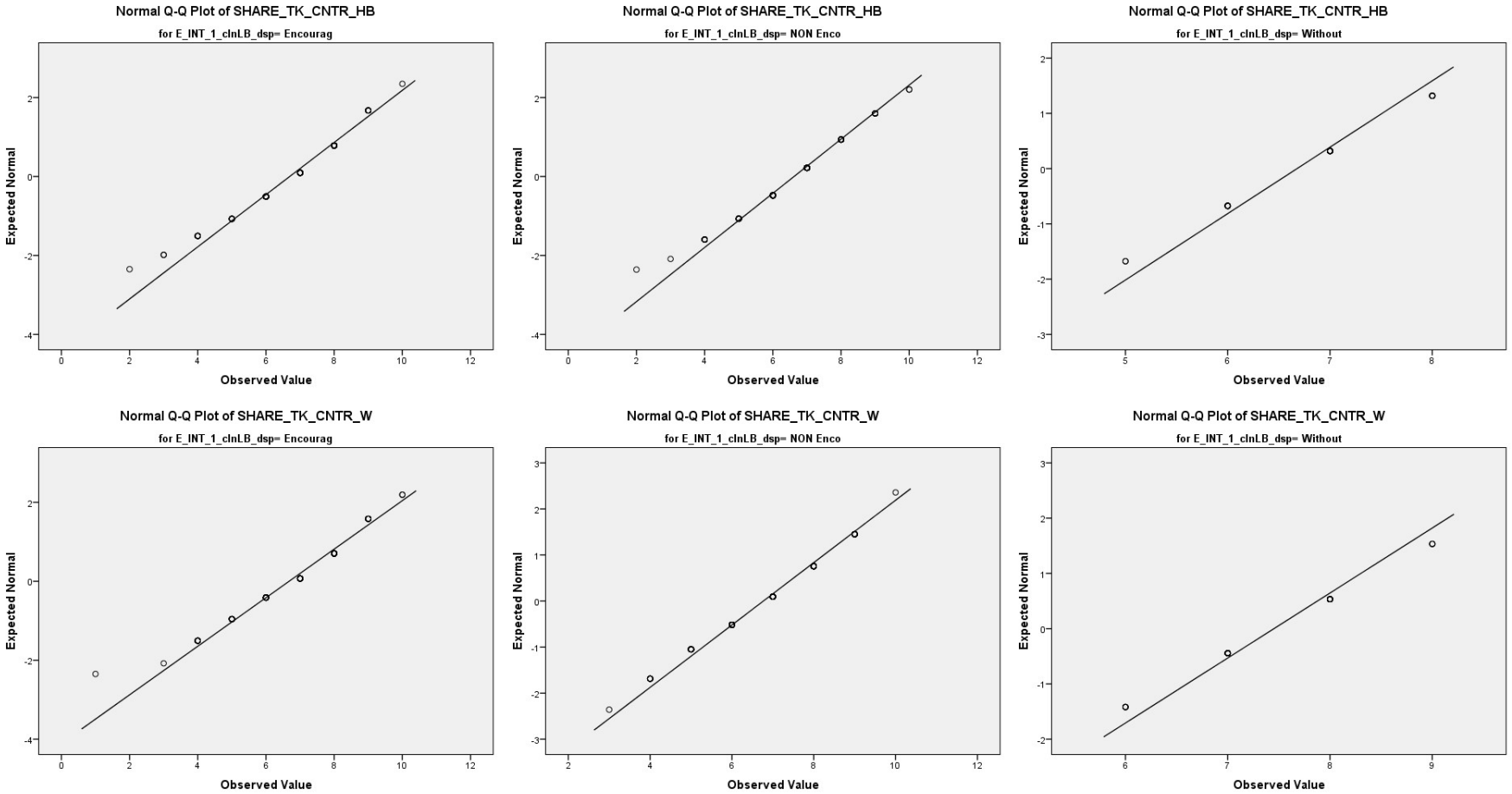


Figure F: Test of normality of distributions sharing game without communication

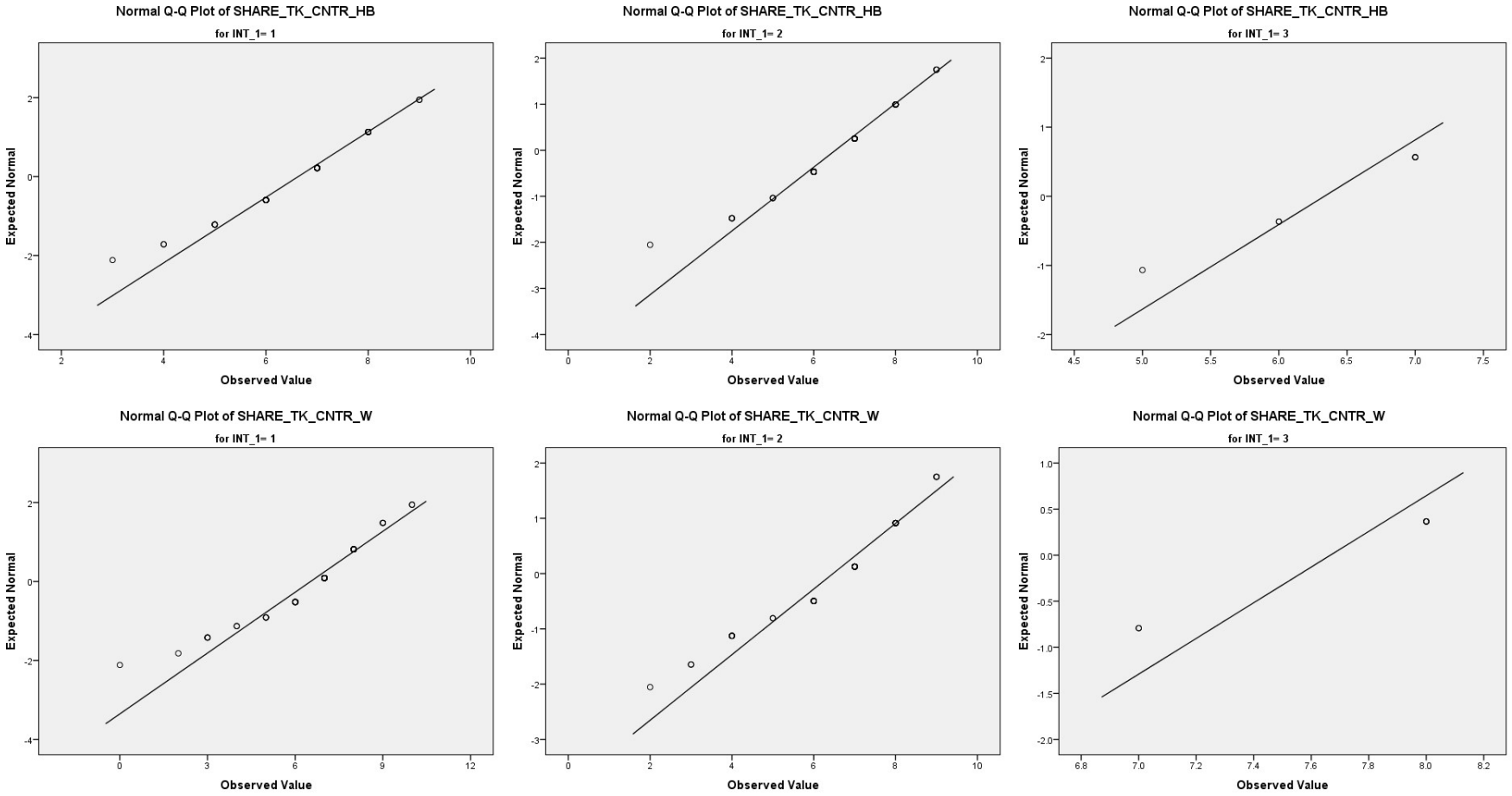


Table C: Balance check based on baseline characteristics in the Masaka-Kalungu sample

Continuous baseline characteristics						Multiple Comparison				
Variable description	Variable label	Group I	N	Mean	S.D.	Test	Group I	vs group J	Mean Diff (I-J)	S.E.	Sig.
Age difference husband and wife (negative if wife is older)	AGE_DIFF	T	166	8.958	7.399	Bonferroni	T	CA	0.115	0.809	1.000
								CC	-0.432	1.271	1.000
		CA	159	8.843	7.236		CA	T	-0.115	0.809	1.000
								CC	-0.547	1.276	1.000
		CC	41	9.390	7.017		CC	T	0.432	1.271	1.000
		Total	366	8.956	7.269			CA	0.547	1.276	1.000
Wife's age as a proxy for the duration of marriage	ID_17	T	166	39.524	11.010	Bonferroni	T	CA	0.197	1.293	1.000
								CC	-3.549	2.031	0.244
		CA	159	39.327	11.589		CA	T	-0.197	1.293	1.000
								CC	-3.746	2.040	0.201
		CC	41	43.073	14.168		CC	T	3.549	2.031	0.244
		Total	366	39.836	11.673			CA	3.746	2.040	0.201
Age husband	HB_ID_17	T	166	48.482	12.276	Bonferroni	T	CA	0.312	1.396	1.000
								CC	-3.981	2.194	0.211
		CA	159	48.170	12.221		CA	T	-0.312	1.396	1.000
								CC	-4.294	2.204	0.156
		CC	41	52.463	15.002		CC	T	3.981	2.194	0.211
		Total	366	48.792	12.616			CA	4.294	2.204	0.156
Total household off-farm income earned in the course of the last three months (i.e. sum of income earned by wife and by husband from off-farm activities and fishing)	HH_OFFFARM	T	70	602429	1011695	Bonferroni	T	CA	-26910	147282	1.000
								CC	-81571	246109	1.000
		CA	68	629338	700916		CA	T	26910	147282	1.000
								CC	-54662	246747	1.000
		CC	15	684000	787988		CC	T	81571	246109	1.000
		Total	153	622386	859622			CA	54662	246747	1.000
Wife's share in total household off-farm income	PROPW_HH_OFFFARM	T	70	0.247	0.408	Bonferroni	T	CA	0.006	0.068	1.000
								CC	0.011	0.113	1.000
		CA	68	0.241	0.380		CA	T	-0.006	0.068	1.000
								CC	0.006	0.113	1.000
		CC	15	0.236	0.419		CC	T	-0.011	0.113	1.000
		Total	153	0.243	0.394			CA	-0.006	0.113	1.000
Total remittances received by the wife in the course of the last three months[1]	INDINC_163	T	38	83421	99275	Bonferroni	T	CA	-17579	25315	1.000
								CC	33421	81071	1.000
		CA	40	101000	123715		CA	T	17579	25315	1.000
								CC	51000	80970	1.000
		CC	2	50000	0		CC	T	-33421	81071	1.000
		Total	80	91375	110871			CA	-51000	80970	1.000
Total number of cattle owned by the household (reported by the husband)	HB_INDAS_150	T	166	1.108	1.465	Bonferroni	T	CA	-0.068	0.226	1.000
								CC	-0.038	0.356	1.000
		CA	159	1.176	2.616		CA	T	0.068	0.226	1.000
								CC	0.030	0.358	1.000
		CC	41	1.146	1.389		CC	T	0.038	0.356	1.000
		Total	366	1.142	2.036			CA	-0.030	0.358	1.000
Total number of small livestock (goats, sheep, pigs…) owned by the household (reported by the husband)	HB_INDAS_152	T	164	3.500	3.402	Bonferroni	T	CA	0.146	0.383	1.000
								CC	-0.890	0.600	0.417
		CA	158	3.354	3.407		CA	T	-0.146	0.383	1.000
								CC	-1.036	0.603	0.260
		CC	41	4.390	3.701		CC	T	0.890	0.600	0.417
		Total	363	3.537	3.443			CA	1.036	0.603	0.260

[1] Balance tests failed for the Mubende sub-sample due to large number of missing values.

Total number of poultry owned by the household (reported by the husband)	HB_INDAS_154	T	153	14.085	56.017	Bonferroni	T	CA	2.210	5.459	1.000
								CC	6.035	8.350	1.000
		CA	144	11.875	42.498		CA	T	-2.210	5.459	1.000
								CC	3.825	8.403	1.000
		CC	40	8.050	8.970		CC	T	-6.035	8.350	1.000
		Total	337	12.424	46.916			CA	-3.825	8.403	1.000
Tropical livestock units owned by the household (based on husbands' accounts) [2]	HB_TLU	T	153	1.467	1.499	Bonferroni	T	CA	0.027	0.208	1.000
								CC	-0.094	0.317	1.000
		CA	144	1.440	2.150		CA	T	-0.027	0.208	1.000
								CC	-0.120	0.320	1.000
		CC	40	1.561	1.291		CC	T	0.094	0.317	1.000
		Total	337	1.467	1.783			CA	0.120	0.320	1.000
Total acreage of land currently owned by the household (reported by the husband) (outliers removed)	HB_HH_167	T	164	4.610	5.082	Bonferroni	T	CA	0.100	0.553	1.000
								CC	-0.493	0.882	1.000
		CA	157	4.510	3.841		CA	T	-0.100	0.553	1.000
								CC	-0.593	0.886	1.000
		CC	39	5.103	7.684		CC	T	0.493	0.882	1.000
		Total	360	4.619	4.941			CA	0.593	0.886	1.000
Number of female household members from 19 up to 55 years old currently residing with the household (reported by the wife)	HH_165	T	166	2.651	1.489	Bonferroni	T	CA	0.097	0.167	1.000
								CC	-0.276	0.262	0.878
		CA	159	2.553	1.452		CA	T	-0.097	0.167	1.000
								CC	-0.373	0.263	0.471
		CC	41	2.927	1.738		CC	T	0.276	0.262	0.878
		Total	366	2.639	1.503			CA	0.373	0.263	0.471
Number of children from 0 up to 5 years old currently residing with the household (reported by the wife)	HH_164	T	166	4.060	1.965	Bonferroni	T	CA	-0.022	0.223	1.000
								CC	-0.037	0.350	1.000
		CA	159	4.082	2.084		CA	T	0.022	0.223	1.000
								CC	-0.016	0.352	1.000
		CC	41	4.098	1.868		CC	T	0.037	0.350	1.000
		Total	366	4.074	2.002			CA	0.016	0.352	1.000
Number of female household members older than 55 years currently residing with the household (reported by the wife)	HH_166	T	166	0.373	0.646	Bonferroni	T	CA	-0.023	0.077	1.000
								CC	-0.212	0.121	0.243
		CA	159	0.396	0.694		CA	T	0.023	0.077	1.000
								CC	-0.189	0.122	0.362
		CC	41	0.585	0.865		CC	T	0.212	0.121	0.243
		Total	366	0.407	0.695			CA	0.189	0.122	0.362

[2] Tropical livestock units are calculated by making a weighed sum of all livestock owned by the household. More specifically, the weights are: cattle = 0.70, sheep and goats = 0.10, pigs = 0.20, chicken = 0.01, turkey = 0.05, donkey = 0.50; pigeons = 0.005, ducks = 0.02 and rabbits = 0.02 (Jahnke, 1982). Here we used 0.70 for cattle, 0.15 for small livestock (sheep, goats and pigs), and 0.015 for poultry.

Categorical baseline characteristics

Variable definition	Variable label	Cat	Category label	T	CA	CC	Sig diff.
Highest education level of wife	ID_18	1	no (formal) education or less than primary 1	3.6%	8.8%	4.9%	
		2	primary education: finished Primary 1 (P1) or P2	3.6%	3.1%	9.8%	
		3	primary: finished P3 or P4	12.0%	9.4%	4.9%	
		4	primary: finished P5 or P6	25.3%	22.0%	24.4%	
		5	primary: finished P7	36.7%	22.0%	29.3%	T <> CA
		6 +	secondary education or higher	18.7%	34.6%	26.8%	T <> CA
Highest education level of husband	HB_ID_18	1	no (formal) education or less than primary 1	2.4%	1.9%	2.4%	
		2	primary education: finished Primary 1 (P1) or P2	3.0%	3.8%	7.3%	
		3	primary: finished P3 or P4	13.9%	11.3%	12.2%	
		4	primary: finished P5 or P6	16.9%	22.6%	24.4%	
		5	primary: finished P7	30.1%	22.0%	12.2%	
		6 +	secondary education or higher	33.7%	38.4%	41.5%	T <> CC
Polygamous (reported by husband)	HB_ID_15	1		7.8%	6.9%	7.3%	
Wife individually earned off-farm income in the course of three months	W_INDINC_160	1		22%	24%	10%	T <> CC; CA <> CC
Husband individually earned off-farm income in the course of three months	HB_INDINC_160	1		45%	48%	29%	T <> CC; CA <> CC
Wife's aspirations wrt farming	INDAS_147	1	A farmer for whom farming is the only way to survive, the only option to provide in a livelihood	71.7%	74.8%	100.0%	T <> CC; CA <> CC
		2	A farmer who is hoping to find a future outside of farming, hoping to 'escape' farming	1.8%	0.6%	0.0%	
		3	A farmer who treats farming as a way of life, as part of my culture and as important part of my identity	8.4%	8.2%	0.0%	
		4	A farmer who treats farming as a business	17.5%	16.4%	0.0%	T <> CC; CA <> CC
		5	Farming is just a side-activity for me as I have other more important sources of household income	0.6%	0.0%	0.0%	
Husband's aspirations wrt farming	HB_INDAS_147	1	A farmer for whom farming is the only way to survive, the only option to provide in a livelihood	39.8%	47.2%	100.0%	T <> CC; CA <> CC
		2	A farmer who is hoping to find a future outside of farming, hoping to 'escape' farming	2.4%	2.5%	0.0%	
		3	A farmer who treats farming as a way of life, as part of my culture and as important part of my identity	7.8%	2.5%	0.0%	
		4	A farmer who treats farming as a business	48.8%	47.8%	0.0%	T <> CC; CA <> CC
		5	Farming is just a side-activity for me as I have other more important sources of household income	1.2%	0.0%	0.0%	
Personal ownership of a bicycle by the wife	INDAS_148	1		19.3%	14.5%	7.3%	
Personal ownership of a bicycle by the husband	HB_INDAS_148	1		71.7%	66.7%	63.4%	
House has iron roof (reported by the wife)	HH_168	1		97.0%	98.1%	100.0%	
House is built with fire-baked bricks (reported by the wife)	HH_169	1		92.2%	91.8%	100.0%	
House has a concrete or tiled floor (reported by the wife)	HH_170	1					
N				166	159	41	

Table D: Post-experiment questions

Men	All (including non compliers) "No, it did not remind me of decision in reality"	"Yes, to some extent"	"Yes, reminded me to a high extent"	N
T	0.0%	5.6%	94.4%	160
CA	0.0%	6.4%	93.6%	157
CC	0.0%	5.4%	94.6%	37
	0.0%	5.9%	94.1%	354

Women	All (including non compliers) "No, it did not remind me of decision in reality"	"Yes, to some extent"	"Yes, reminded me to a high extent"	N
T	0.7%	5.0%	94.4%	161
CA	2.1%	5.7%	92.4%	157
CC	0.0%	5.4%	94.6%	37
	1.2%	5.4%	93.5%	355

Table E: Distribution of contributions across games by treatment status

		With communication						Without communication								
		VCM1			VCM2			Sharing game			VCM2			Sharing game		
Treatment status		Couple	Husband	Wife	Couple	Husband	Wife	Couple	Husband	Wife	Couple	Husband	Wife	Couple	Husband	Wife
Treatment	N	155	155	155	102	102	102	102	102	102	53	53	53	53	53	53
	Median	0.65	0.70	0.70	0.70	0.70	0.70	0.65	0.70	0.70	0.70	0.70	0.70	0.65	0.70	0.70
	Mean	0.67	0.67	0.67	0.70	0.68	0.71	0.66	0.67	0.66	0.68	0.68	0.67	0.67	0.67	0.67
	Mode	0.65	0.70	0.70	0.70	0.70	0.80	0.70	0.80	0.80	0.70	0.70	0.70	0.75	0.70	0.70
	St.Dev.	0.09	0.12	0.12	0.12	0.13	0.14	0.13	0.15	0.16	0.07	0.10	0.11	0.11	0.12	0.17
Control A	N	149	149	149	101	101	101	101	101	101	48	48	48	48	48	48
	Median	0.65	0.70	0.70	0.70	0.70	0.70	0.65	0.70	0.70	0.70	0.70	0.70	0.68	0.70	0.70
	Mean	0.66	0.65	0.68	0.68	0.66	0.69	0.67	0.66	0.67	0.68	0.66	0.69	0.66	0.65	0.66
	Mode	0.60	0.70	0.70	0.70	0.70	0.70	0.65	0.70	0.70	0.70	0.60 / 0.70	0.70	0.75	0.70	0.70
	St.Dev.	0.10	0.14	0.12	0.13	0.16	0.15	0.12	0.14	0.15	0.09	0.13	0.12	0.13	0.15	0.16
Control C	N	37	37	38	31	31	32	31	31	32	6	6	6	6	6	6
	Median	0.70	0.70	0.70	0.75	0.70	0.80	0.70	0.70	0.70	0.68	0.65	0.70	0.70	0.65	0.80
	Mean	0.70	0.68	0.72	0.75	0.73	0.76	0.71	0.67	0.74	0.68	0.67	0.70	0.70	0.63	0.77
	Mode	0.65	0.70	0.70	0.70 / 0.75	0.70	0.80	0.75	0.70	0.80	0.65 / 0.70	0.60	0.60/0.70/ 0.80	0.75	0.70	0.80
	St.Dev.	0.07	0.11	0.09	0.06	0.09	0.09	0.06	0.08	0.08	0.07	0.08	0.09	0.05	0.08	0.05
All	N	341	341	342	234	234	235	234	234	235	107	107	107	107	107	107
	Median	0.65	0.70	0.70	0.70	0.70	0.70	0.65	0.70	0.70	0.70	0.70	0.70	0.65	0.70	0.70
	Mean	0.67	0.66	0.68	0.69	0.68	0.71	0.67	0.66	0.68	0.68	0.67	0.68	0.66	0.66	0.67
	Mode	0.65	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.80	0.70	0.70	0.70	0.75	0.70	0.70
	St.Dev.	0.09	0.13	0.12	0.12	0.14	0.14	0.12	0.14	0.15	0.08	0.12	0.11	0.12	0.13	0.16

Table F: Proportions of participants opting for full efficiency across games

Men - VCM1 - % Full efficiency		N
T	1.9%	161
CA	1.9%	158
CC	0.0%	37
All	1.7%	356

Men - VCM2 without communication NC - % Full efficiency		N
T	0.0%	56
CA	0.0%	50
CC	0.0%	6
All	0.0%	112

Men - VCM2 with communication - % Full efficiency		N
T	1.0%	105
CA	1.9%	108
CC	0.0%	31
All	1.2%	244

Men – Sharing game after VCM2 without communication - % Full efficiency		N
T	0.0%	56
CA	0.0%	50
CC	0.0%	6
All	0.0%	112

Men - Sharing game after VCM2 with communication - % Full efficiency		N
T	1.0%	105
CA	1.9%	108
CC	0.0%	31
All	1.2%	244

Women - VCM1 - % Full efficiency		N
T	0.6%	161
CA	1.3%	158
CC	0.0%	37
All	0.8%	356

Women - VCM2 without communication - % Full efficiency		N
T	0.0%	56
CA	0.0%	50
CC	0.0%	6
All	0.0%	112

Women - VCM2 with communication - % Full efficiency		N
T	3.8%	105
CA	1.9%	108
CC	0.0%	31
All	2.5%	244

Women - Sharing game after VCM2 without communication - % Full efficiency		N
T	3.6%	56
CA	0.0%	50
CC	0.0%	6
All	1.8%	112

Women - Sharing game after VCM2 with communication - % Full efficiency		N
T	1.9%	105
CA	0.9%	108
CC	0.0%	31
All	1.2%	244

Table G: Descriptive statistics of the difference between spouses' contributions and expectations

Difference between husbands' contributions and wives' expectations

		VCM1	VCM2 with communication	Sharing with communication	VCM2 without communication	Sharing without communication
		CBHB_EXPW_VCM1	CBHB_EXPW_VCM2	CBHB_EXPW_SH	CBHB_EXPW_VCM2	CBHB_EXPW_SH
Treatment	Mean	0.48	0.38	0.91	0.66	0.57
	N	155	102	102	53	53
	Std. Deviation	2.13	1.55	2.07	2.07	2.01
Control A	Mean	0.41	0.39	0.52	0.79	0.44
	N	149	101	101	48	48
	Std. Deviation	2.21	2.31	2.23	2.14	2.24
Control C	Mean	0.51	0.74	0.13	0.17	-0.33
	N	37	31	31	6	6
	Std. Deviation	1.94	1.71	2.03	1.17	1.03
All	Mean	0.45	0.43	0.64	0.69	0.46
	N	341	234	234	107	107
	Std. Deviation	2.14	1.93	2.14	2.05	2.08

Difference between wives' contributions and husbands' expectations

		VCM1	VCM2 with communication	Sharing with communication	VCM2 without communication	Sharing without communication
		CBW_EXPHB_VCM1	CBW_EXPHB_VCM2	CBW_EXPHB_SH	CBW_EXPHB_VCM2	CBW_EXPHB_SH
Treatment	Mean	0.90	0.95	0.44	0.79	0.83
	N	155	102	102	53	53
	Std. Deviation	2.08	1.93	1.81	1.83	2.05
Control A	Mean	0.99	0.60	0.69	0.98	0.58
	N	149	101	101	48	48
	Std. Deviation	2.02	1.81	1.82	1.88	2.21
Control C	Mean	1.24	0.72	1.03	0.33	2.17
	N	38	32	32	6	6
	Std. Deviation	1.94	1.53	1.79	1.21	2.23
All	Mean	0.97	0.77	0.63	0.85	0.79
	N	342	235	235	107	107
	Std. Deviation	2.03	1.83	1.81	1.82	2.14

Table H: Treatment effects on the likelihood of equilibrium behaviour CA vs CC in the 1st VCM, 2nd VCM and sharing game with coefficients of covariates reported

	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	CntHB=ExpW_VCM1	CntHB=ExpW_VCM1	CntW=ExpHB_VCM1	CntW=ExpHB_VCM1	CntHB=ExpW_VCM2	CntHB=ExpW_VCM2	CntW=ExpHB_VCM2	CntW=ExpHB_VCM2	CntHB=ExpW_SH	CntHB=ExpW_SH	CntW=ExpHB_SH	CntW=ExpHB_SH
Treatment	0.066	0.059	0.117**	0.148***	-0.145**	-0.095	-0.024	-0.061	-0.274***	-0.290***	0.273***	0.285***
	(0.056)	(0.055)	(0.051)	(0.050)	(0.060)	(0.074)	(0.060)	(0.077)	(0.083)	(0.092)	(0.072)	(0.074)
	0.243	0.286	0.025	0.004	0.018	0.205	0.687	0.429	0.002	0.003	0.000	0.000
Treatment*Communication					0.294***	0.279***	0.095	0.077	0.270**	0.277**	-0.257**	-0.315***
					(0.099)	(0.105)	(0.141)	(0.143)	(0.105)	(0.111)	(0.110)	(0.108)
					0.004	0.010	0.504	0.591	0.012	0.016	0.023	0.005
Communication					-0.067	-0.053	0.168	0.189*	-0.257***	-0.268***	0.186**	0.260***
					(0.070)	(0.069)	(0.118)	(0.113)	(0.043)	(0.058)	(0.076)	(0.075)
					0.341	0.449	0.160	0.098	0.000	0.000	0.018	0.001
Constant	0.162***	0.169***	0.132***	0.215***	0.073	-0.052	0.461*	0.504*	0.779***	0.856***	-0.002	0.008
	(0.042)	(0.060)	(0.035)	(0.063)	(0.251)	(0.252)	(0.249)	(0.268)	(0.276)	(0.281)	(0.263)	(0.268)
	0.000	0.007	0.000	0.001	0.773	0.837	0.069	0.065	0.006	0.003	0.994	0.977
Fraction contr by couple in VCM1					0.364	0.458	-0.411	-0.530	-0.827*	-0.857*	-0.367	-0.509
					(0.350)	(0.361)	(0.348)	(0.365)	(0.447)	(0.476)	(0.484)	(0.502)
					0.303	0.209	0.243	0.151	0.069	0.077	0.451	0.315
Fraction contr by couple in VCM2									0.459	0.447	0.388	0.407
									(0.345)	(0.371)	(0.400)	(0.414)
									0.189	0.234	0.337	0.330
Wife secondary edu		0.085		0.046		-0.030		0.032		0.019		-0.020
		(0.078)		(0.080)		(0.088)		(0.088)		(0.076)		(0.059)
		0.284		0.571		0.736		0.722		0.802		0.737
Husband secondary edu		0.041		-0.009		0.047		0.052		-0.029		-0.124*
		(0.073)		(0.073)		(0.075)		(0.079)		(0.062)		(0.069)
		0.572		0.899		0.536		0.514		0.638		0.079
Wife off-farm		-0.065		0.132		-0.092		0.047		0.013		-0.021
		(0.076)		(0.088)		(0.082)		(0.083)		(0.092)		(0.088)
		0.391		0.140		0.268		0.575		0.891		0.813
Husband off-farm		0.052		-0.076		-0.054		0.079		0.003		0.119*
		(0.054)		(0.059)		(0.070)		(0.069)		(0.077)		(0.071)
		0.338		0.207		0.443		0.255		0.969		0.098
Age difference		-0.003		-0.010***		-0.002		0.002		0.002		0.005
		(0.003)		(0.004)		(0.006)		(0.005)		(0.006)		(0.005)

		0.338		0.006		0.697		0.705		0.735		0.308
Acreage		-0.005		-0.006		0.015*		-0.006		-0.010		0.001
		(0.007)		(0.006)		(0.009)		(0.008)		(0.007)		(0.008)
		0.458		0.328		0.087		0.468		0.142		0.859
N	186	186	187	185	186	186	187	185	186	186	187	185
R^2	0.004	0.027	0.013	0.088	0.051	0.083	0.063	0.083	0.027	0.038	0.023	0.061
Residual DF	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
Root MSE	0.41	0.41	0.42	0.40	0.46	0.46	0.46	0.47	0.45	0.46	0.42	0.42
Adj. R^2	-0.00	-0.01	0.01	0.05	0.03	0.03	0.04	0.03	-0.00	-0.02	-0.00	0.00

Table I: Treatment effects on the extent to which spouses' contributions and expectations match for CA vs CC in the 1st VCM, 2nd VCM and sharing game with coefficients of covariates reported

	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	|CntHB-ExpW_VCM1|	|CntHB-ExpW_VCM1|	|CntW-ExpHB_VCM1|	|CntW-ExpHB_VCM1|	|CntHB-ExpW_VCM2|	|CntHB-ExpW_VCM2|	|CntW-ExpHB_VCM2|	|CntW-ExpHB_VCM2|	|CntHB-ExpW_SH|	|CntHB-ExpW_SH|	|CntW-ExpHB_SH|	|CntW-ExpHB_SH|
Treatment	0.036	0.050	-0.238	-0.383	0.935***	1.085***	0.741***	0.938***	1.085***	1.089***	-0.829***	-0.892***
	(0.192)	(0.192)	(0.242)	(0.248)	(0.270)	(0.327)	(0.150)	(0.186)	(0.251)	(0.267)	(0.221)	(0.223)
	0.851	0.795	0.331	0.128	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000
Treatment*Communication					-0.792**	-0.867**	-0.753**	-0.859**	-0.921**	-0.978**	0.690**	0.825**
					(0.341)	(0.363)	(0.320)	(0.339)	(0.366)	(0.371)	(0.319)	(0.321)
					0.024	0.020	0.022	0.014	0.015	0.011	0.035	0.013
Communication					0.511***	0.511**	0.161	0.258	0.890***	0.979***	-0.897***	-1.063***
					(0.188)	(0.200)	(0.244)	(0.277)	(0.244)	(0.297)	(0.205)	(0.199)
					0.009	0.013	0.512	0.356	0.001	0.002	0.000	0.000
Constant	1.595***	1.391***	1.868***	1.465***	0.107	-0.117	0.859	0.580	-0.940	-1.157	2.426***	2.701***
	(0.129)	(0.238)	(0.196)	(0.308)	(1.083)	(1.167)	(0.653)	(0.696)	(1.116)	(1.078)	(0.874)	(0.914)
	0.000	0.000	0.000	0.000	0.921	0.921	0.193	0.408	0.403	0.287	0.007	0.004
Fraction contr by couple in VCM1					1.013	1.218	0.196	0.378	2.518	2.213	0.896	1.134
					(1.511)	(1.586)	(0.912)	(0.909)	(2.039)	(2.181)	(1.356)	(1.392)
					0.505	0.446	0.830	0.679	0.222	0.314	0.511	0.418
Fraction contr by couple in VCM2									-0.290	0.335	-0.831	-1.135
									(1.287)	(1.453)	(1.239)	(1.221)
									0.822	0.818	0.505	0.356
Wife secondary edu		-0.186		0.246		-0.428		-0.181		-0.393		0.281
		(0.260)		(0.290)		(0.297)		(0.212)		(0.276)		(0.222)
		0.478		0.401		0.155		0.396		0.161		0.211
Husband secondary edu		-0.001		-0.008		0.571*		-0.058		-0.118		-0.056
		(0.263)		(0.246)		(0.294)		(0.253)		(0.254)		(0.255)
		0.998		0.973		0.057		0.819		0.644		0.827
Wife off-farm		0.193		-0.073		0.078		-0.270		0.439		-0.110
		(0.228)		(0.299)		(0.317)		(0.231)		(0.355)		(0.285)
		0.400		0.807		0.806		0.247		0.222		0.702
Husband off-farm		-0.096		0.199		-0.169		-0.176		0.139		-0.245
		(0.204)		(0.192)		(0.236)		(0.214)		(0.278)		(0.256)
		0.640		0.305		0.477		0.416		0.619		0.342
Age difference		0.015		0.033**		0.014		0.009		-0.010		0.004
		(0.015)		(0.013)		(0.019)		(0.020)		(0.016)		(0.013)

		0.305		0.014		0.460		0.640		0.546		0.743
Acreage		0.025		0.020		-0.031		0.026		0.014		-0.024
		(0.029)		(0.022)		(0.033)		(0.028)		(0.023)		(0.020)
		0.395		0.378		0.364		0.364		0.525		0.238
N	186	186	187	185	186	186	187	185	186	186	187	185
R2	0.000	0.015	0.004	0.046	0.015	0.054	0.035	0.061	0.030	0.057	0.022	0.042
Residual DF	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
Root MSE	1.48	1.50	1.50	1.49	1.66	1.65	1.39	1.40	1.56	1.57	1.42	1.44
Adj. R2	-0.01	-0.02	-0.00	0.01	-0.01	-0.00	0.01	0.01	0.00	-0.00	-0.00	-0.02

Table J: Treatment effects on the likelihood of opting for the most cooperative strategy for CA vs CC in the 1st VCM, 2nd VCM and sharing game with coefficients of covariates reported

	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	|CntHB-ExpW_VCM1|	|CntHB-ExpW_VCM1|	|CntW-ExpHB_VCM1|	|CntW-ExpHB_VCM1|	|CntHB-ExpW_VCM2|	|CntHB-ExpW_VCM2|	|CntW-ExpHB_VCM2|	|CntW-ExpHB_VCM2|	|CntHB-ExpW_SH|	|CntHB-ExpW_SH|	|CntW-ExpHB_SH|	|CntW-ExpHB_SH|
Treatment	0.036	0.050	-0.238	-0.383	0.935***	1.085***	0.741***	0.938***	1.085***	1.089***	-0.829***	-0.892***
	(0.192)	(0.192)	(0.242)	(0.248)	(0.270)	(0.327)	(0.150)	(0.186)	(0.251)	(0.267)	(0.221)	(0.223)
	0.851	0.795	0.331	0.128	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000
Treatment*Communication					-0.792**	-0.867**	-0.753**	-0.859**	-0.921**	-0.978**	0.690**	0.825**
					(0.341)	(0.363)	(0.320)	(0.339)	(0.366)	(0.371)	(0.319)	(0.321)
					0.024	0.020	0.022	0.014	0.015	0.011	0.035	0.013
Communication					0.511***	0.511**	0.161	0.258	0.890***	0.979***	-0.897***	-1.063***
					(0.188)	(0.200)	(0.244)	(0.277)	(0.244)	(0.297)	(0.205)	(0.199)
					0.009	0.013	0.512	0.356	0.001	0.002	0.000	0.000
Constant	1.595***	1.391***	1.868***	1.465***	0.107	-0.117	0.859	0.580	-0.940	-1.157	2.426***	2.701***
	(0.129)	(0.238)	(0.196)	(0.308)	(1.083)	(1.167)	(0.653)	(0.696)	(1.116)	(1.078)	(0.874)	(0.914)
	0.000	0.000	0.000	0.000	0.921	0.921	0.193	0.408	0.403	0.287	0.007	0.004
Fraction contr by couple in VCM1					1.013	1.218	0.196	0.378	2.518	2.213	0.896	1.134
					(1.511)	(1.586)	(0.912)	(0.909)	(2.039)	(2.181)	(1.356)	(1.392)
					0.505	0.446	0.830	0.679	0.222	0.314	0.511	0.418
Fraction contr by couple in VCM2									-0.290	0.335	-0.831	-1.135
									(1.287)	(1.453)	(1.239)	(1.221)
									0.822	0.818	0.505	0.356
Wife secondary edu		-0.186		0.246		-0.428		-0.181		-0.393		0.281
		(0.260)		(0.290)		(0.297)		(0.212)		(0.276)		(0.222)
		0.478		0.401		0.155		0.396		0.161		0.211
Husband secondary edu		-0.001		-0.008		0.571*		-0.058		-0.118		-0.056
		(0.263)		(0.246)		(0.294)		(0.253)		(0.254)		(0.255)
		0.998		0.973		0.057		0.819		0.644		0.827
Wife off-farm		0.193		-0.073		0.078		-0.270		0.439		-0.110
		(0.228)		(0.299)		(0.317)		(0.231)		(0.355)		(0.285)
		0.400		0.807		0.806		0.247		0.222		0.702
Husband off-farm		-0.096		0.199		-0.169		-0.176		0.139		-0.245
		(0.204)		(0.192)		(0.236)		(0.214)		(0.278)		(0.256)
		0.640		0.305		0.477		0.416		0.619		0.342
Age difference		0.015		0.033**		0.014		0.009		-0.010		0.004
		(0.015)		(0.013)		(0.019)		(0.020)		(0.016)		(0.013)

		0.305		0.014		0.460		0.640		0.546		0.743
Acreage		0.025		0.020		-0.031		0.026		0.014		-0.024
		(0.029)		(0.022)		(0.033)		(0.028)		(0.023)		(0.020)
		0.395		0.378		0.364		0.364		0.525		0.238
N	186	186	187	185	186	186	187	185	186	186	187	185
R2	0.000	0.015	0.004	0.046	0.015	0.054	0.035	0.061	0.030	0.057	0.022	0.042
Residual DF	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
Root MSE	1.48	1.50	1.50	1.49	1.66	1.65	1.39	1.40	1.56	1.57	1.42	1.44
Adj. R2	-0.01	-0.02	-0.00	0.01	-0.01	-0.00	0.01	0.01	0.00	-0.00	-0.00	-0.02

Table K: Treatment effects on the likelihood of opting for the most cooperative strategy for CA vs CC in the 1st VCM, 2nd VCM and sharing game with coefficients of covariates reported

	CA_CC	CA_CC°	CA_CC	CA_CC°
	(1)	(2)	(3)	(4)
VARIABLES	HB_VCM2>VCM1	HB_VCM2>VCM1	W_VCM2>VCM1	W_VCM2>VCM1
Treatment	0.252***	0.285***	0.232***	0.181***
	(0.070)	(0.076)	(0.046)	(0.054)
	0.001	0.000	0.000	0.001
Treatment*Communication	-0.437***	-0.438**	-0.312***	-0.280***
	(0.158)	(0.167)	(0.082)	(0.091)
	0.008	0.011	0.000	0.003
Communication	0.430***	0.423***	0.423***	0.376***
	(0.132)	(0.144)	(0.054)	(0.065)
	0.002	0.005	0.000	0.000
Constant	0.725***	0.702***	0.466*	0.600**
	(0.261)	(0.253)	(0.244)	(0.265)
	0.007	0.007	0.060	0.027
Fraction contr by couple in VCM1	-1.011***	-0.951**	-0.650*	-0.782**
	(0.365)	(0.381)	(0.340)	(0.349)
	0.007	0.015	0.060	0.029
Wife secondary edu		0.008		0.185**
		(0.078)		(0.071)
		0.915		0.012
Husband secondary edu		0.047		0.068
		(0.078)		(0.080)
		0.546		0.401
Wife off-farm		-0.135*		-0.112
		(0.079)		(0.093)
		0.093		0.235
Husband off-farm		-0.027		-0.030
		(0.074)		(0.080)
		0.721		0.708
Age difference		-0.004		0.005
		(0.005)		(0.005)
		0.462		0.334
Acreage		0.003		-0.017*
		(0.009)		(0.009)
		0.746		0.066

N	186	186	187	185
R2	0.069	0.088	0.047	0.116
Residual DF	59.00	59.00	59.00	59.00
Root MSE	0.46	0.46	0.47	0.46
Adj. R2	0.05	0.04	0.03	0.06

Table L: Average treatment effects for CA vs CC on contributions in the 1st VCM, 2nd VCM and sharing game with coefficients of covariates reported

	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°	CA_CC	CA_CC°
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	VCM1_CNTR_HB	VCM1_CNTR_HB	VCM1_CNTR_W	VCM1_CNTR_W	VCM2_CNTR_HB	VCM2_CNTR_HB	VCM2_CNTR_W	VCM2_CNTR_W	SHARE_CNTR_HB	SHARE_CNTR_HB	SHARE_CNTR_W	SHARE_CNTR_W
Treatment	-0.307*	-0.278	-0.400**	-0.570***	0.364**	0.463**	0.284*	0.227	0.251	0.253	-0.925***	-1.296***
	(0.164)	(0.176)	(0.170)	(0.185)	(0.175)	(0.208)	(0.161)	(0.201)	(0.207)	(0.238)	(0.292)	(0.308)
	0.066	0.121	0.022	0.003	0.042	0.030	0.082	0.264	0.230	0.293	0.002	0.000
Treatment*Communication					-0.860**	-0.820*	-0.806***	-0.773***	0.038	0.074	0.339	0.574
					(0.366)	(0.412)	(0.230)	(0.240)	(0.285)	(0.278)	(0.403)	(0.411)
					0.022	0.051	0.001	0.002	0.894	0.790	0.403	0.168
Communication					0.763***	0.693**	0.791***	0.741***	0.070	-0.009	-0.241	-0.435*
					(0.262)	(0.324)	(0.106)	(0.118)	(0.140)	(0.145)	(0.247)	(0.242)
					0.005	0.036	0.000	0.000	0.620	0.951	0.333	0.077
Constant	6.811***	6.619***	7.158***	7.021***	2.026*	2.156*	1.811**	2.021**	2.966***	2.991***	5.099***	5.268***
	(0.128)	(0.259)	(0.120)	(0.197)	(1.068)	(1.085)	(0.726)	(0.812)	(0.992)	(1.041)	(0.717)	(0.729)
	0.000	0.000	0.000	0.000	0.063	0.052	0.015	0.016	0.004	0.006	0.000	0.000
Fraction contr by couple in VCM1					6.475***	6.665***	7.240***	6.905***	0.434	0.549	2.510	1.948
					(1.490)	(1.493)	(1.014)	(1.084)	(1.130)	(1.184)	(1.622)	(1.534)
					0.000	0.000	0.000	0.000	0.702	0.645	0.127	0.209
Fraction contr by couple in VCM2									4.472***	4.614***	1.126	1.404
									(1.211)	(1.257)	(1.433)	(1.364)
									0.000	0.001	0.435	0.308
Wife secondary edu		0.171		0.191		0.255		0.328**		-0.161		0.488**
		(0.226)		(0.188)		(0.205)		(0.163)		(0.199)		(0.236)
		0.452		0.314		0.218		0.048		0.421		0.043
Husband secondary edu		-0.069		-0.142		-0.116		0.138		0.221		0.104
		(0.196)		(0.177)		(0.229)		(0.179)		(0.210)		(0.260)
		0.725		0.427		0.615		0.444		0.297		0.692
Wife off-farm		-0.288		0.214		-0.741**		-0.392		0.162		0.557*
		(0.280)		(0.198)		(0.308)		(0.246)		(0.245)		(0.284)
		0.308		0.284		0.019		0.116		0.510		0.055
Husband off-farm		0.061		0.460**		-0.166		0.178		-0.183		0.063
		(0.173)		(0.187)		(0.175)		(0.175)		(0.205)		(0.194)
		0.727		0.017		0.346		0.314		0.376		0.748
Age difference		0.021		0.005		-0.016		0.006		-0.005		0.003
		(0.016)		(0.011)		(0.013)		(0.010)		(0.010)		(0.012)
		0.190		0.647		0.230		0.553		0.635		0.777
Acreage		-0.004		-0.006		0.005		-0.029		-0.023		-0.010

		(0.019)		(0.019)		(0.017)		(0.021)		(0.022)		(0.023)
		0.812		0.758		0.762		0.182		0.304		0.677
N	186	186	187	185	186	186	187	185	186	186	187	185
R2	0.008	0.031	0.018	0.072	0.204	0.260	0.289	0.324	0.153	0.167	0.101	0.168
Residual DF	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
Root MSE	1.33	1.34	1.19	1.18	1.29	1.26	1.14	1.13	1.24	1.25	1.39	1.36
Adj. R2	0.00	-0.01	0.01	0.04	0.19	0.22	0.27	0.29	0.13	0.11	0.08	0.12

Experiment protocol [3]

1. Introduction and consent

PAR 1: Our names are RA1 and RA2. We work as research assistant on a research project by …….. The research is about decision making about farming and coffee production. The lead researcher and contact is ……..

We are not staff of …….. But we are doing the study among coffee farmers like you who are connected to ……..

PAR 2:There may not be any direct benefits that will follow from this research. The study is more likely to influence policies or future interventions that still need to be planned. Your participation in this research is voluntary.

PAR 3:I want to assure you of discretion. Although your name and contact details were asked, in the research reports and other research output that will shared with the wider public your name will not be mentioned. ……. will not get information with your name or contact details from us. The records that include your name and contact details will be stored safely and access to that information is limited to the main researcher.

PAR 4:We will conduct an exercise and will record your decisions. We will not share or disclose any of your personal decisions to others. These decisions will just be analysed as part of the research.

PAR 5: In what follows, we will explain the exercise. The exercise will take about 40 minutes. Please feel free to ask questions about the research in general.

PAR 6: Consent question We want to ask you to raise your hand if you agree that you have been informed about this research and its implications and that you agree to participate. People who do not agree to participate will be free to leave.

2. Explanation of the exercises

2.1. What the exercises mimic:

PAR 7: Today we would like to conduct an exercise per couple as part of this research to better understand decision making about agricultural production in your household. That is why we wanted you to participate as a couple and be matched with the couple code in this exercise.

PAR 8: The exercise is meant to mimic (imitate) decisions that you make each season about your household farming enterprise. First, at the start and during every season, you and your wife or husband decide on investments in agricultural production in your household farm.

PAR 9: Investments in your household farm could be the inputs or techniques you will apply to improve your agricultural production. For instance, you can decide to buy improved seeds, apply fertiliser, apply mulch, dig trenches, produce organic manure, apply herbicides, etc. Even if such investment just needs labour, like for instance digging trenches, you know that labour is also a cost, it could be an investment. In fact, you and your wife or husband may have your own plots or crops you make decisions on, but in the end the farm production contributes to the benefit of the whole household, in the form of food or income.

PAR 10: With some luck, at the end of the season, your investments will result in higher productivity and higher income or more produce from your agricultural production at the household farm.

2.2. How you will earn money in the exercises:

[3] The differences with the lab-in-the-field experiments conducted during a pilot study for this research (documented in Lecoutere and Jassogne, 2017) are the following: Endowment is exogenous rather than endogenous; The value is different for keeping or contributing; In the experiments in the pilot study spouses had to split one amount in the 'sharing game' and coordinate; In the experiments in the pilot study there was a challenge to interpreting efficiency in the sharing game created by the fact that couples could think of saving if they did not divide the full amount available in the sharing game; In the experiments in the pilot study the sharing game was always preceded by a VCM game without communication.

PAR 11: How will you earn money in the exercises?: We will play a few exercises and in each exercise you as an individual will earn a payoff (=an amount of money). That amount of money depends on the decisions you make in the exercise.

PAR 12: When we finish all the exercises, we will randomly pick one of the exercises that you played and also actually give you the money you earned as a payoff.

2.3. The importance of silence and not communicating during the exercises

PAR 13: In this exercise it is extremely important that you do not talk or make signs or give hints to other people, not even to your wife or husband who is in the same exercise. This is not because we want to keep things secret, but it just for the sake of the exercise. If you would communicate it would influence the results from the exercise. We will monitor very closely that you do not talk or give signs. If we see it happen, you might be excluded from the exercise. Please, also avoid discussing this exercise afterwards with other people in your community as this could influence the results of our exercise when these other people are invited to participate.

3. Exercise: VCM 1

3.1. Example

PAR 14: Each one of you - every wife and husband in every couple - will now each receive a box with an amount of tokens. Every box contains a given number of tokens and everyone can have a different number of tokens in the box. SHOW A BOX Each token is worth 500 UGX. SHOW A TOKEN

PAR 15: This amount of tokens in your box represents your private money that you have available. We will ask you to privately decide on what proportion of that money you will invest in your common household farm and what proportion of that money you will keep.

PAR 16: The proportion of the money that you want to invest in the household farm you will leave in the box without anyone, not even your partner, seeing how much. It means that you will leave the proportion of the tokens you want to contribute to your household farm in the box. Each token that you contribute to the common farm by leaving it in the box increases in value to 750 UGX/token. SHOW A TOKEN This represents returns to investment.

PAR 17: The benefits you and your wife or husband generated together by investing in the common farm is the sum of the tokens that both of you put in the box multiplied by 750 UGX. That amount will be split in half between you and wife or husband as a payoff. It means you will get half as part of your individual payoff and your wife or husband will get half as part of her/his individual payoff.

PAR 18: The proportion of the money you decide to keep for yourself, you will put in the purse that represents your personal money purse. SHOW THE PURSE Remember not to show anyone how much you keep in the purse. Every token that you keep by putting it in your personal money purse, keeps a value of 500 UGX/token. SHOW A TOKEN The tokens you put in your personal purse are also part of your individual payoff.

We will now demonstrate:

DEMONSTRATION: RA1 and RA2 each receive a box and a purse. RA1 and RA2 both discretely look in the box and count their tokens. They discretely leave a certain amount of tokens in the box and put some tokens in their purse. They close the box and the close the purse.

PAR 19: After you put the tokens you want to contribute to the common farm in the box and you put the tokens you want to keep in your personal purse, we will collect the boxes and the purses.

DEMONSTRATION: collect the boxes of RA1 and RA2. Put the tokens of the husband box and the wife box on one pile on the table. “We will add up the tokens invested per couple.“

Put money on the pile, saying you multiply the number of tokens by 750 UGX. “We multiply the number of tokens by 750 UGX. This represent the benefits you – as a couple – generated in your household farm by investing in it.”

Split the pile and the money in half and shift it aside. Show that one side of tokens and money is payoff for the husband; ”half of benefits will be part of the payoff of the husband” The other side of tokens and money is payoff for the wife: “and half of benefits will be part of the payoff of the wife”

DEMONSTRATION: collect the purses of RA1 and RA2. Put the content of the husband’s purse next to the pile of tokens and money of the husband . “We add the tokens the husband decided to keep for himself to his pile of tokens”

Put the content of the wife’s purse next to the pile of tokens and money of the wife. “We add the tokens the wife decided to keep for herself to her pile of tokens”

Put money on the husband’s tokens from the purse saying you multiplied the number of tokens by 500 UGX. “We multiply the tokens the husband decided to keep for himself by 500 UGX.”

Put money on the wife’s tokens from the purse saying you multiplied the number of tokens by 500 UGX. “We multiply the tokens the wife decided to keep for herself by 500 UGX.”

DEMONSTRATION: Show the husband’s total pile of tokens (half from the box and those from the purse) the total amount of money of the payoff of the husband. Explain this is the total payoff that the husband earned in this exercise. “this is the total payoff that the husband earned in this exercise.”

Show the wife’s total pile of tokens (half from the box and those from the purse) the total amount of money which is the payoff of the wife. Explain this is the total payoff that the wife earned in this exercise. “this is the total payoff that the wife earned in this exercise.”

PAR 20: We have now showed you the payoff but in reality we will not show the payoffs earned by husband or wives but we will just calculate.

PAR 21: Remember this could be the exercise of which you will receive the payoff in real money. This is decided by chance.

3.2. Control questions

ASK CONTROL QUESTIONS:

PAR 22: Question 1: “If you want to invest in your common household farm where will you put the tokens?”

PAR 23: Question 2: “If you have invested tokens in the household farm by putting them in the box, how much is one token worth?”

PAR 24: Question 3: “If you want to keep money for yourself where will you put the tokens?”

PAR 25: Question 4: “If you have kept money for yourself by putting it in your personal purse, how much is one token worth?”

3.3. Participants make decisions

HAND OUT personal purse to each individual- MATCH COUPLE CODES HB/W ON PURSE WITH COUPLE CODE HB/W OF PERSON

HAND OUT box to each individual – MATCH COUPLE CODES HB/W ON BOX WITH COUPLE CODE HB/W OF PERSON

PAR 26: Remember to keep silent. Do not talk to each other.

PAR 27: INSTRUCTION: “Without showing anyone! Open your box and make your decision about your tokens. And when you are done, close your boxes and we will collect the boxes and purses.”

PAR 28: (while people are making decisions, in the background you can repeat the explanation) Decide how many of your tokens to invest in your household farm, in the common pot, and how many to keep. The tokens you keep you will put in your personal purse and these tokens are worth 500 UGX/token. The tokens you invest in the household farm remain in the box and get the value 750 UGX/token.

PAR 29: (while people are making decisions, in the background you can repeat the explanation) Remember your payoff is the sum of the tokens you keep (at 500 UGX/token) and half of the benefits you and your husband/wife generated through contributing tokens to the common pot (at 750 UGX/token).

COLLECT THE BOXES AND THE PURSES

PAR 30: The computer will calculate the total payoff of each individual; which could be the payoff that will actually be paid out at the end of the exercises.

3.4. Expectations

PAR 31: Meanwhile, we want you to answer a question on this card. It is a about what you think, there is no right or wrong answer.

PAR 32: Remember to keep silent. Do not talk to each other.

HAND OUT EXPECTATION CARD- MATCH COUPLE CODES HB/W ON CARD WITH COUPLE CODE HB/W OF PERSON

PAR 33: INSTRUCTION: “Suppose your wife/husband would have received 10 tokens, how many tokens do you think s/he will have put into the common farm (in the box)? ..... tokens”

PAR 34: INSTRUCTION: Write the amount of tokens that you think your wife/husband put in the common farm on the card, fold the card and give the card to the RA.

PAR 35: You can ask for assistance from the RA if you have problems with your eyesight or with writing. (Look carefully if people have problems and assist them)

PAR 36: We will now collect the cards.

COLLECT EXPECTATION CARDS

3.5. Feedback

PAR 37: We will now distribute a card to each wife and each husband of each couple on which we indicated the benefits - how much money - they generated in the common household farm as a couple. It is the total of the boxes of both the wife and the husband.

HAND OUT FEEDBACK CARD- MATCH COUPLE CODES HB/W ON CARD WITH COUPLE CODE HB/W OF PERSON

COLLECT FEEDBACK CARD

4. IF NC: VCM 2A without communication

Repeat VCM 1

PAR 38: We will now repeat the previous exercise.

4.1. Participants make decisions

HAND OUT personal purse to each individual- MATCH COUPLE CODES HB/W ON PURSE WITH COUPLE CODE HB/W OF PERSON

HAND OUT box to each individual – MATCH COUPLE CODES HB/W ON BOX WITH COUPLE CODE HB/W OF PERSON

PAR 39: Remember to keep silent. Do not talk to each other.

PAR 40: INSTRUCTION: "Without showing anyone! Open your box and make your decision about your tokens. And when you are done, close your boxes and we will collect the boxes and purses."

PAR 41: (while people are making decisions, in the background you can repeat the explanation) Decide how many of your tokens to invest in your household farm, in the common pot, and how many to keep. The tokens you keep you will put in your personal purse and these tokens are worth 500 UGX/token. The tokens you invest in the household farm remain in the box and get the value 750 UGX/token.

PAR 42: (while people are making decisions, in the background you can repeat the explanation) Remember your payoff is the sum of the tokens you keep (at 500 UGX/token) and half of the benefits you and your husband/wife generated through contributing tokens to the common pot (at 750 UGX/token).

COLLECT THE BOXES AND THE PURSES

PAR 43: The computer will calculate the total payoff of each individual; which could be the payoff that will actually be paid out at the end of the exercises.

4.2. Expectations

PAR 44: Meanwhile, we want you to answer a question on this card. It is a about what you think, there is no right or wrong answer.

PAR 45: Remember to keep silent. Do not talk to each other.

HAND OUT EXPECTATION CARD- MATCH COUPLE CODES HB/W ON CARD WITH COUPLE CODE HB/W OF PERSON

PAR 46: INSTRUCTION: "Suppose your wife/husband would have received 10 tokens, how many tokens do you think s/he will have put into the common farm (in the box)? ..... tokens"

PAR 47: INSTRUCTION: Write the amount of tokens that you think your wife/husband put in the common farm on the card, fold the card and give the card to the RA.

PAR 48: You can ask for assistance from the RA if you have problems with your eyesight or with writing. (Look carefully if people have problems and assist them)

PAR 49: We will now collect the cards.

COLLECT EXPECTATION CARDS

4.3. Feedback

PAR 50: We will now distribute a card to each wife and each husband of each couple on which we indicated the benefits - how much money - they generated in the common household farm as a couple. It is the total of the boxes of both the wife and the husband.

HAND OUT FEEDBACK CARD- MATCH COUPLE CODES HB/W ON CARD WITH COUPLE CODE HB/W OF PERSON

COLLECT FEEDBACK CARD

5. IF YC: VCM 2B with communication

PAR 51: Before we repeat the previous exercise, we allow you and your wife/husband to talk to each other for 3 minutes. In those 3 minutes, you and your husband/wife can discuss and plan your investments in the common farm; you can discuss and plan the tokens you will both leave in the box.

PAR 52: You are NOT allowed to talk to other people.

GIVE COUPLES 3 MINUTES TO TALK (closely monitor that they only talk to their wife or husband)

PAR 53: We will now repeat the previous exercise.

5.1. Participants make decisions

HAND OUT personal purse to each individual- MATCH COUPLE CODES HB/W ON PURSE WITH COUPLE CODE HB/W OF PERSON

HAND OUT box to each individual – MATCH COUPLE CODES HB/W ON BOX WITH COUPLE CODE HB/W OF PERSON

PAR 54: Remember to keep silent. Do not talk to each other.

PAR 55: INSTRUCTION: “Without showing anyone! Open your box and make your decision about your tokens. And when you are done, close your boxes and we will collect the boxes and purses.”

PAR 56: (while people are making decisions, in the background you can repeat the explanation) Decide how many of your tokens to invest in your household farm, in the common pot, and how many to keep. The tokens you keep you will put in your personal purse and these tokens are worth 500 UGX/token. The tokens you invest in the household farm remain in the box and get the value 750 UGX/token.

PAR 57: (while people are making decisions, in the background you can repeat the explanation) Remember your payoff is the sum of the tokens you keep (at 500 UGX/token) and half of the benefits you and your husband/wife generated through contributing tokens to the common pot (at 750 UGX/token).

COLLECT THE BOXES AND THE PURSES

PAR 58: The computer will calculate the total payoff of each individual; which could be the payoff that will actually be paid out at the end of the exercises.

5.2. Expectations

PAR 59: Meanwhile, we want you to answer a question on this card. It is a about what you think, there is no right or wrong answer.

PAR 60: Remember to keep silent. Do not talk to each other.

HAND OUT EXPECTATION CARD- MATCH COUPLE CODES HB/W ON CARD WITH COUPLE CODE HB/W OF PERSON

PAR 61: INSTRUCTION: “Suppose your wife/husband would have received 10 tokens, how many tokens do you think s/he will have put into the common farm (in the box)? ..... tokens”

PAR 62: INSTRUCTION: Write the amount of tokens that you think your wife/husband put in the common farm on the card, fold the card and give the card to the RA.

PAR 63: You can ask for assistance from the RA if you have problems with your eyesight or with writing. (Look carefully if people have problems and assist them)

PAR 64: We will now collect the cards.

COLLECT EXPECTATION CARDS

5.3. Feedback

PAR 65: We will now distribute a card to each wife and each husband of each couple on which we indicated the benefits - how much money - they generated in the common household farm as a couple. It is the total of the boxes of both the wife and the husband.

HAND OUT FEEDBACK CARD- MATCH COUPLE CODES HB/W ON CARD WITH COUPLE CODE HB/W OF PERSON

COLLECT FEEDBACK CARD

6. Sharing game

6.1. Explanation

PAR 66: In this new exercise, each person will again receive a box with tokens. Every box contains a given number of tokens and everyone can have a different number of tokens in the box.

PAR 67: In this exercise, you will decide how many of your tokens you will offer to your wife or husband. Each husband will decide how many of his tokens he will offer to his wife. He will leave those tokens in the box. SHOW THE BOX The tokens he offers to his wife get a value of 750 UGX/token. SHOW THE TOKEN Similarly, each wife will decide how many of her tokens she will offer to her husband. She will leave those tokens in the box. The tokens she offers to her husband get a value of 750 UGX/token.

DEMONSTRATION: show the box when you mention offering to the spouse;

PAR 68: The tokens the husband keeps for himself he will put in his personal money purse. SHOW THE PURSE These tokens remain at a value of 500 UGX/token. SHOW THE TOKEN Similarly, the tokens the wife keeps for herself she will put in her personal money purse. These tokens also remain at a value of 500 UGX/token.

DEMONSTRATION: show the purse when you mention keeping for yourself

PAR 69: The payoff of the husband is the sum of the tokens he receives from his wife at a value of 750 UGX/token plus the tokens he kept to himself at a value of 500 UGX/token.

PAR 70: Similarly, the payoff of the wife is the sum of the tokens she receives from her husband at a value of 750 UGX/token plus the tokens she kept to herself at a value of 500 UGX/token.

6.2. Participants make decisions

HAND OUT personal purse to each individual - match couple codes HB/W on purse with couple code HB/W of person

HAND OUT box to each individual – match couple codes HB/W on box with couple code HB/W of person

PAR 71: Remember to keep silent. Do not talk to each other.

PAR 72: INSTRUCTION: “Without showing anyone! Open your box and decide how many of your tokens you will offer to your husband or wife and how many tokens you will keep yourself. And when you are done, close your boxes and we will collect the boxes and purses.”

PAR 73: (while people are making decisions, in the background you can repeat the explanation) The tokens you want to offer to your wife or husband you will leave in the box and these tokens get the value 750 UGX/token. The tokens you want to keep yourself, you will put in your personal money purse and these tokens are worth 500 UGX/token.

PAR 74: (while people are making decisions, in the background you can repeat the explanation) Remember your individual payoff is the sum of the tokens you keep, at 500 UGX/token, and the tokens you received from your wife or husband at 750 UGX/token.

COLLECT THE BOXES AND THE PURSES

PAR 75: We will now calculate the payoff of each individual in this exercise; which could be the payoff that will actually be paid out at the end of the exercises.

6.3. Expectations

PAR 76: Meanwhile, we want you to answer a question on this card. It is a about what you think, there is no right or wrong answer.

PAR 77: Remember to keep silent. Do not talk to each other.

HAND OUT EXPECTATION CARD- MATCH COUPLE CODES HB/W ON CARD WITH COUPLE CODE HB/W OF PERSON

PAR 78: INSTRUCTION: "Suppose your wife/husband has received 10 tokens, how many tokens do you think s/he will have offered you?..... tokens"

PAR 79: INSTRUCTION: Write the amount of tokens that you think your wife/husband has offered you on the card, fold the card and give the card to the RA.

PAR 80: You can ask for assistance from the RA if you have problems with your eyesight or with writing. (Look carefully if people have problems and assist them)

PAR 81: We will now collect the cards.

COLLECT EXPECTATION CARDS

7. Post experimental question

PAR 82: We have ended the exercises but we would like to ask you a final question. We will read the question out loud and give you time to give the answer on the card. The question is about what you think, there is no right or wrong answer. If your eyes are not so well or you have problems with writing and you need help to read the paper, do not hesitate to ask help from the RA.

HAND OUT POST-EXPERIMENT CARDS - MATCH COUPLE CODES HB/W ON POST-EXPERIMENT CARD WITH COUPLE CODE HB/W OF PERSON

PAR 83: INSTRUCTION Question: "Did the first and second exercise remind you of decisions that you make in reality about using your resources for investment in your common household farm?"

PAR 84: INSTRUCTION You can answer by marking the bullet: The first bullet means "Yes, reminded me to a high extent"; the second bullet "Yes, to some extent"; the third bullet "No, it did not remind me of decision in reality"

PAR 85: INSTRUCTION Mark your answer on the card (Look carefully if people have problems and assist them)

PAR 86: We will now collect the cards.

COLLECT POST-EXPERIMENT CARD

8. End

PAR 87: This is the end of the exercises and the end of this session.

PAR 88: Please, avoid discussing this exercise afterwards with other people in your community as this could influence the results of our exercise when these other people are invited to participate.

PAR 89: We will call you one by one to receive the payoff of the randomly selected exercise. we will call the ladies first. We would like to ask you to sign for consent and for receiving the money.

PAR 90: Thank you very much for your participation and your time.

MAKING SPOUSES COOPERATE IN UGANDAN AGRICULTURAL HOUSEHOLDS – EXPERIMENTAL EVIDENCE OF DISTRIBUTIONAL TREATMENT EFFECTS

FIGURES AND TABLES

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Table L: Average treatment effects for CA vs CC on contributions in the 1st VCM, 2nd VCM and sharing game with coefficients of covariates reported

Experiment protocol