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I Summary

Low repayment rates Repayment was poor. Net saving was forfeit for repayment. Mean raw loan recovery rate (counting only repayments) measured at the end of third year was 0.67 overall, and was lowest for traditional at 0.48. Counting also net saving, these numbers change to 0.85, 0.59, respectively.

No difference in repayment risk by poverty status Raw loan recovery rates are 0.67, 0.67, respectively, for ultra poor and moderately poor. Also no statistically meaningful difference is found for cumulative repayment plus cumulative net saving.

Traditional chose multiple small projects IGA is more diversified in the traditional than in other arms. With almost all the members in large-sized loan arms choosing cows, it suggests the presence of a poverty trap induced by a liquidity constraint and convexity in livestock production technology.

Large-sized or grace period loans resulted in higher repayment rates Controlling for the loan size, larger initial lending resulted in larger repayment and net saving. As opposed to GUK's anxiety, lending was relatively less risky with large loans and loans with a grace period.

Boys' junior high schooling suffered, but not girls' (Using original panel) Schooling was negatively affected for boys attending a junior high school, but such an effect was mitigated for girls under arms with a grace period. A weaker but similar pattern is also found for high school aged children. It hints increased labour demand for boys but the mechanism is unclear.

No concern for entrepreneurship No difference in project choices between cow and large, large grace. Members who participated do not seem to show concerns for (lack of) entrepreneurship.

No difference in household assets Household assets increased in rd 1 - 3, then reduced in rd 4 (possibly liquidating for repayment purpose), with the overall impact of increased household asset values yet no statistically significant difference between arms.

No difference in labour incomes, per member consumption, marriage rates Per member consumption increased in all arms with no difference between arms. Marriage rates do not differ between arms. A greater swing in labour incomes for large.

II Read files

Description of data:

- ad Administrative data: Up to [-24, 48] months after first loan disbursement.
- X1 Schooling panel with attrition. Aged 6-18 in rd1. Enrolled={0,1} is defined for children aged 6-18 in rd1 by referencing to currently_enrolled and age information.
- X2 Schooling panel after augmenting attrited children to X1. Attrited children are augmented by assuming to be out of school. AssignRegression is group classification: Number of observation is 618, 633, 594, 593, 363, 100 for traditional, large, largeGrace, cow, dropOuts, forcedDropOuts, respectively.
- ros roster to condition the initial status prior to participation.

ass Assets. Household assets (houses, durables) and productive assets (machines, tools).
lvo Livestock holding. Rd 3 data is not entered yet.
lab Labour incomes.
far Farming revenues (no costs reported).
con Household consumption. Food expenditure asks both bought and consumed volumes and prices. We impute consumption values by using median prices. All quantity is set to annualised quantity.

How I combined between pages: First, merge admin data **ad** with roster data **ros** with **hhid**, **Year**, **Month** as keys. Keep only at dates when survey data match. Second, merge **ad+ros** with other data **X1**, **X2**, **ass**, ...

There are 4029 non-matching cases if we merge using **Year**, **Month** of **IntDate** in survey data and of **Date** in admin data. This is inevitable because the admin data starts from 2013-05-01 while survey data starts from 2011-10-09 and **rd 1** ends at 2013-10-12 for **oldMembers** with the median date 2012-10-18. Below gives **Year**, **Month** in roster data with no match in admin data.

YearMonthOfIntDate				
AssignRegression	2011-October	2011-November	2012-January	2012-October
traditional	0	0	0	108
large	0	1	0	222
largeGrace	1	0	17	216
cow	4	0	0	248
dropOuts	1	0	0	173
forcedDropOuts	0	0	0	35
YearMonthOfIntDate				
AssignRegression	2012-November	2012-December	2013-September	2013-October
traditional	79	12	6	13
large	72	7	0	0
largeGrace	36	35	0	0
cow	19	7	0	0
dropOuts	43	12	0	2
forcedDropOuts	34	0	0	0
YearMonthOfIntDate				
AssignRegression	2014-January	2014-October	2014-November	2014-December
traditional	5	26	2	8
large	0	0	0	0
largeGrace	0	0	0	0
cow	0	0	0	0
dropOuts	6	40	35	22
forcedDropOuts	0	0	2	0
YearMonthOfIntDate				
AssignRegression	2015-November	2015-December	2016-January	2017-January
traditional	28	9	5	16
large	0	0	0	0
largeGrace	0	0	0	0
cow	0	0	0	0
dropOuts	65	23	17	20
forcedDropOuts	1	0	0	0
YearMonthOfIntDate				
AssignRegression	2017-February	2017-March	2017-April	NA-NA
traditional	19	0	5	1
large	0	0	0	0
largeGrace	0	0	0	0
cow	0	0	0	0
dropOuts	61	14	8	18
forcedDropOuts	0	0	0	0

	FALSE	TRUE
YearMonthMatch	4029	12396
YearMatch	4029	12396

In roster + admin (base: roster): Tabulate hhid observations by survey round and Arm.

	Arm							
survey	traditional	large	large	grace	cow	forcedDropOuts	dropOuts	
1	419	405		411	423	69	142	
2	419	408		402	408	48	109	
3	422	411		410	412	47	103	
4	408	403		403	400	0	103	

In roster + admin: Tabulate observations after keeping only observations used in estimation: Keep if creditstatuts = yes, & Mstatus includes strings old, iRep, newG, & DisDate1 is before 2015-01-01, & TradGroup does not include strings tw or dou.

	Arm				
survey	traditional	large	large	grace	cow
1	166	333		317	290
2	103	342		318	292
3	103	343		320	292
4	102	338		315	283

In roster + admin: If we keep creditstatuts = yes, & Mstatus includes strings old, iRep, newG, & TradGroup does not include strings tw or dou (relaxing DisDate1 is before 2015-01-01).

	Arm				
survey	traditional	large	large	grace	cow
1	192	387		394	367
2	103	401		392	365
3	103	402		397	368
4	102	394		390	356

This shows addition is mostly in round 1 for traditional but in all rds for other arms. FirstDisPeriod gives the period of first disbursement, and all credit receivers received loans by the end of 2015.

	creditstatus	
DisDate1	No	<NA>
	<NA>	146 235

See the breakdown of first disbursement by Arm at rd 1.

	Arm														
FirstDisPeriod	traditional	large	large	grace	cow										
BeforeJan2015	166	333		317	290										
Year2015	26	54		77	77										
Year2016	0	0		0	0										
AfterJan2017	0	0		0	0										

Schooling pattern in X1.

0000	0001	000n	0011	001n	00nn	0100	0101	010n	0111	011n	01nn	0nnn	1000	1001	100n
208	36	216	152	33	192	16	4	9	840	105	70	316	64	8	45
1011	101n	10nn	1100	1101	110n	1110	1111	111n	11nn	1nnn					
56	24	86	48	16	84	28	5172	654	326	199					

Save roster-admin data.

```
saveRDS(ar , paste0(path1234 , "RosterAdminData.rds"))
fwrite(ar , paste0(path1234 , "RosterAdminData.prn"), sep = "\t", quote = F)
```

A snippet of admin + roster data:

	Arm	hhid	mid	survey	IntDate	Date	CumRepaid	AgeComputed
1:	large	7010101	3	1	2011-11-06	<NA>	NA	15
2:	large	7010101	3	2	2014-10-11	2014-10-01	7000	17
3:	large	7010101	3	3	2015-11-21	2015-11-01	9500	18
4:	large	7010101	3	4	2017-02-14	2017-02-01	15970	20
5:	large	7010102	5	1	2012-11-06	<NA>	NA	1
6:	large	7010102	5	2	2014-10-11	2014-10-01	8000	3
7:	large	7010102	5	3	2015-11-22	2015-11-01	12225	4
8:	large	7010102	5	4	2017-02-14	2017-02-01	16000	6
9:	large	7010105	3	1	2012-11-07	<NA>	NA	8
10:	large	7010105	3	2	2014-10-11	2014-10-01	4925	10
11:	large	7010105	3	3	2015-11-19	2015-11-01	8050	11
12:	large	7010105	3	4	2017-02-14	2017-02-01	10050	13

In X1: Number of unique hhids by year (original entry) or Year (extracted from IntDate).

	year					
NumberOfHHids	2012	2013	2014	2015	2017	
	1542	2098	806	2282	2024	1797

	Year								
NumberOfHHids	2011	2012	2013	2014	2015	2016	2017	<NA>	
	1542	7	2030	691	2182	1366	575	1695	461

In X1: Number of observations tabulated by year (original entry) and round (survey).

	survey			
year	1	2	3	4
2012	2071	0	0	0
2013	689	0	0	0
2014	0	2179	0	0
2015	0	0	1943	0
2017	0	0	0	1697

In X1: RoundOrder is 1 if individual is observed for the first time in data, 2 if for the second time, ...

	RoundOrder			
year	1	2	3	4
2012	2098	0	0	0
2013	806	0	0	0
2014	0	2282	0	0
2015	0	79	1945	0
2017	0	28	107	1662

In X2: Number of observations tabulated by year and round (survey).

	survey			
year	1	2	3	4
2012	2071	0	0	0
2013	689	0	0	0
2014	0	2598	0	0
2015	0	0	2451	0
2017	0	0	0	2203

In X2: RoundOrder.

	RoundOrder				
year	1	2	3	4	5
2012	2901	0	0	0	0
2013	0	2901	0	0	0
2014	0	0	2901	0	0

2015	0	0	0	2901	0
2017	0	0	0	0	2901

In X1: Number of observations tabulated by year and age (AgeComputed).

	AgeComputed																	
year	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2012	168	264	279	114	333	77	237	109	104	173	103	43	94	0	0	0	0	0
2013	48	93	90	61	118	60	79	55	46	58	46	14	38	0	0	0	0	0
2014	0	43	222	317	298	211	346	131	234	121	124	152	62	15	6	0	0	0
2015	0	0	42	225	311	291	198	302	118	192	100	93	95	38	11	8	0	0
2017	0	0	0	0	40	218	289	279	186	272	110	171	90	64	51	22	4	1

In X2: Number of observations tabulated by year and age (AgeComputed).

AgeComputed																		
year	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
2012	48	261	354	340	232	393	156	291	155	161	219	116	81	94	0	0	0	0
2013	0	48	261	354	340	232	393	156	291	155	161	219	116	81	94	0	0	0
2014	0	0	48	261	354	340	232	393	156	291	155	161	219	116	81	94	0	0
2015	0	0	0	48	261	354	340	232	393	156	291	155	161	219	116	81	94	0
2017	0	0	0	0	0	48	261	354	340	232	393	156	291	155	161	219	116	81

AgeComputed	
year	23
2012	0
2013	0
2014	0
2015	0
2017	94

	MonthsElapsedNA	
Arm	FALSE	TRUE
traditional	2676	1127
large	3015	778
large grace	2884	813
cow	2739	1071
forcedDropOuts	0	359
dropOuts	0	963

Save all data.

```
fwrite(x1, paste0(path1234, "RosterAdminSchoolingData.prn"), sep = "\t", quote = F)
fwrite(x2, paste0(path1234, "RosterAdminSchoolingAugmentedData.prn"), sep = "\t", quote = F)
fwrite(ass, paste0(path1234, "AssetAdminData.prn"), sep = "\t", quote = F)
fwrite(lvo, paste0(path1234, "LivestockAdminData.prn"), sep = "\t", quote = F)
fwrite(lab, paste0(path1234, "LabourIncomeAdminData.prn"), sep = "\t", quote = F)
fwrite(far, paste0(path1234, "FarmRevenueAdminData.prn"), sep = "\t", quote = F)
fwrite(con, paste0(path1234, "ConsumptionAdminData.prn"), sep = "\t", quote = F)
```

Further data preparations (trimming, round numbering, creating dummy vectors, interaction terms) for estimation. Produces files: RosterAdminDataUsedForEstimation.prn, AssetAdminDataUsedForEstimation.prn, LivestockAdminDataUsedForEstimation.prn, LabourIncomeAdminDataUsedForEstimation.prn, FarmRevenueAdminDataUsedForEstimation.prn, ConsumptionAdminDataUsedForEstimation.prn.

III Estimation

III.1 Schooling

If using x1, retain only the complete portion of panel.

TABLE 1: OLS ESTIMATION OF SCHOOL ENROLLMENT

covariates	(1)	(2)	(3)	(4)	(5)	(6)
	x1			x2 (Augmented data)		
primary0512	0.882*** (0.049)	0.930*** (0.045)	0.950*** (0.029)	0.857*** (0.053)	0.884*** (0.071)	0.872*** (0.065)
junior1315	0.893*** (0.055)	0.936*** (0.041)	0.954*** (0.024)	0.698*** (0.072)	0.747*** (0.074)	0.738*** (0.071)
high1618	0.809*** (0.078)	0.846*** (0.093)	0.866*** (0.087)	0.536*** (0.073)	0.525*** (0.080)	0.512*** (0.077)
Large	0.025 (0.029)	-0.033 (0.025)	-0.043* (0.024)	0.027 (0.043)	0.006 (0.067)	0.007 (0.069)
LargeGrace	0.013 (0.030)	-0.052* (0.027)	-0.045 (0.030)	0.033 (0.043)	-0.012 (0.071)	-0.001 (0.083)
Cow	0.008 (0.034)	-0.024 (0.027)	-0.059* (0.036)	0.008 (0.044)	-0.003 (0.066)	-0.012 (0.075)
Previous 6M mean repay	-0.000 (0.024)	-0.002 (0.024)	-0.001 (0.024)	0.017 (0.029)	0.015 (0.030)	0.012 (0.033)
Previous 6M mean NetSavings	-0.028 (0.089)	-0.026 (0.087)	-0.094 (0.066)	0.063 (0.127)	0.053 (0.126)	-0.034 (0.112)
Previous 6M mean missw	-0.003 (0.007)	-0.003 (0.007)	0.002 (0.007)	-0.012 (0.013)	-0.012 (0.014)	-0.016 (0.015)
junior1315 × Large	-0.019 (0.045)	0.023 (0.024)	0.030 (0.025)	-0.040 (0.056)	-0.036 (0.073)	-0.032 (0.073)
high1618 × Large	-0.034 (0.072)	-0.002 (0.097)	0.022 (0.099)	-0.052 (0.081)	-0.005 (0.103)	0.007 (0.104)
junior1315 × LargeGrace	-0.053 (0.050)	-0.070 (0.050)	-0.109** (0.052)	-0.042 (0.061)	-0.061 (0.085)	-0.107 (0.095)
high1618 × LargeGrace	-0.095 (0.080)	-0.082 (0.114)	0.003 (0.100)	-0.112 (0.079)	-0.063 (0.106)	-0.045 (0.119)
junior1315 × Cow	-0.054 (0.056)	-0.100* (0.059)	-0.087 (0.056)	-0.051 (0.063)	-0.132 (0.086)	-0.106 (0.084)
high1618 × Cow	-0.055 (0.083)	-0.096 (0.117)	-0.133 (0.125)	-0.168** (0.081)	-0.138 (0.107)	-0.136 (0.107)
primary0512 × Female	0.016 (0.013)	-0.076 (0.057)	-0.079 (0.057)	0.016 (0.018)	-0.029 (0.077)	-0.032 (0.077)
junior1315 × Female	0.028 (0.023)	-0.069 (0.066)	-0.049 (0.047)	0.104*** (0.029)	0.005 (0.100)	0.017 (0.098)
high1618 × Female	0.117*** (0.039)	0.021 (0.110)	0.018 (0.110)	0.147*** (0.042)	0.209* (0.114)	0.210* (0.115)
primary0512 × Large × Female		0.112* (0.061)	0.115* (0.061)		0.041 (0.082)	0.042 (0.083)
junior1315 × Large × Female		0.036 (0.069)	0.019 (0.052)		0.039 (0.107)	0.025 (0.105)
high1618 × Large × Female		0.064 (0.121)	0.042 (0.122)		-0.093 (0.132)	-0.101 (0.134)
primary0512 × LargeGrace × Female		0.122** (0.060)	0.114* (0.062)		0.086 (0.084)	0.097 (0.095)
junior1315 × LargeGrace × Female		0.168** (0.083)	0.171** (0.074)		0.137 (0.115)	0.166 (0.114)
high1618 × LargeGrace × Female		0.130 (0.143)	0.016 (0.130)		-0.031 (0.139)	-0.035 (0.149)
primary0512 × Cow × Female		0.060 (0.063)	0.089 (0.066)		0.023 (0.082)	0.037 (0.082)
junior1315 × Cow × Female		0.162* (0.085)	0.145** (0.072)		0.195* (0.116)	0.172 (0.119)
high1618 × Cow × Female		0.181 (0.135)	0.239* (0.145)		-0.072 (0.142)	0.003 (0.156)
MeanYearlyCERR			0.017 (0.016)			-0.010 (0.027)
number of clusters	80	80	80	80	80	80
R^2	0.945	0.945	0.951	0.804	0.804	0.805
N	2821	2821	2244	3978	3978	3089

Source: Estimated with GUK administrative and survey data.

Notes: 1. Intercept terms are omitted in estimating equations. Year effects are included in estimation (not shown). x1 is complete portion of panel. x2 is a panel data augmenting attrited members in x1 with an assumption that they are out of school unless it is explicitly stated as attending school by family members.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

Check number of observations in each cell:

TABLE 2: NUMBER OF OBSERVATIONS IN EACH CELLS OF SCHOOLING REGRESSION IN TABLE 1

		(1)	(2)	(3)	(4)	(5)	(6)
		x1			x2 (Augmented data)		
Traditional							
	× Male	128	128	128	194	194	194
	× Female	121	121	119	155	155	153
	× Primary0512	118	118	117	145	145	144
	× Male × Primary0512	55	55	55	69	69	69
	× Female × Primary0512	63	63	62	76	76	75
	× Junior1315	93	93	92	131	131	130
	× Male × Junior1315	50	50	50	70	70	70
	× Female × Junior1315	43	43	42	61	61	60
	× High1618	38	38	38	73	73	73
	× Male × High1618	23	23	23	55	55	55
	× Female × High1618	15	15	15	18	18	18
Large							
	× Male	608	608	530	866	866	746
	× Female	487	487	438	653	653	575
	× Primary0512	608	608	520	719	719	605
	× Male × Primary0512	343	343	293	392	392	329
	× Female × Primary0512	265	265	227	327	327	276
	× Junior1315	334	334	306	481	481	430
	× Male × Junior1315	171	171	151	252	252	220
	× Female × Junior1315	163	163	155	229	229	210
	× High1618	153	153	142	319	319	286
	× Male × High1618	94	94	86	222	222	197
	× Female × High1618	59	59	56	97	97	89
Large grace							
	× Male	373	373	262	541	541	379
	× Female	405	405	284	519	519	353
	× Primary0512	441	441	272	519	519	316
	× Male × Primary0512	204	204	128	239	239	152
	× Female × Primary0512	237	237	144	280	280	164
	× Junior1315	237	237	193	316	316	251
	× Male × Junior1315	112	112	91	161	161	129
	× Female × Junior1315	125	125	102	155	155	122
	× High1618	100	100	81	225	225	165
	× Male × High1618	57	57	43	141	141	98
	× Female × High1618	43	43	38	84	84	67
Cow							
	× Male	337	337	227	534	534	345
	× Female	362	362	256	516	516	344
	× Primary0512	443	443	270	555	555	330
	× Male × Primary0512	205	205	123	252	252	149
	× Female × Primary0512	238	238	147	303	303	181
	× Junior1315	194	194	161	305	305	228
	× Male × Junior1315	95	95	75	159	159	114
	× Female × Junior1315	99	99	86	146	146	114
	× High1618	62	62	52	190	190	131
	× Male × High1618	37	37	29	123	123	82
	× Female × High1618	25	25	23	67	67	49
	total	2821	2821	2244	3978	3978	3089

Source: GUK administrative and survey data.

Notes: 1.

2.

TABLE 3: OLS ESTIMATION OF SCHOOL ENROLLMENT, DIFFERENT GROUPING

covariates	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	x1		x2 (Augmented data)		x1		x2 (Augmented data)	
primary0512	0.886*** (0.050)	0.930*** (0.046)	0.849*** (0.055)	0.873*** (0.072)	0.908*** (0.041)	0.904*** (0.040)	0.873*** (0.042)	0.884*** (0.040)
junior1315	0.899*** (0.057)	0.935*** (0.042)	0.727*** (0.075)	0.734*** (0.075)	0.907*** (0.043)	0.931*** (0.039)	0.721*** (0.052)	0.718*** (0.054)
high1618	0.848*** (0.073)	0.844*** (0.093)	0.555*** (0.079)	0.512*** (0.081)	0.843*** (0.048)	0.820*** (0.053)	0.544*** (0.064)	0.520*** (0.067)
primary0512 × Female		-0.076 (0.057)		-0.029 (0.077)		0.016 (0.020)		0.004 (0.027)
junior1315 × Female		-0.069 (0.066)		0.005 (0.100)		-0.041* (0.022)		0.036 (0.037)
high1618 × Female		0.021 (0.110)		0.208* (0.113)		0.072 (0.046)		0.130** (0.060)
primary0512 × Large	0.015 (0.028)	-0.036* (0.022)	0.023 (0.041)	-0.001 (0.065)				
junior1315 × Large	-0.021 (0.034)	-0.072*** (0.023)	-0.018 (0.066)	-0.071 (0.069)				
high1618 × Large	-0.039 (0.061)	-0.081 (0.091)	-0.063 (0.072)	-0.057 (0.079)				
primary0512 × Large × Female		0.098* (0.058)		0.048 (0.079)				
junior1315 × Large × Female		0.108 (0.070)		0.110 (0.104)				
high1618 × Large × Female		0.105 (0.116)		-0.072 (0.122)				
primary0512 × Grace					-0.009 (0.016)	-0.010 (0.020)	-0.001 (0.021)	-0.012 (0.028)
junior1315 × Grace					-0.046** (0.023)	-0.116*** (0.037)	-0.014 (0.039)	-0.080 (0.053)
high1618 × Grace					-0.057 (0.044)	-0.100 (0.070)	-0.085 (0.055)	-0.106* (0.064)
primary0512 × Grace × Female						-0.002 (0.026)		0.020 (0.035)
junior1315 × Grace × Female						0.137*** (0.043)		0.134** (0.055)
high1618 × Grace × Female						0.097 (0.078)		0.031 (0.084)
Previous 6M mean repay	0.001 (0.025)	-0.002 (0.025)	0.018 (0.031)	0.015 (0.030)	0.005 (0.025)	0.001 (0.024)	0.021 (0.030)	0.018 (0.029)
Previous 6M mean NetSavings	-0.016 (0.086)	-0.018 (0.086)	0.091 (0.121)	0.074 (0.119)	-0.022 (0.088)	-0.023 (0.087)	0.088 (0.124)	0.060 (0.120)
Previous 6M mean missw	-0.004 (0.007)	-0.004 (0.007)	-0.013 (0.014)	-0.013 (0.014)	-0.005 (0.007)	-0.004 (0.007)	-0.014 (0.013)	-0.014 (0.013)
number of clusters	80	80	80	80	80	80	80	80
\bar{R}^2	0.944	0.945	0.801	0.803	0.944	0.945	0.801	0.804
N	2821	2821	3978	3978	2821	2821	3978	3978

Source: Estimated with GUK administrative and survey data.

Notes: 1. Intercept terms are omitted in estimating equations. Year effects are included in estimation (not shown). x1 is complete portion of panel. x2 is a panel data augmenting attrited members in x1 with an assumption that they are out of school unless it is explicitly stated as attending school by family members. SmallSize includes Traditional, LargeSize includes Large, Large grace, Cow. WithoutGrace includes Traditional, Large, WithGrace includes Large grace, cow.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

TABLE 4: NUMBER OF OBSERVATIONS IN EACH CELLS OF SCHOOLING REGRESSION IN TABLE 3

	(1)	(2)	(3)	(4)		(1)	(2)	(3)	(4)
Small Size					No Grace				
× Male	128	128	194	194	× Male	736	736	1060	1060
× Female	121	121	155	155	× Female	608	608	808	808
× Primary0512	118	118	145	145	× Primary0512	726	726	864	864
× Male × Primary0512	55	55	69	69	× Male × Primary0512	398	398	461	461
× Female × Primary0512	63	63	76	76	× Female × Primary0512	328	328	403	403
× Junior1315	93	93	131	131	× Junior1315	427	427	612	612
× Male × Junior1315	50	50	70	70	× Male × Junior1315	221	221	322	322
× Female × Junior1315	43	43	61	61	× Female × Junior1315	206	206	290	290
× High1618	38	38	73	73	× High1618	191	191	392	392
× Male × High1618	23	23	55	55	× Male × High1618	117	117	277	277
× Female × High1618	15	15	18	18	× Female × High1618	74	74	115	115
Large Size					Grace				
× Male	1318	1318	1941	1941	× Male	710	710	1075	1075
× Female	1254	1254	1688	1688	× Female	767	767	1035	1035
× Primary0512	1492	1492	1793	1793	× Primary0512	884	884	1074	1074
× Male × Primary0512	752	752	883	883	× Male × Primary0512	409	409	491	491
× Female × Primary0512	740	740	910	910	× Female × Primary0512	475	475	583	583
× Junior1315	765	765	1102	1102	× Junior1315	431	431	621	621
× Male × Junior1315	378	378	572	572	× Male × Junior1315	207	207	320	320
× Female × Junior1315	387	387	530	530	× Female × Junior1315	224	224	301	301
× High1618	315	315	734	734	× High1618	162	162	415	415
× Male × High1618	188	188	486	486	× Male × High1618	94	94	264	264
× Female × High1618	127	127	248	248	× Female × High1618	68	68	151	151
total	2821	2821	3978	3978	total	2821	2821	3978	3978

Source: GUK administrative and survey data.

Notes: 1.
2.

TABLE 5: OLS ESTIMATION OF SCHOOL ENROLLMENT, ULTRA POOR VS. MODERATELY POOR

covariates	(1)	(2)	(3)	(4)	(5)
	x1		x2 (Augmented data)		
UltraPoor	0.945*** (0.008)				
ModeratelyPoor	0.933*** (0.013)				
primary0512		0.900*** (0.042)	0.900*** (0.047)	0.879*** (0.041)	0.885*** (0.044)
junior1315		0.886*** (0.044)	0.887*** (0.046)	0.736*** (0.049)	0.704*** (0.055)
high1618		0.801*** (0.064)	0.774*** (0.078)	0.512*** (0.062)	0.457*** (0.064)
Previous 6M mean renav		0.000 (0.026)	-0.002 (0.025)	0.016 (0.031)	0.013 (0.030)
Previous 6M mean NetSaving		-0.015 (0.087)	-0.015 (0.087)	0.090 (0.120)	0.070 (0.117)
Previous 6M mean missw		-0.004 (0.008)	-0.004 (0.008)	-0.013 (0.014)	-0.012 (0.014)
primary0512 × UltraPoor		0.001 (0.013)	-0.008 (0.021)	-0.012 (0.020)	-0.018 (0.025)
junior1315 × UltraPoor		-0.006 (0.020)	-0.024 (0.031)	-0.035 (0.030)	-0.048 (0.047)
high1618 × UltraPoor		0.020 (0.042)	-0.005 (0.061)	-0.021 (0.048)	0.008 (0.055)
primary0512 × Female			0.003 (0.022)		0.006 (0.032)
junior1315 × Female			0.003 (0.032)		0.087* (0.046)
high1618 × Female			0.074 (0.063)		0.195*** (0.058)
primary0512 × UltraPoor × Female			0.018 (0.027)		0.012 (0.040)
junior1315 × UltraPoor × Female			0.035 (0.040)		0.024 (0.062)
high1618 × UltraPoor × Female			0.063 (0.073)		-0.085 (0.075)
number of clusters	83	80	80	80	80
R ²	0.779	0.944	0.945	0.801	0.803
N	4598	2821	2821	3978	3978

Source: Estimated with GUK administrative and survey data.

Notes: 1. Intercept terms are omitted in estimating equations. Year effects are included in estimation (not shown). x1 is complete portion of panel. x2 is a panel data augmenting attrited members in x1 with an assumption that they are out of school unless it is explicitly stated as attending school by family members.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

Finding III.1 TABLE 1 shows school enrollment is higher for x1 than x2, indicating nonattriting members are school goers. When using x1 data, cow and large grace show negative impacts for older children, yet not for girls in junior high schools. In fact, (1) shows that girls in high school have higher enrollment in x1 and both junior and high schools for x2 in (4). This may be due to increased labour demand within a family for boys. Similar patterns are found in x2 data, yet not statistically significant, probably because data augmentation introduces more school dropouts among older girls. In TABLE 3 when using with grace/without grace grouping, the pattern becomes statistically significant for both x1 and x2. Large size vs. small size contrast has smaller statistical power that more subtle outcomes cannot be detected. No difference between ultra and moderately poor is found in TABLE 5.

III.2 Repayment and net saving

Note all binary interaction terms are demeaned and then interacted.

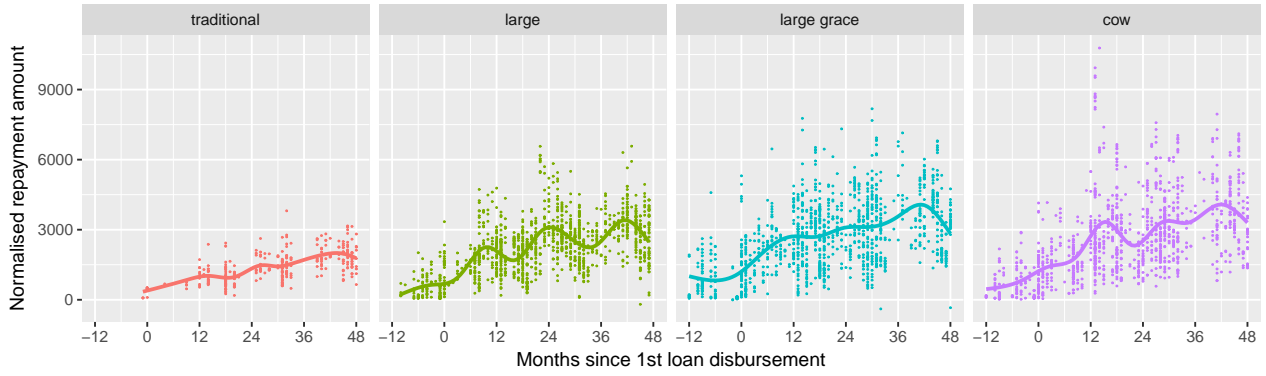


Figure 1: Cumulative weekly net saving

TABLE 6: FD ESTIMATION OF CUMULATIVE NET SAVING AND REPAYMENT

covariates	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cumulative net saving		Cumulative repayment		Cumulative net saving + cumulative repayment			
Traditional	491.6*** (44.4)	894.3*** (84.8)	2846.3*** (260.8)	335.0*** (129.7)	76.4 (588.4)	3337.9*** (286.5)	1229.3*** (164.6)	283.2 (434.2)
Large	773.5*** (43.4)	1327.7*** (123.8)	4348.9*** (127.0)	1482.2*** (216.0)	973.6 (1140.2)	5122.4*** (141.4)	2809.9*** (314.8)	892.7 (802.6)
LargeGrace	477.3*** (47.8)	1068.0*** (302.9)	5603.1*** (288.6)	940.3*** (64.6)	481.8 (882.1)	6080.4*** (285.7)	2008.2*** (317.1)	470.1 (618.3)
Cow	339.8* (178.7)	1203.0*** (180.1)	5529.8*** (323.3)	1055.9*** (106.7)	606.7 (1004.0)	5869.6*** (222.0)	2258.9*** (196.3)	691.1 (721.6)
round 2 - 3		-614.2*** (167.6)		3973.8*** (137.9)	4323.6*** (335.9)		3359.6*** (223.2)	3939.1*** (328.1)
Large × round 2 - 3		-273.0* (148.6)		138.1 (340.6)	513.4 (650.1)		-135.0 (456.6)	781.8 (572.8)
LargeGrace × round 2 - 3		-373.1 (447.9)		5694.1*** (319.6)	5925.0*** (444.7)		5321.0*** (552.2)	5879.1*** (416.2)
Cow × round 2 - 3		-1142.9*** (322.0)		5267.5*** (402.2)	5630.6*** (675.7)		4124.5*** (511.9)	5440.0*** (643.9)
round 3 - 4		-773.1*** (167.9)		4351.2*** (174.0)	4773.4*** (515.2)		3578.1*** (251.0)	4516.5*** (430.5)
Large × round 3 - 4		-375.3*** (136.7)		1405.8*** (535.6)	1695.5** (730.1)		1030.5* (612.7)	1854.0*** (667.3)
LargeGrace × round 3 - 4		-521.1 (453.7)		4534.6*** (483.4)	4819.6*** (693.7)		4013.6*** (664.0)	4836.6*** (638.6)
Cow × round 3 - 4		-1179.0*** (314.1)		4815.7*** (595.1)	5138.0*** (832.6)		3636.7*** (661.8)	4946.0*** (806.9)
HeadLiteracy					-68.0 (114.7)			-59.0 (108.7)
HeadAge					-2.4 (3.2)			-0.2 (3.1)
OtherNetSaving					-0.4 (0.4)			0.0 (0.4)
OtherMisses					195.1 (127.5)			174.5 (121.3)
CumOtherMisses					1.7 (14.4)			10.4 (14.4)
CumOtherNetSaving					0.3 (0.9)			1.6*** (0.6)
$T = 2$	87	87	87	87	87	87	87	87
$T = 3$	791	791	791	791	791	791	791	791
$T = 4$	60	60	60	60	60	60	60	60
R^2	0.431	0.492	0.83	0.891	0.892	0.864	0.902	0.908
N	1849	1849	1849	1849	1837	1849	1849	1837

Source: Estimated with GUK administrative and survey data.

Notes: 1. First-difference estimates. First-differenced regressands are regressed on categorical and time-variant covariates. Net saving is taken from administrative data and merged with survey data at Year-Month of survey interviews. Head age and literacy are from baseline data. Intercept terms are omitted in estimating equations. Net saving is saving - withdrawal.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

TABLE 7: FD ESTIMATION OF NET CUMULATIVE SAVING AND REPAYMENT, ULTRA POOR VS. MODERATELY POOR

covariates	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cumulative net saving		Cumulative repayment			Cumulative net saving + cumulative repayment		
UltraPoor	562.6*** (53.0)	1256.1*** (189.7)	4781.2*** (155.8)	837.9* (432.4)	-18.8 (1063.0)	5343.8*** (141.3)	2094.1*** (488.1)	90.3 (820.2)
ModeratelyPoor	584.2*** (60.3)	1237.6*** (211.4)	4698.3*** (161.8)	696.3* (393.5)	-137.1 (1025.3)	5282.5*** (151.2)	1934.0*** (471.4)	17.5 (794.0)
round 2 - 3		-637.9*** (204.8)		3895.6*** (470.2)	4902.5*** (595.4)		3257.8*** (509.3)	4435.3*** (549.9)
UltraPoor × round 2 - 3		-100.6 (155.2)		-163.9 (148.3)	-91.3 (200.2)		-264.5 (209.9)	-61.1 (216.8)
round 3 - 4		-797.1*** (202.7)		4529.4*** (464.3)	5476.6*** (633.8)		3732.2*** (513.2)	5118.0*** (558.7)
UltraPoor × round 3 - 4		-87.8 (153.5)		-54.9 (182.7)	16.9 (210.2)		-142.7 (242.8)	46.7 (238.5)
HeadLiteracy					-52.8 (163.4)			-39.9 (150.2)
HeadAge					-1.5 (4.9)			0.7 (5.0)
OtherNetSaving					-1.6* (0.8)			-1.1 (0.8)
OtherMisses					735.8*** (236.7)			686.2*** (217.9)
CumOtherMisses					1.4 (25.3)			11.3 (23.0)
CumOtherNetSaving					-0.1 (0.8)			1.1* (0.6)
$T = 2$	87	87	87	87	87	87	87	87
$T = 3$	791	791	791	791	791	791	791	791
$T = 4$	60	60	60	60	60	60	60	60
\bar{R}^2	0.392	0.433	0.802	0.84	0.844	0.845	0.866	0.872
N	1849	1849	1849	1849	1837	1849	1849	1837

Source: Estimated with GUK administrative and survey data.

Notes: 1. First-difference estimates. First-differenced regressands are regressed on categorical and time-variant covariates. Net saving is taken from administrative data and merged with survey data at Year-Month of survey interviews. Head age and literacy are from baseline data. Intercept terms are omitted in estimating equations. Net saving is saving - withdrawal.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

Finding III.2 TABLE 6 shows net saving decreases, mostly in the later rounds. This reflects the use of saving for repayment. Ultra poor had a setback in repayment during rd 2-3 as indicated in TABLE 7, but the the repayment rates at the end of third year do not differ as we have seen at the beginning of this note.

III.3 Assets

TABLE 8: FD ESTIMATION OF ASSETS

covariates	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Household asset amount (Tk)				Productive asset amount (Tk)		
(Intercept)	6358.5*** (1735.5)						
Large	1331.3 (2402.3)	7689.8*** (1661.1)	4168.8*** (990.9)	4038.7*** (1098.0)	-373.1* (201.8)	1097.9 (1196.7)	1099.1 (1189.7)
LargeGrace	1809.6 (2258.1)	8168.0*** (1444.7)	4838.7 (3070.4)	4825.6 (3079.0)	-388.0* (207.4)	224.0 (308.0)	212.7 (298.4)
Cow	133.8 (2371.2)	6492.2*** (1615.8)	4073.9*** (1133.8)	4024.5*** (1157.8)	-77.8 (84.9)	249.6 (330.4)	245.2 (323.4)
Traditional		6358.5*** (1735.5)	1767.8 (1134.0)	1746.9 (1146.0)	-289.9** (144.1)	274.5 (296.9)	273.0 (295.0)
round 2 - 3			8869.6*** (2211.8)	8797.1*** (2195.2)		-554.2 (607.3)	-538.3 (604.6)
Large × round 2 - 3			3333.1 (4671.5)	3538.3 (4770.3)		-1265.9 (1938.9)	-1260.8 (1924.2)
LargeGrace × round 2 - 3			2305.5 (6153.2)	2201.3 (6117.2)		355.5 (426.8)	372.6 (441.1)
Cow × round 2 - 3			2657.6 (5554.3)	2607.9 (5580.5)		688.2* (352.6)	676.5* (350.0)
round 3 - 4			-2119.8 (1818.4)	-2057.7 (1808.1)		-1085.2* (592.6)	-1092.5* (589.8)
Large × round 3 - 4			-7318.5*** (2634.1)	-7102.5*** (2644.5)		-2588.7 (1878.5)	-2602.7 (1876.2)
LargeGrace × round 3 - 4			-6809.4 (5101.5)	-6778.5 (5099.6)		-580.6** (284.8)	-585.7** (263.2)
Cow × round 3 - 4			-10990.4*** (3187.1)	-10987.1*** (3280.1)		301.7 (229.0)	314.1 (222.0)
Previous 6M mean repayment				1176.5 (1919.2)			-162.6 (423.7)
Previous 6M mean net saving				1351.1 (8572.4)			-659.2 (720.3)
$T = 2$	65	65	65	65	65	65	65
$T = 3$	1101	1101	1101	1101	1101	1101	1101
$T = 4$	103	103	103	103	103	103	103
R^2	-0.001	0.033	0.052	0.051	0.002	0.005	0.004
N	2576	2576	2576	2576	2576	2576	2576

Source: Estimated with GUK administrative and survey data.

Notes: 1. First-difference estimates. Saving and repayment misses are taken from administrative data and merged with survey data at Year-Month of survey interviews. Intercept terms are omitted in estimating equations. Sample is continuing members and replacing members of early rejecters and received loans prior to 2015 January. Household assets do not include livestock.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

Finding III.3 TABLE 8 shows household assets increase after receiving the loans. Total increment is largest among the large arm. Increments are positive in rd 1 - 3, suggesting substantial purchase after receiving a loan. Significant decreases in rd 3 - 4 for large loan arms indicate liquidation of assets for repayment.

III.4 Livestock

TABLE 9: FD ESTIMATION OF LIVESTOCK HOLDING VALUES

covariates	(1)	(2)	(3)
Traditional	673.3 (1247.4)	7028.8*** (1313.8)	6978.6*** (1317.6)
Large	2922.5** (1322.3)	4783.8*** (1726.0)	4633.0*** (1722.9)
LargeGrace	1916.4** (858.0)	9634.0*** (1215.6)	9494.2*** (1228.4)
Cow	2008.7** (916.4)	9672.5*** (1053.0)	9577.9*** (1092.5)
round 1 - 2		-29220.6*** (2570.6)	-29249.7*** (2595.8)
Large × round 1 - 2		-26086.1*** (6653.2)	-26308.9*** (6594.1)
LargeGrace × round 1 - 2		7605.0** (3755.6)	7605.8* (3951.1)
Cow × round 1 - 2		-208.2 (4857.5)	-343.0 (4959.9)
round 2 - 3		-9636.6*** (1265.1)	-9623.3*** (1245.5)
Large × round 2 - 3		-3376.3 (4237.1)	-3193.5 (4236.6)
LargeGrace × round 2 - 3		2616.6 (3598.3)	2617.8 (3568.9)
Cow × round 2 - 3		-2646.8 (3399.7)	-2989.8 (3428.7)
Previous 6M mean repayment			309.0 (1644.2)
Previous 6M mean net saving			-4596.5 (5270.1)
$T = 2$	70	70	70
$T = 3$	1096	1096	1096
$T = 4$	103	103	103
R^2	0.007	0.09	0.09
N	2571	2571	2571

Source: Estimated with GUK administrative and survey data.

Notes: 1. First-difference estimates. Saving and repayment misses are taken from administrative data and merged with survey data at Year-Month of survey interviews. Intercept terms are omitted in estimating equations. Sample is continuing members and replacing members of early rejecters and received loans prior to 2015 January. Regressand is TotalImputedValue, a sum of all livestock holding values evaluated at respective median market prices in the same year.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

Check quickly if the estimated results make sense.

	hhid	Arm	Year	livestock_code	number_owned	mrkt_value
1:	7020601	large	grace	2012	Cow	7 0
2:	7020601	large	grace	2014	Hen	2 150
3:	7020601	large	grace	2015	NA	1 15000
4:	7020601	large	grace	2017	Hen	4 250
5:	7020606	large	grace	2012	Cow	7 0
6:	7020606	large	grace	2014	Cow	1 25000
7:	7020606	large	grace	2015	NA	NA NA
8:	7020606	large	grace	2017	Cow	1 30000
9:	7020614	large	grace	2012	NA	0 0
10:	7020614	large	grace	2014	Cow	2 16000
11:	7020614	large	grace	2015	NA	5 16000
12:	7020614	large	grace	2017	Cow	6 24000
13:	7020918		large	2012	Cow	7 0
14:	7020918		large	2014	Sheep	1 1800
15:	7020918		large	2015	NA	4 2000
16:	7020918		large	2017	Cow	1 30000
17:	7021004	large	grace	2012	Cow	7 0
18:	7021004	large	grace	2014	Cow	4 24000
19:	7021004	large	grace	2016	NA	2 25000
20:	7021004	large	grace	2017	Goat	6 4000
21:	7021216		cow	2012	Cow	6 0

22:	7021216		cow	2014	Goat	4	1500
23:	7021216		cow	2015	NA	3	18000
24:	7021216		cow	2017	Cow	3	30000
25:	7021307		large	2012	Cow	7	0
26:	7021307		large	2014	Hen	5	150
27:	7021307		large	2015	NA	1	200
28:	7021307		large	2017	Cow	3	38000
29:	7054012	large	grace	2012	Goat	8	0
30:	7054012	large	grace	2014	Cow	15	20000
31:	7054012	large	grace	2015	NA	12	16000
32:	7054012	large	grace	2017	Goat	5	2800
33:	7096202		large	2012	Cow	8	0
34:	7096202		large	2014	Hen	4	150
35:	7096202		large	2015	NA	4	200
36:	7096202		large	2017	Cow	9	20000
37:	7096207		large	2012	Cow	4	0
38:	7096207		large	2014	Hen	12	100
39:	7096207		large	2015	NA	7	22000
40:	7096207		large	2017	Cow	6	16000
41:	7096218		large	2012	Cow	1	0
42:	7096218		large	2014	Cow	9	16000
43:	7096218		large	2015	NA	7	16000
44:	7096218		large	2017	Cow	6	20000
45:	8169619		large	2012	NA	0	0
46:	8169619		large	2014	Sheep	2	1400
47:	8169619		large	2016	NA	2	1800
48:	8169619		large	2017	Cow	6	38000
49:	9907031414	large	grace	2013	Cow	6	0
50:	9907031414	large	grace	2014	Cow	2	19000
51:	9907031414	large	grace	2015	NA	2	1800
52:	9907031414	large	grace	2017	Cow	2	30000
53:	99070211804		large	2013	Cow	6	0
54:	99070211804		large	2014	Goat	2	1600
55:	99070211804		large	2015	NA	2	200
56:	99070211804		large	2017	Hen	2	250
57:	99070211805		large	2013	Cow	8	0
58:	99070211805		large	2014	Cow	3	18000
59:	99070211805		large	2015	NA	1	200
60:	99070211805		large	2017	Cow	2	39000
61:	99070211810		large	2013	Cow	6	0
62:	99070211810		large	2014	Hen	1	200
63:	99070211810		large	2015	NA	4	3400
64:	99070211810		large	2017	Goat	4	3300
65:	99070511013		large	2013	Cow	3	0
66:	99070511013		large	2014	Cow	6	20000
67:	99070511017		large	2013	Cow	7	0
68:	99070511017		large	2014	Goat	1	2000
69:	99070511017		large	2015	NA	NA	NA
70:	99070511017		large	2017	Goat	1	2000
71:	99070911605		cow	2013	Cow	8	0
72:	99070911605		cow	2014	Goat	1	3000
73:	99070911605		cow	2015	NA	3	25000
74:	99070911605		cow	2017	Cow	4	28000
75:	99070911613		cow	2013	Cow	7	13000
76:	99070911613		cow	2014	Cow	1	15000
77:	99070911613		cow	2015	NA	4	100
78:	99070911613		cow	2017	Goat	6	4000
hhid Arm Year livestock_code number_owned mrkt_value							
TotalImputedValue							
1:	140000						
2:	150						

3:	15000
4:	250
5:	140000
6:	20000
7:	0
8:	20000
9:	0
10:	40000
11:	16000
12:	120000
13:	140000
14:	1800
15:	2000
16:	20000
17:	140000
18:	80000
19:	25000
20:	8400
21:	120000
22:	5600
23:	18000
24:	60000
25:	140000
26:	150
27:	200
28:	60000
29:	11200
30:	300000
31:	16000
32:	7000
33:	160000
34:	150
35:	200
36:	180000
37:	80000
38:	100
39:	22000
40:	120000
41:	20000
42:	180000
43:	16000
44:	120000
45:	0
46:	1400
47:	1800
48:	120000
49:	120000
50:	40000
51:	1800
52:	40000
53:	120000
54:	2800
55:	200
56:	250
57:	160000
58:	60000
59:	200
60:	40000
61:	120000
62:	200
63:	3400

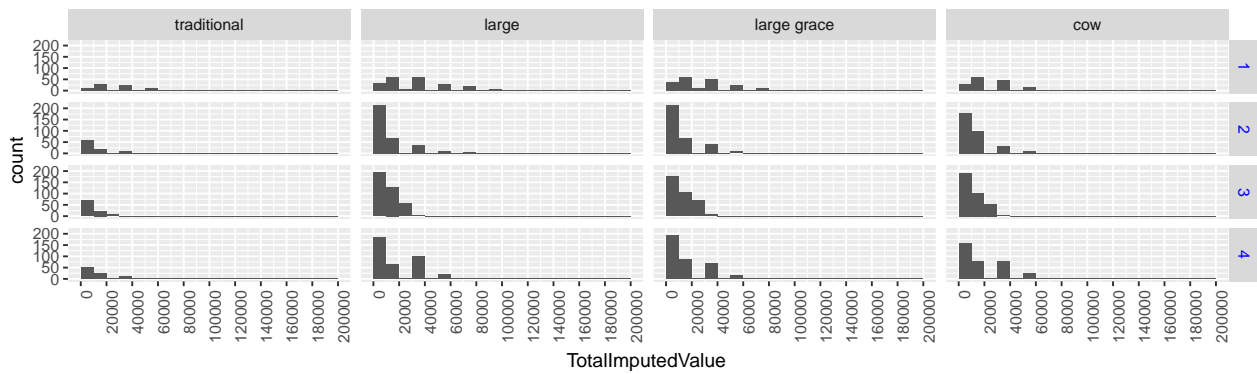


Figure 2: Total imputed value of livestock holding
Livestock holding values are computed by using respective median prices of each year.

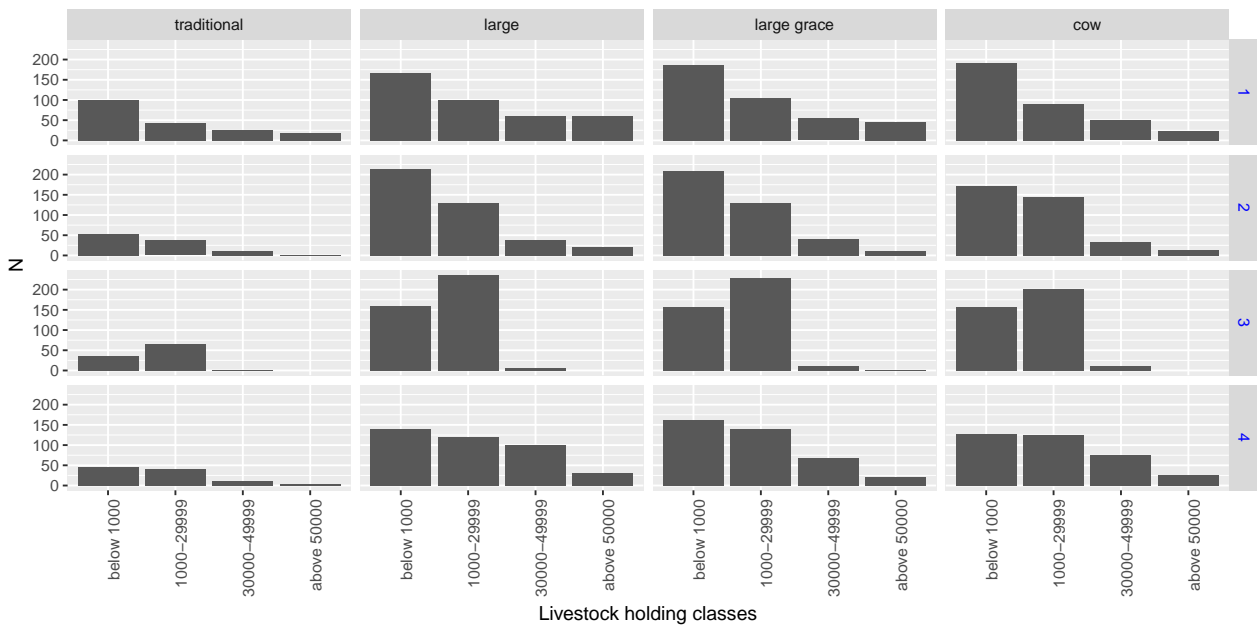


Figure 3: Histogram of livestock holding classes
Livestock holding values are computed by using respective median prices of each year.

64:	5600
65:	60000
66:	120000
67:	140000
68:	1400
69:	0
70:	1400
71:	160000
72:	1400
73:	25000
74:	80000
75:	140000
76:	20000
77:	100
78:	8400
TotalImputedValue	

- Why does cow report below 1000 holding in rds 2-4?

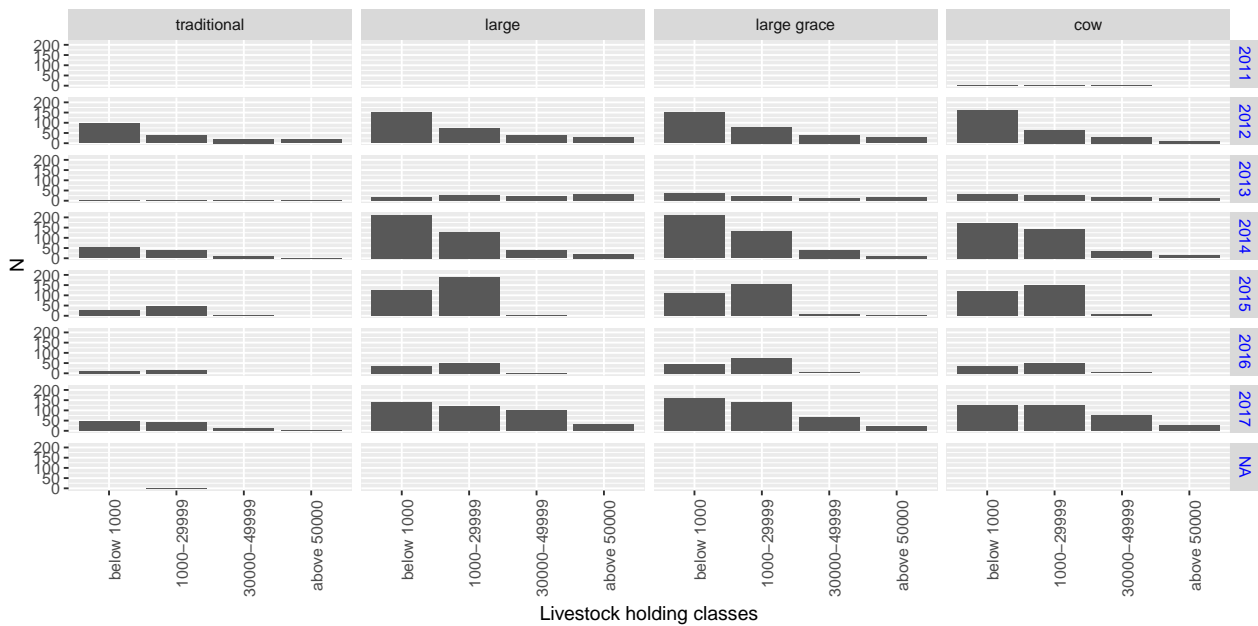


Figure 4: Histogram of livestock holding classes by year
Livestock holding values are computed by using respective median prices of each year.

	Arm	survey	MeanImputedVal	MeanNumCows	N
1:	traditional	1	16583.42	0.736559	186
2:	traditional	2	9508.64	0.436893	103
3:	traditional	3	6403.81	0.000000	103
4:	traditional	4	11844.02	0.549020	102
5:	large	1	22288.39	1.038860	386
6:	large	2	11530.35	0.561224	400
7:	large	3	9759.15	0.000000	402
8:	large	4	20170.58	0.969543	394
9:	large grace	1	18154.40	0.805128	390
10:	large grace	2	10583.45	0.521053	391
11:	large grace	3	10197.16	0.000000	397
12:	large grace	4	15674.29	0.748705	389
13:	cow	1	14750.19	0.657303	356
14:	cow	2	11996.71	0.599432	363
15:	cow	3	9497.28	0.000000	367
16:	cow	4	18386.08	0.889831	355

Finding III.4 FIGURE 2 shows general increase in upper holding classes round 3 and further upper holding classes in round 4. FIGURE 5 shows livestock type is not entered (yet collected) in rd3. At this moment, one needs to omit rd 3. All estimation results by far are subject to this omission.

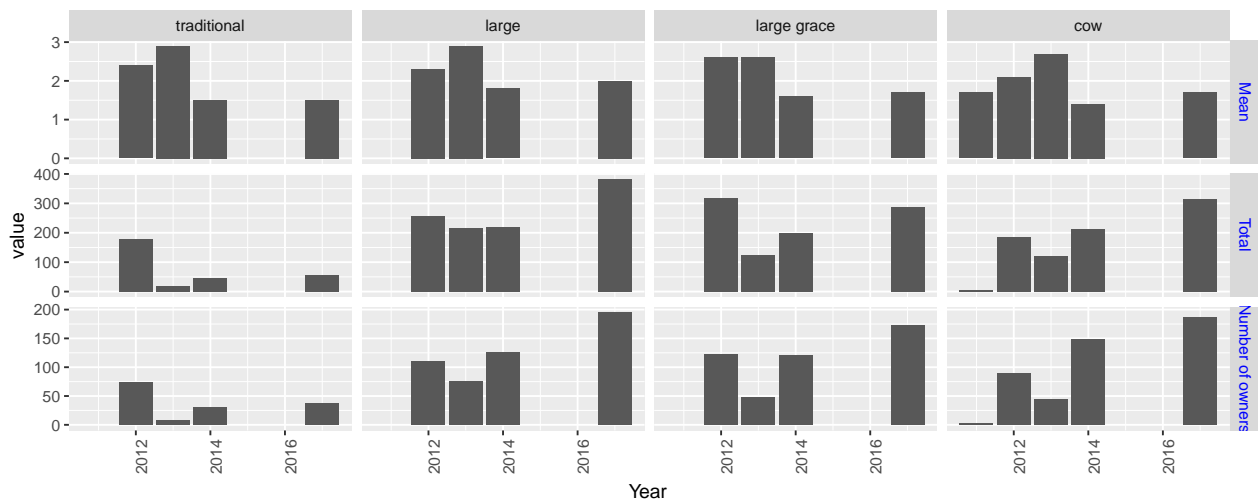


Figure 5: Number of cows/oxen by year

Means are mean holding among the owners. Totals are total number of cows/oxen owned. Mean and total number of cows/oxen may diverge because the number of owners differ across round.

III.5 Incomes

TABLE 10: FD ESTIMATION OF INCOMES

covariates	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Labour income (Tk)				Farm revenue (Tk)		
(Intercept)		12708.6** (5067.4)					
Traditional	12708.6** (5067.4)		-7468.2*** (1844.6)	-7515.7*** (1841.7)	-6327.1 (6190.2)	8019.5 (7520.0)	4950.3 (7596.5)
Large	10536.6*** (3679.6)	-2172.0 (6262.5)	-21109.7*** (5864.5)	-22058.0*** (6232.0)	-168.6 (1445.8)	497.4 (5830.6)	-4664.0 (7002.7)
LargeGrace	4221.6 (4152.5)	-8486.9 (6551.5)	-14469.8*** (5280.2)	-14286.8*** (5279.8)	1711.0 (1177.3)	-324.6 (2788.4)	-5970.7 (4963.6)
Cow	5883.5** (2903.7)	-6825.1 (5840.4)	-1919.4 (3558.2)	-2064.3 (3345.8)	-468.0 (1286.2)	13237.9*** (2609.8)	9342.3 (5944.6)
round 2 - 3			24944.9*** (4464.2)	24331.6*** (4388.2)		-1670.8 (5907.4)	-3970.2 (4303.2)
Large × round 2 - 3			15395.0 (15991.3)	16489.7 (16263.8)		50664.1*** (16278.9)	50885.9*** (14819.5)
LargeGrace × round 2 - 3			-3528.6 (14258.4)	-4344.8 (14414.3)		78048.0*** (17958.2)	75645.5*** (15658.3)
Cow × round 2 - 3			-20830.3 (13643.3)	-20956.7 (13685.7)		20088.8 (13059.2)	21747.8* (12547.6)
round 3 - 4			16030.4*** (4530.1)	16473.5*** (4417.7)		-6285.8 (5743.0)	-8648.2 (6087.5)
Large × round 3 - 4			20204.9** (8757.7)	21614.3** (9327.0)		38871.1*** (10037.4)	37626.2*** (8891.1)
LargeGrace × round 3 - 4			886.1 (11247.6)	1128.4 (10983.2)		34637.8** (14546.2)	31080.4* (18097.9)
Cow × round 3 - 4			-14571.1* (8637.5)	-14716.1* (8479.7)			
Previous 6M mean repayment				8814.8 (9380.2)			25793.5 (21226.4)
Previous 6M mean net saving				16357.4 (18108.0)			-12056.2 (18127.4)
T = 2	64	64	64	64	70	70	70
T = 3	1102	1102	1102	1102	57	57	57
T = 4	103	103	103	103	3	3	3
R ²	0.004	0	0.003	0.003	-0.02	-0.012	-0.005
N	2577	2577	2577	2577	193	193	193

Source: Estimated with GUK administrative and survey data.

Notes: 1. First-difference estimates. Saving and repayment misses are taken from administrative data and merged with survey data at Year-Month of survey interviews. Intercept terms are omitted in estimating equations. Sample is continuing members and replacing members of early rejecters and received loans prior to 2015 January. Labour income is sum of all earned labour incomes. Farm revenue is total of agricultural produce sales.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

Finding III.5 TABLE 10 shows a general decrease in rd 1 - 2 period and a general increase in rd 2 - 4 periods for labour incomes. Large arm saw a greater swing (decrease and increases) which resulted in overall significant mean increase of 10536.62 (at p value of 0.42%), yet not statistically different from traditional, while other arms are similar to traditional. Farm revenues do not show any systematic trend.

III.6 Consumption

Number of HHs with consumption before the loan is disbursed (ConsumptionBaseline == 1) is small.

Arm	ConsumptionBaseline	
	0	1
traditional	307	0

large	876	321
large grace	852	326
cow	756	333
forcedDropOuts	0	0
dropOuts	0	0

TABLE 11: FD ESTIMATION OF CONSUMPTION

covariates	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Per capita consumption (Tk)				Per capita food consumption (Tk)		
Traditional	222.0*** (29.8)	-15.6 (58.3)	-29.5 (74.1)	-28.1 (74.0)	-61.1*** (14.4)	-57.4*** (14.4)	-57.8*** (14.3)
Large	265.2*** (28.4)	47.5 (41.5)	31.1 (66.4)	33.4 (66.2)	-60.7*** (13.6)	-57.1*** (13.8)	-57.8*** (14.2)
LargeGrace	245.0*** (30.9)	66.4 (45.8)	53.5 (65.6)	58.0 (65.2)	-55.4*** (10.9)	-50.7*** (10.6)	-51.9*** (11.1)
Cow	287.5*** (16.6)	54.1* (32.4)	39.6 (58.0)	41.9 (57.3)	-63.3*** (13.8)	-59.4*** (14.0)	-60.1*** (14.2)
round 2 - 3		422.3*** (55.9)	420.9*** (56.0)	419.1*** (57.7)	118.2*** (22.4)	118.3*** (22.5)	118.7*** (22.7)
Large × round 2 - 3		-102.0 (231.5)	-104.6 (231.6)	-110.7 (231.7)	-23.0 (65.4)	7.0 (77.3)	8.7 (77.3)
LargeGrace × round 2 - 3		-332.0 (229.0)	-333.6 (229.0)	-335.0 (227.0)	-62.6 (55.5)	-35.6 (68.7)	-35.3 (68.1)
Cow × round 2 - 3		-2.7 (227.4)	-2.4 (227.4)	8.4 (228.3)		28.4 (78.4)	25.3 (77.5)
HeadAge			0.4 (1.2)	0.4 (1.2)		-0.1 (0.1)	-0.1 (0.1)
HeadLiteracy			-1.1 (33.4)	-0.4 (33.5)		0.2 (1.0)	0.1 (1.1)
Previous 6M mean repayment				1.8 (77.7)			0.2 (19.6)
Previous 6M mean net saving				164.9 (136.9)			-45.0 (61.9)
Traditional × round 2 - 3					-28.4 (78.3)		
T = 2	64	64	64	64	64	64	64
T = 3	1204	1204	1204	1204	1204	1204	1204
R ²	0.119	0.204	0.203	0.203	0.076	0.075	0.075
N	2472	2472	2461	2461	2472	2461	2461

Source: Estimated with GUK administrative and survey data.

Notes: 1. First-difference estimates. Saving and repayment misses are taken from administrative data and merged with survey data at Year-Month of survey interviews. Intercept terms are omitted in estimating equations. Sample is continuing members and replacing members of early rejecters and received loans prior to 2015 January. Consumption is annualised values.

2. ***, **, * indicate statistical significance at 1%, 5%, 10%, respectively. Standard errors are clustered at group (village) level.

Finding III.6 TABLE 11 uses rd 2 - 4 data and shows an increase in per member consumption in rd 2 - 3 period. The estimates are imprecise for all interaction terms. Per member food consumption increases in rd 2- 3 period but decreases in rd 3 - 4 period.

III.7 IGA

Finding III.7 FIGURE 6, 7 show that there are very few members who chose to invest in more than one project for the “large” arms, while in the traditional arm, almost no one invested only in one project. Goat/sheep and small trades are the top choices for the first IGA in traditional. This indicates the existence of both a liquidity constraint and convexity in the production technology of large domestic animals. This also validates our supposition that dairy livestock production is the most preferred and probably the only economically viable investment choice. It reduces a concern that the cow arm may have imposed an unnecessary restriction in an investment choice by forcing to receive a cow. FIGURE 8 shows there are a significant number of

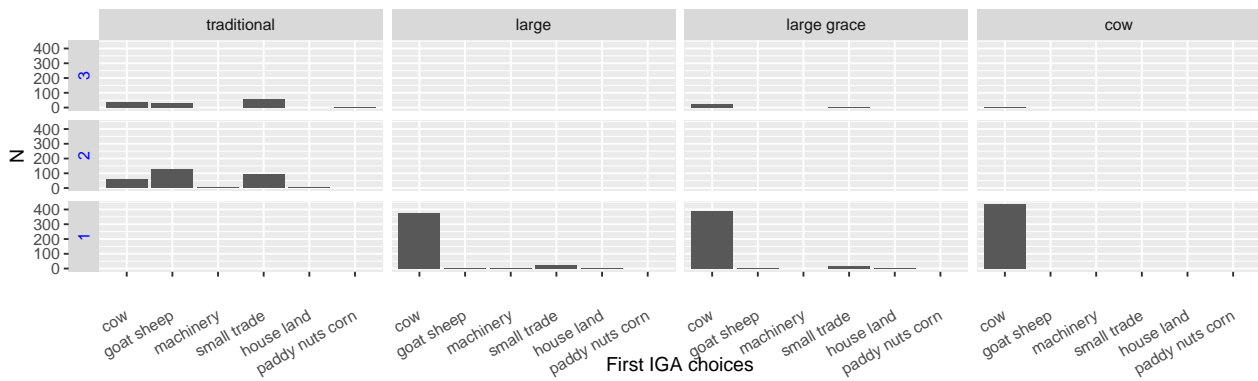


Figure 6: Income generating activity choices
The first income generating activity choices are plotted.

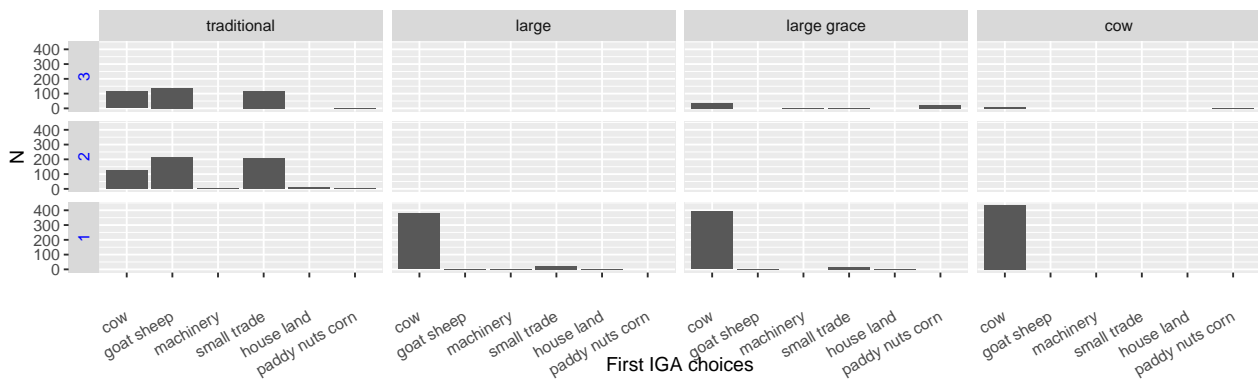


Figure 7: All income generating activity choices
All of multiple investment choices are summed by arms and the number of IGAs and plotted as bars.

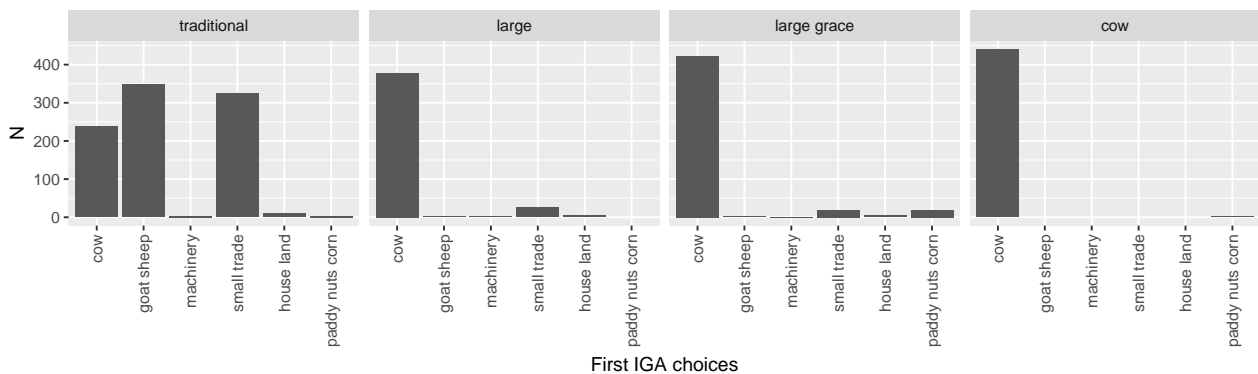


Figure 8: All income generating activity choices collapsed over different number of IGAs
All of multiple investment choices are summed by arms and plotted as bars.

cases in the traditional arm that members reporting to raise cows, yet they are also accompanied by parallel projects in smaller livestock production and small trades. Contrasting large, large grace with cow arms, it suggests that entrepreneurship (to the extent that is necessary for dairy livestock production) may not be an impediment for a microfinance loan uptake among members.

Together with TABLE 6 showing smaller net saving and repayment among traditional, the restriction on a project choice induced by a smaller loan sum resulted in smaller returns. Between with or no grace period loans, cumulative net saving and repayment are both larger with loans with a grace period. No such difference is found between cow and other arms.

III.8 Marriage

creditstatus	TradGroup			
	planned	twice	double	<NA>
Yes	29	197	133	2957
No	0	0	0	353
Replaced Member	0	0	0	0
<NA>	0	0	0	493

	Arm	NumEligible.1	NumEligible.2	NumEligible.3	NumEligible.4
1:	traditional	125	0	0	211
2:	large	146	2	0	219
3:	large grace	163	1	2	243
4:	cow	161	0	0	251
5:	forcedDropOuts	22	0	0	NA
6:	dropOuts	55	1	0	57

Tabulate marriage for `sex == "Female"` & `ReadyToMarry`, where the latter is unmarried females with ages between 10 and 40.

When we compare the marriage rates, we need to define the denominator sensibly. It should be all relevant aged females that are present in baseline. As we do not want to include marriages immediately after receiving loans, we need to take off some period to count the marriage cases. We will consider 1 year, 2 years, and 3 years. At the same time, there are households who chose not to receive a loan. Then, we need the denominator to be relevant aged females who do not attrit by:

- 1 year (678 individuals), or,
- 2 years (453 individuals), or,
- 3 years (314 individuals).

	Arm	AttritedBefore	NumEligible	Married	MarriageRate
1:	traditional	year 1	72	7	0.10
2:	traditional	year 2	26	3	0.12
3:	traditional	year 3	86	12	0.14
4:	traditional	never	152	16	0.11
5:	large	year 1	14	4	0.29
6:	large	year 2	31	3	0.10
7:	large	year 3	79	11	0.14
8:	large	never	243	26	0.11
9:	large grace	year 1	21	6	0.29
10:	large grace	year 2	81	10	0.12
11:	large grace	year 3	90	11	0.12
12:	large grace	never	217	20	0.09
13:	cow	year 1	45	5	0.11
14:	cow	year 2	67	8	0.12
15:	cow	year 3	105	15	0.14
16:	cow	never	195	22	0.11
17:	forcedDropOuts	year 1	22	4	0.18
18:	dropOuts	year 1	113	15	0.13

Finding III.8 There is very small difference in marriage rates between arms with grace and without grace.