Profitability of fertilizer: Experimental evidence from female rice farmers in Mali

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Online Appendix

A1. Balance

Table A1—Baseline balance check - rice plots of female primary respondent

	Mean Control Group (C)	Mean Half Treatment Group (T1)	Mean Full Treatment Group (T2)	p-value (C)= (T1)= (T2)	Obs.
	(1)	(2)	(3)	(4)	(5)
Inputs					
Fertilizer quantity used (kg)	13.05	12.16	12.98	0.96	383
Family labor (days)	52.65	49.12	49.58	0.54	383
Herbicides (FCFA)	2922.00	2493.90	2467.72	0.47	382
Expenses on hired labor (FCFA)	2543.21	2431.37	2436.42	0.96	383
GPS Surface (Ha)	0.21	0.21	0.22	0.81	372
Total input expenses (excl. Fertilizer, FCFA)	6849.21	6378.80	6458.27	0.87	379
Total inputs (incl. value of fertilizer, FCFA)	10111.21	9442.84	9393.88	0.88	383
Value output (FCFA)	35424.00	33450.82	33407.41	0.82	383
Profits (subtracting value of family labor, FCFA)	4253.59	4660.94	4610.67	0.99	383

Notes:

1) Column (4) displays the p value from a joint test of significance based on a regression of the dependent variable listed in the row heading on two indicator variables for the treatment groups, with no additional controls.

As discussed in the main text, the table above shows that the randomization achieved balance on a wide variety of characteristics.

A2. Heterogeneity

Table A2 shows heterogeneity along the key dimension of farmer experience/skill using two proxies: experience with fertilizer in either of the two seasons preceding the baseline survey and higher per hectare profits at baseline[1]. We find that farmers with prior experience with fertilizer, who constitute about 54% of the sample, do not use the fertilizer provided as treatment any differently than farmers with no prior experience. There is also no heterogeneity in output nor in profits. Duflo, Kremer and Robinson (2008) also found that returns were similar between farmers who had previously used fertilizer and

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[1]Since the latter measure intends to capture farmers' skill, we use the profits variable that values family labor as an expense. In order to maximize power, the two treatments are pooled together in a linear specification where treatment equals .5 and 1 for respondents in the half and full treatments, respectively.

those who had not. When using the profits per ha measure to split the sample, we find treatment effect heterogeneity on fertilizer quantities, with a larger treatment effect for farmers with per ha baseline profits above the 75th percentile, i.e. the farmers deemed to be more skilled. However, we do not find differential effects of the treatment for this group of farmers on output nor profits.

TABLE A2—TREATMENT HETEROGENEITY

	Fertilizer quantity used (Kg)	Value output (FCFA)	Profits (subtracting value of family labor) (FCFA)
	(1)	(2)	(3)
Panel A: Prior experience with fertilizer			
Treatment	36.34***	8465.77	-4662.31
	(6.03)	(5155.93)	(917.63)
Treatment * Prior experience	-5.77	5658.74	4403.48
	(8.24)	(7106.62)	(6448.17)
Panel B: High per Ha profits at baseline (1 if above 75th percentile)			
Treatment	28.99***	10769**	3806.07
	(4.87)	(4265.45)	(3871.79)
Treatment * High profits	21.78**	2355.47	-9952.45
	(9.66)	(8366.58)	(7592.22)

Notes:

1) Standard errors are in parentheses. *p<.10, **p<.05, ***p<.01

2) All columns show OLS estimates where the dependent variable is identified in the column heading. Also included in all specifications is the lagged dependent variable, an indicator for when the baseline value is missing, village fixed effects and the control variables used in the randomization routine (whether or not there is an extended household, use of fertilizer, use of plough and an agricultural asset index).

3) Profits in column (3) is the same profit measure as in column (2) of Table 4.

4) Treatment is equal to 1 if a respondent was in the full treatment and equal to 1/2 if assigned to the half treatment.