ONLINE APPENDIX:

MORAL HAZARD: EXPERIMENTAL EVIDENCE FROM TENANCY CONTRACTS

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I. Theory and Proofs

I.A. Decomposition of dx/ds

To understand the role of the endogenous adjustment of risk-taking for Prediction 1, consider the case where the level of risk-taking is given exogenously and does not adjust, i.e. $\frac{da}{ds} = 0$. We can decompose $\frac{dx}{ds}|_a$ into three separate effects:

$$\underbrace{\frac{-1}{D_{xx}} \int u_{cc} \cdot a(\theta - \mathbb{E}_\theta[\theta]) f(x) \cdot c_x(x,\theta)\, dG(\theta)}_{\text{Risk Exposure Effect}} + \underbrace{\frac{-1}{D_{xx}} \int u_{cc} \cdot (a\mathbb{E}_\theta[\theta] + (1-a)) f(x) \cdot c_x(x,\theta)\, dG(\theta)}_{\text{Wealth Effect}} + \underbrace{\frac{-1}{D_{xx}} \int u_c \cdot [a\theta f_x(x) + (1-a) f_x(x)]\, dG(\theta),}_{\text{Incentive Effect}}$$

where $c_x(x,\theta) := [s[a\theta f_x(x) + (1-a) f_x(x)] - p]$ and

$$D_{xx} = \int u_{cc} \cdot [sa\theta f_x(x) + s(1-a) f_x(x) - p]^2 + u_c \cdot [sa\theta f_{xx}(x) + s(1-a) f_{xx}(x)]\, dG(\theta) < 0$$

since $u_{cc} < 0$ and $f_{xx} < 0$. Firstly, an increase in the output share of the tenant increases the marginal return to investments, holding marginal utilities constant. It is the only effect of a change in s on x when the tenant is risk-neutral, or the Bernoulli utility function is linear. However, when tenants are risk averse, a change in s alters the marginal expected utility of investing in x through two more channels. It makes the tenant on average wealthier ("Wealth Effect"). With decreasing marginal utility that implies that in states of the world where $\theta > 1$ the tenant values additional consumption less, and in states of the world where $\theta < 1$ the tenant has lower disutility from losses in consumption. Further, an increase in s will also amplify any deviations in returns around the mean incurred from the risky investment ("Risk Exposure Effect"). This alters the expected marginal benefit of investing in x in a generally unknown direction. The total effect on the incentives to invest in x depends on the curvature of the utility function.

I.B. Proofs

Proof of Prediction 1. Part i. Note that a, $f(x)$ and s are positive constants in the integration. Then (3) can be written as $\int u_c \cdot [\theta - 1]\, dG(\theta) = 0$, which implies with (2) that

$\int u_c \cdot [sf_x(x) - p]\ dG(\theta) = 0$. Since $u_c > 0$, this is satisfied if and only if $sf_x(x) - p = 0$. Totally differentiating we obtain $\frac{dx}{ds} = -\frac{f_x(x)}{sf_{xx}(x)}$. Noting that $f_x(x) > 0$ and $f_{xx}(x) < 0$ completes the proof.

Part ii. We find $\frac{dx}{dw}$ by totally differentiating (2) and (3) with respect to x, a and w as: $\frac{dx}{dw} = -\frac{D_{xw} \cdot D_{aa} - D_{xa} \cdot D_{aw}}{D_{xa} \cdot D_{ax} - D_{xx} \cdot D_{aa}}$. Using the result $sf_x(x) = p$, and noting that a, s, $f_x(x)$ and $f_{xx}(x)$ are constants in the integrals, it is straightforward to show that the denominator is strictly negative, and the numerator is 0. □

Proof of Prediction 2. Part i. Totally differentiate (2) and (3). Rearranging gives $\frac{da}{ds} = -\frac{D_{as}D_{xx} - D_{xa}D_{xs}}{D_{aa}D_{xx} - D_{xa}D_{ax}}$. Simplify the denominator to $sf_{xx}(x)(sf(x))^2 \int u_c[a\theta + (1-a)]\, dG(\theta) \times \int u_{cc}[\theta - 1]^2\, dG(\theta) > 0$, where the inequality follows from $f_{xx}(x) < 0$ and $u_{cc} < 0$. We can then write, using $sf_x(x) = p$ throughout:

$$\frac{da}{ds} = (-D_{aa})^{-1} \cdot \left(\underbrace{\frac{asf(x)}{f_{xx}(x)} \left(f_x(x) f_{xx}(x) - sf(x)(f_x(x))^2 \right) \left[\int u_{cc} \cdot [\theta - 1]^2\ dG(\theta) \right]}_{\text{Component 1}} + \underbrace{s(f(x))^2 \left[\int u_{cc} \cdot [\theta - 1]\, dG(\theta) \right]}_{\text{Component 2}} \right)$$

Notice that $-D_{aa} > 0$. Further Component 1 is negative since $f_{xx}(x) < 0$ and $u_{cc}(c) < 0$. The sign of Component 2 is determined by $-\int u_c(-\frac{u_{cc}}{u_c})[\theta - 1]\, dG(\theta)$, where $-\frac{u_{cc}}{u_c}$ is the coefficient of absolute risk aversion. Under CARA the coefficient of absolute risk aversion is a multiplicative constant in the integration, and we know from (3) that $\int u_c \cdot [\theta - 1]\ dG(\theta) = 0$. Therefore this term drops out, and since all other terms are negative we have $\frac{da}{ds} < 0$ under CARA. If $u(.)$ instead exhibits DARA, the term $-\int u_c(-\frac{u_{cc}}{u_c})[\theta - 1]\, dG(\theta)$ is positive, since relative to CARA, the coefficient of absolute risk aversion gives higher "weight" to realisations of θ s.t. $\theta < 1$. Examples can be constructed to s.t. $\frac{da}{ds}$ is smaller, equal and bigger than zero.[1]

Part ii. We find $\frac{da}{dw}$ by totally differentiating (2) and (3) with respect to x, a and w as: $\frac{da}{dw} = \frac{D_{aw} \cdot D_{xx} - D_{xw} \cdot D_{ax}}{D_{xa} \cdot D_{ax} - D_{xx} \cdot D_{aa}}$. The denominator is negative. The numerator simplifies to $\int u_{cc} sf(x)[\theta - 1]\theta\, dG(\theta) \cdot \int u_c f_{xx}(x)[sa\theta + s(1-a)]\, dG(\theta)$. Notice that the latter integral is unambiguously negative by concavity of $f(x)$. The former integral can be written as $-\int \left(-\frac{u_{cc}}{u_c}\right) u_c sf(x)[\theta - 1]\, dG(\theta)$, where $-\frac{u_{cc}}{u_c}$ is the coefficient of absolute risk aversion.

By (3) we have $\int u_c[\theta - 1]\, dG(\theta)$ equals zero. With CARA utility this immediately implies the result $\frac{da}{dw} = 0$. If $u(.)$ instead exhibits DARA, the term $-\int sf(x)u_c(-\frac{u_{cc}}{u_c})[\theta - 1]\, dG(\theta)$ is positive, since relative CARA, the coefficient of absolute risk aversion gives higher "weight" to realisations of θ s.t. $\theta < 1$. Combining all sign results, we have that $\frac{da}{dw} > 0$ for any utility function that exhibits DARA.

Part iii. For the purpose of this proof, denote θ as θ_a, write the exogenous income as $\theta_w w$, and denote with $G(\theta_a, \theta_w)$ the joint cumulative distribution function of θ_a and θ_w. Further assume that θ_a and θ_w are independent and $\mathbb{E}[\theta_w] = \mathbb{E}[\theta_w|\theta_a] = 1$; these are realistic representations of experimental group T2A. Following the same steps as in *Part ii*, we find that

[1] For example, make the following assumptions: θ is taking a value of 0.8 and 1.3 with probability 0.5 each; $u(c) = \frac{c^{1-\rho}}{1-\rho}$, with $\rho = 10$; $f(x) = \log(x) + 5$; $p = 5$; $s = 0.5$. Assuming that $y = 0.0$, we have $\frac{da}{ds} > 0$; assuming that $y = 0.2$, we have $\frac{da}{ds} < 0$.

the sign of $\frac{da}{dw}$ is determined by the sign of $-\int u_{cc} s f(x) \theta_w [\theta_a - 1]\, dG(\theta_a, \theta_w) \cdot \int u_c f_{xx}(x)[sa\theta_a + s(1-a)]\, dG(\theta_a, \theta_w)$. Again the latter part is negative, and the former part can be written as $\int u_c \left(-\frac{u_{cc}}{u_c}\right) s f(x) \theta_w [\theta_a - 1]\, dG(\theta_a, \theta_w)$. Under CARA $(-u_{cc}/u_c)$ is constant. By the first order conditions we have $\int u_c [\theta_a - 1]\, dG(\theta_a, \theta_w) = 0$. Note that $\int u_c [\theta_a - 1]\, dG(\theta_w|\theta_a) > \int u_c \theta_w [\theta_a - 1]\, dG(\theta_w|\theta_a)$, since θ_w acts to re-weight relative to the expression in the first order condition and $u(c)$ is concave. Therefore $0 = \int u_c [\theta_a - 1]\, dG(\theta_a, \theta_w) = \int \int u_c [\theta_a - 1]\, dG(\theta_w|\theta_a)\, dG_{\theta_w}(\theta_a) > \int \int u_c \theta_w [\theta_a - 1]\, dG(\theta_w|\theta_a)\, dG_{\theta_w}(\theta_a) = \int u_c \theta_w [\theta_a - 1]\, dG(\theta_a, \theta_w)$. If $u(.)$ instead exhibits DARA examples can be constructed to s.t. $\frac{da}{ds}$ is smaller, equal and bigger than zero. □

Proof of Prediction 3. Part i. Expected output is $\mathbb{E}_\theta[y] = \int [a\theta + (1-a)] f(x)\, G(\theta)$. It is straightforward to calculate the total differential of $\mathbb{E}_\theta[y]$ and derive:

$$\frac{d\mathbb{E}_\theta[y]}{ds} = (\mathbb{E}_\theta[\theta] - 1)\, f(x) \frac{da}{ds} + (a\mathbb{E}_\theta[\theta] + (1-a))\, f_x(x) \frac{dx}{ds}.$$

This implies that $\frac{d\mathbb{E}_\theta[y]}{ds} > 0$, if the following condition is satisfied:

$$\frac{da}{ds} > -f_x \frac{dx}{ds} \left[\frac{a\mathbb{E}_\theta[\theta] + (1-a)}{\mathbb{E}_\theta[\theta - 1]} \right].$$

Part ii. Follows from Predictions 1 and 2. □

I.C. Summary of Predictions

SUPPLEMENTARY TABLE I: SUMMARY OF PREDICTIONS

	Increase in...		
	...share	...income	...risk-exposure
Effect on x	⇑	0	0
Effect on a	?	⇑	⇓
Effect on y	?	⇑	⇓
Estimated by...	T1 vs. C	T2/T2A vs. C	T2B vs. T2A

Notes: The table summarizes the predictions of the theoretical model and provides a mapping to how these effects are estimated in the experiment. Throughout we assume that the utility function exhibits DARA.

II. List of variables

Outcome variables	
Fertilizer	A dummy variable taking the value of one if the tenant said she used fertilizer on her plot during the past season. The intensive margin gives the monetary value of fertilizer that was used on the plot in PPP USD terms.
Insecticide	A dummy variable taking the value of one if the tenant said she used insecticide on her plot during the past season. The intensive margin gives the monetary value of insecticide that was used on the plot in PPP USD terms.
Tools	A dummy variable taking the value of one if the tenant said she bought agricultural tools to cultivate her plot. The intensive margin gives the monetary value of agricultural tools owned by the respondent's household at the time of the survey in PPP USD terms.
Own labor	Respondents were asked to report how many days they worked on the plot in a typical week of the past season, and how many hours they worked for in a typical day. The variable combines these two pieces of information to calculate the number of hours that the tenant said she worked on the plot in a typical week during the past season.
Paid (unpaid) labor	For each person who worked on the plot (other than the respondent), respondents were asked to report the number of months they worked on the plot during the last season; how many days per month they worked on the plot and whether they were paid or unpaid. The variable combines these pieces of information to calculate the number of worker-days of paid (unpaid) labor that the tenant said she had working on the plot for throughout the season.
Crop choice outcomes	Dummy variables taking the value of one if at the time of the pre-harvest crop assessment survey, any of the following crops were observed on the plot: maize, beans, peanuts, tomatoes, potatoes or any other types of crops. The intensive margin of each crop gives the expected output of the relevant crop (in PPP USD) on the plot. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets.
Output, y	The expected output of the plot (in PPP USD) measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops.

Yield, y/m^2	The expected output of the plot divided by the size of the plot (in square meters).
Capital	The monetary value (in PPP USD terms) of capital inputs used on the plot, obtained by summing up the values of fertilizer, insecticide and households tools.
Labor hours	The total hours of labor used on the plot during each season, obtained by summing respondent's labor hours (hours worked in typical week during the season multiplied by 12 weeks/season) and hours of hired labor (numbers of days of hired labor used during the season multiplied by 8 hours/day).
Land size	The size (in m^2) of the plot area cultivated by the tenant.
Labor income	Average monthly labor income (in PPP USD) of the respondent during the 12 months preceding the survey.
Consumption	The monthly consumption expenditure (in PPP USD) of the respondent. It is the sum of the respondent's monthly personal consumption on non-food items and services with her household's per-capita food consumption. Household per capita monthly food consumption is imputed from previous 2 days' recall. The respondent's non-food personal expenditure includes the following items: clothes, shoes, phone airtime, transportation, jewelry/ornaments, hairdressing, soda, alcohol, gifts.
Cash savings	The value (in PPP USD) of cash savings that the respondent had at the time of the survey.
Household income	Response to the question "What is the total income of your household in a typical month?", converted to PPP USD terms.
Household assets	The value (in PPP USD) of durable assets owned by the respondent's household at the time of the survey.
Nitrogen (N)	An assessment of the level of nitrogen resulting from soil tests conducted on the plots that were part of the experiment. Nitrogen content is evaluated in the following way: 1=lack, 2=inadequate, 3=adequate.
Potassium (K)	An assessment of the level of potassium resulting from soil tests conducted on the plots that were part of the experiment. Potassium content is evaluated in the following way: 0=deficient, 1=sufficient.
Phosphorous (P)	An assessment of the level of phosphorus resulting from soil tests conducted on the plots that were part of the experiment. Phosphorous content is evaluated in the following way:1=very low, 2=moderate, 3=adequate, 4=high.

Organic Matter (Org. M.)	An assessment of the level of organic matter resulting from soil tests conducted on the plots that were part of the experiment. Organic matter content is evaluated in the following way: 1=low, 2=high, 3=very high.
Ph	The ph level resulting from soil tests conducted on the plots that were part of the experiment.
Number of plants	The number of plants observed on the plot during the Crop Assessment survey.
Baseline variables	
Young	A dummy variable taking the value of one if respondent's age is below the sample median, which is 21 years old.
Low schooling	A dummy variable taking the value of one if respondent's years of schooling is below the sample median, which is 8 years of schooling.
School enrolment	A dummy variable taking the value of one if the respondent was enrolled in school at time time of the baseline survey.
Raven test score	The percentage of correct answers that the respondent had in a Raven Matrices test.
Health status	The self-reported health status of the respondent, on a scale between 0 and 10.
Married	A dummy variable taking the value of one if the respondent reports being married.
Number of children	The self-reported number of children the respondent has given birth to and whom are still alive.
Household size	The number of people living in the respondent's household.
Household sex ratio	The fraction of respondent's household members who are female.
Agricultural tools	The monetary value of agricultural tools owned by the respondent's household at the time of the survey in PPP USD terms.

SUPPLEMENTARY TABLE II: LIST OF VARIABLES

III. Sample Characteristics

In this section we collect material that assesses the extent of sample selection and the degree to which such sample selection – where it exists – is important for the interpretation of the results. This material is discussed in Section V.D of the paper.

We use the Uganda National Panel Survey (UNPS) 2013/14 to assess how the tenants in our sample compare to the average tenant farmer in Uganda. UNPS is a nationally representative survey implemented by the Uganda Bureau of Statistics (UBOS) with technical and financial support from the World Bank Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA) project and the Government of Netherlands. The UNPS is a multi-topic panel household survey that commenced in 2009/10. Other than tracking the original sample of households, UNPS provides a cross-sectional snapshot of the Ugandan household population. In order to maintain the cross-sectional representativeness of the sample, new households and individuals are added to the sample in each wave to account for the changing population. We use sampling weights included in the dataset to achieve cross-sectional representativeness.[2] Importantly, the UNPS data contains detailed information about agricultural production at the plot level. This allows us to calculate plot-level output and yield measures, as well as observe crop choice and input use among a nationally representative sample of farmers in Uganda. Every household engaged in agriculture was surveyed twice during a 12-month period in order to collect precise information about their agricultural activities during the preceding season. While the UNPS survey has great advantages, one shortcoming is the agricultural variables in the survey are self-reported. As such, we cannot compare the agricultural variables we collected through the plot-visits with the self-reported variables in the UNPS.[3] To maintain comparability, we compare the self-reported indicators we collected through the tenant survey(s) with those in the UNPS. Consistent with the selection of experimental sites (see Section III.B) we exclude farmers in the Northern part of the country.

Supplementary Table III reports summary statistics of tenant farmers in the UNPS 2013/14 wave and compares them to the tenants in the control group of our experiment. Supplementary Table IV reports summary statistics of tenant farmers in the UNPS sample and compares them to all tenants in the experimental sample. In both tables the columns (1), (2) and (3) report summary statistics: column (1) for our experimental sample, columns (2) for tenant farmers (i.e. those renting at least 1 plot of land) in the UNPS 2013/14 sample, and column (3)

[2] For details of the data see Uganda Bureau of Statistics (2014).

[3] Lobell et al. (2018) show that self-reported and plot based measures of output tend to yield substantially different results.

for female and under-median age tenant farmers in the UNPS 2013/2014 sample. Both tables also report normalized differences of means between the UNPS samples and the experimental sample. The remaining tables use in-sample variation along a number of dimensions – age, marital status, plot size, schooling – to probe to which extent treatment effects are heterogeneous along those dimensions.

SUPPLEMENTARY TABLE III: FARMERS IN UNPS V.S. EXPERIMENTAL SAMPLE (CONTROL)

	(1)		(2)		(3)		(4)	
	Experiment		UNPS		UNPS – restricted		Differences	
	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	1 v.s. 2	1 v.s. 3
Panel A:				*Farmer Characteristics*				
Female (Yes=1)	1.000 (0.000)	124	0.402 (0.492)	726	1.000 (0.000)	122	1.216 [0.000]	
Age of the farmer (years)	22.185 (4.534)	124	42.536 (13.487)	723	30.826 (5.287)	122	-1.430 [0.000]	-1.241 [0.000]
Married (Yes=1)	0.516 (0.502)	124	0.758 (0.429)	725	0.734 (0.427)	122	-0.367 [0.000]	-0.330 [0.001]
Household size	5.416 (1.980)	125	6.139 (2.886)	726	5.507 (2.357)	122	-0.207 [0.001]	-0.030 [0.749]
Schooling (years)	7.984 (2.650)	124	6.280 (4.693)	717	6.739 (4.321)	122	0.316 [0.000]	0.246 [0.014]
Household assets ($)	1,253.521 (1,598.172)	124	1,094.000 (2,849.943)	729	902.451 (2,023.608)	122	0.049 [0.343]	0.136 [0.163]
Agricultural tools ($)	38.093 (31.724)	123	36.868 (49.354)	728	27.919 (44.520)	122	0.021 [0.737]	0.186 [0.062]
Panel B:				*Plot Characteristics*				
Output y ($)	43.412 (52.949)	125	53.437 (331.397)	1,994	32.873 (95.082)	302	-0.030 [0.363]	0.097 [0.146]
Plot size (acres)	0.549 (0.242)	125	0.929 (1.258)	1,994	0.671 (0.721)	302	-0.296 [0.000]	-0.160 [0.010]
Yield y/m^2 ($)	0.022 (0.034)	125	0.023 (0.262)	1,994	0.013 (0.033)	302	-0.002 [0.940]	0.194 [0.016]
Fertilizer value ($)	1.052 (3.712)	124	3.907 (29.995)	1,994	3.553 (32.332)	302	-0.094 [0.003]	-0.077 [0.154]
Labor (*days/season*)	68.699 (45.003)	123	66.628 (78.439)	1,994	57.814 (69.762)	302	0.023 [0.651]	0.131 [0.062]
Maize ($)	18.743 (36.861)	125	8.448 (55.131)	1,994	8.346 (53.525)	302	0.155 [0.004]	0.160 [0.013]
Beans ($)	13.713 (21.105)	125	6.043 (71.676)	1,994	5.953 (39.940)	302	0.103 [0.002]	0.172 [0.006]
Peanuts ($)	10.641 (25.308)	125	1.463 (39.903)	1,994	2.490 (18.104)	302	0.194 [0.000]	0.262 [0.016]
Tomatoes ($)	0.000 (0.000)	125	3.070 (87.022)	1,994	0.000 (0.000)	302	-0.035 [0.053]	
Potatoes ($)	0.000 (0.000)	125	0.702 (11.820)	1,994	1.813 (10.021)	302	-0.059 [0.024]	-0.181 [0.091]
Other crops ($)	0.315 (3.522)	125	33.711 (319.128)	1,994	14.270 (73.398)	302	-0.105 [0.001]	-0.190 [0.004]

Notes: The sample consists of the control group of tenants in the experiment in column 1; tenant farmers in the UNPS 2013/14 in column 2; female tenant farmers in the UNPS 2013/14 in column 3. Columns 4 reports the normalized difference between columns 1 v.s. 2 or 1 v.s. 3., computed as the difference in means in treatment and control observations divided by the square root of the sum of the variances (Imbens and Wooldridge, 2009). Column 4 also reports (in square brackets) the p-values for comparison of means across columns 1 v.s. 2 or 1 v.s. 3. Observations in Panel A are at the farmer level while observations in Panel B are at the plot $\times$ season level. The farmers in the experiment were surveyed every season and typically had one experimental plot each, therefore the number of observations in Panels A and B are similar in column 1; while in the UNPS sample the farmers were surveyed once for farmer characteristics and twice at the end of each season for plot-level characteristics and each farmer may cultivate multiple plots. For this reason the number of observations in Panel B is greater for the UNPS sample than in Panel A. The variable descriptions are provided in Table II.. "Labor" is the sum of the farmer's own labor and any hired labor.

SUPPLEMENTARY TABLE IV: FARMERS IN UNPS V.S. EXPERIMENTAL SAMPLE

	(1)		(2)		(3)		(4)	
	Experiment		UNPS		UNPS – restricted		Differences	
	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	1 v.s. 2	1 v.s. 3
Panel A:				*Farmer Characteristics*				
Female (Yes=1)	1.000 (0.000)	392	0.402 (0.492)	726	1.000 (0.000)	122	1.216 [0.000]	
Age of the farmer (years)	22.520 (4.835)	392	42.536 (13.487)	723	30.826 (5.287)	122	-1.397 [0.000]	-1.159 [0.000]
Married (Yes=1)	0.518 (0.500)	394	0.758 (0.429)	725	0.734 (0.427)	122	-0.365 [0.000]	-0.329 [0.000]
Household size	5.343 (1.987)	396	6.139 (2.886)	726	5.507 (2.357)	122	-0.227 [0.000]	-0.053 [0.502]
Schooling (years)	8.298 (2.762)	393	6.280 (4.693)	717	6.739 (4.321)	122	0.371 [0.000]	0.304 [0.001]
Household assets ($)	1,529.174 (2,426.446)	392	1,094.000 (2,849.943)	729	902.451 (2,023.608)	122	0.116 [0.004]	0.198 [0.009]
Agricultural tools ($)	42.135 (36.502)	392	36.868 (49.354)	728	27.919 (44.520)	122	0.086 [0.072]	0.247 [0.004]
Panel B:				*Plot Characteristics*				
Output y ($)	41.414 (60.093)	396	53.437 (331.397)	1,994	32.873 (95.082)	302	-0.036 [0.248]	0.076 [0.172]
Plot size (acres)	0.566 (0.263)	395	0.929 (1.258)	1,994	0.671 (0.721)	302	-0.282 [0.000]	-0.136 [0.017]
Yield y/m^2 ($)	0.019 (0.029)	395	0.023 (0.262)	1,994	0.013 (0.033)	302	-0.014 [0.658]	0.141 [0.024]
Fertilizer value ($)	1.539 (4.455)	390	3.907 (29.995)	1,994	3.553 (32.332)	302	-0.078 [0.012]	-0.062 [0.246]
Labor (*days/season*)	71.814 (50.972)	388	66.628 (78.439)	1,994	57.814 (69.762)	302	0.055 [0.123]	0.162 [0.004]
Maize ($)	14.988 (28.477)	396	8.448 (55.131)	1,994	8.346 (53.525)	302	0.105 [0.002]	0.110 [0.022]
Beans ($)	13.852 (33.487)	396	6.043 (71.676)	1,994	5.953 (39.940)	302	0.099 [0.001]	0.152 [0.003]
Peanuts ($)	9.942 (22.982)	396	1.463 (39.903)	1,994	2.490 (18.104)	302	0.184 [0.000]	0.255 [0.007]
Tomatoes ($)	0.239 (4.750)	396	3.070 (87.022)	1,994	0.000 (0.000)	302	-0.032 [0.078]	0.050 [0.318]
Potatoes ($)	0.050 (0.990)	396	0.702 (11.820)	1,994	1.813 (10.021)	302	-0.055 [0.039]	-0.175 [0.100]
Other crops ($)	2.344 (22.512)	396	33.711 (319.128)	1,994	14.270 (73.398)	302	-0.098 [0.001]	-0.155 [0.017]

Notes: The sample consists of the control and treatment groups of tenants in the experiment in column 1; tenant farmers in the UNPS 2013/14 in column 2; female tenant farmers in the UNPS 2013/14 in column 3. Columns 4 reports the normalized difference between columns 1 v.s. 2 or 1 v.s. 3., computed as the difference in means in treatment and control observations divided by the square root of the sum of the variances (Imbens and Wooldridge, 2009). Column 4 also reports (in square brackets) the p-values for comparison of means across columns 1 v.s. 2 or 1 v.s. 3. Observations in Panel A are at the farmer level while observations in Panel B are at the plot $\times$ season level. The farmers in the experiment were surveyed every season and typically had one experimental plot each, therefore the number of observations in Panels A and B are similar in column 1; while in the UNPS sample the farmers were surveyed once for farmer characteristics and twice at the end of each season for plot-level characteristics and each farmer may cultivate multiple plots. For this reason the number of observations in Panel B is greater for the UNPS sample than in Panel A. The variable descriptions are provided in Table II.. "Labor" is the sum of the farmer's own labor and any hired labor.

SUPPLEMENTARY TABLE V: EFFECTS ON OUTPUT, BY AGE

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	55.401***	55.619***	0.073**	0.073**
	(18.486)	(18.661)	(0.031)	(0.031)
	[0.005]	[0.006]	[0.027]	[0.029]
High y (T2)	4.979		-0.000	
	(17.259)		(0.030)	
	[0.789]		[1.000]	
High y, safe (T2A)		16.443		0.042
		(25.472)		(0.045)
		[0.581]		[0.389]
High y, risky (T2B)		-8.319		-0.044
		(15.737)		(0.031)
		[0.593]		[0.183]
Age	-1.389	-1.587	-0.006	-0.007
	(3.389)	(3.473)	(0.006)	(0.006)
	[0.682]	[0.648]	[0.287]	[0.227]
T1 × Age	-3.925	-3.856	0.004	0.005
	(5.347)	(5.446)	(0.010)	(0.010)
	[0.474]	[0.496]	[0.678]	[0.646]
T2 × Age	-0.935		0.000	
	(4.523)		(0.009)	
	[0.860]		[0.999]	
T2A × Age		-4.652		-0.004
		(7.105)		(0.014)
		[0.517]		[0.804]
T2B × Age		3.055		0.007
		(4.229)		(0.009)
		[0.499]		[0.518]
H_0: T1 = T2	0.026		0.054	
H_0: T1 = T2A		0.197		0.550
H_0: T1 = T2B		0.001		0.001
H_0: T2A = T2B		0.339		0.106
H_0: T1 × Age = T2 × Age	0.580		0.700	
H_0: T1 × Age = T2A × Age		0.920		0.550
H_0: T1 × Age = T2B × Age		0.220		0.890
H_0: T2A × Age = T2B × Age		0.265		0.517
H_0: Interactions Joint	0.788	0.602	0.912	0.876
Mean Outcome (C)	95.129	95.129	0.174	0.174
Observations	473	473	473	473

Notes: The table reports ordinary least square estimates based on specification (4) at the plot level, for both Season 1 and Season 2. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield, y/m^2* is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. *Age* is the age (in years) of the respondent at baseline. *Age* is demeaned by subtracting the sample mean (21.7 years), to ensure that the coefficients on the main treatment indicators preserve their interpretation as estimating the average treatment effects. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets p-values of the null hypothesis of no effect are provided which are calculated using randomization inference (with the exception of the main effect on *Age* which are analytic); *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE VI: EFFECTS ON OUTPUT, BY MARITAL STATUS

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	56.160***	56.603***	0.073**	0.073**
	(18.791)	(18.961)	(0.030)	(0.030)
	[0.004]	[0.004]	[0.023]	[0.025]
High y (T2)	4.013		-0.000	
	(17.112)		(0.030)	
	[0.826]		[0.998]	
High y, safe (T2A)		8.306		0.038
		(24.755)		(0.045)
		[0.760]		[0.436]
High y, risky (T2B)		-7.101		-0.042
		(16.119)		(0.032)
		[0.667]		[0.226]
Married	18.033	18.245	-0.044	-0.046
	(28.285)	(29.073)	(0.046)	(0.046)
	[0.465]	[0.466]	[0.251]	[0.238]
T1 × Married	-24.784	-27.344	0.096	0.093
	(44.218)	(44.976)	(0.078)	(0.079)
	[0.593]	[0.564]	[0.231]	[0.258]
T2 × Married	-51.162		0.020	
	(45.517)		(0.055)	
	[0.296]		[0.730]	
T2A × Married		-103.847		-0.001
		(74.260)		(0.080)
		[0.193]		[0.997]
T2B × Married		8.484		0.074
		(38.470)		(0.067)
		[0.834]		[0.294]
H_0: T1 = T2	0.021		0.043	
H_0: T1 = T2A		0.121		0.515
H_0: T1 = T2B		0.001		0.004
H_0: T2A = T2B		0.562		0.136
H_0: T1 × Married = T2 × Married	0.578		0.306	
H_0: T1 × Married = T2A × Married		0.307		0.323
H_0: T1 × Married = T2B × Married		0.430		0.824
H_0: T2A × Married = T2B × Married		0.169		0.480
H_0: Interactions Joint	0.566	0.589	0.488	0.603
Mean Outcome (C)	95.129	95.129	0.174	0.174
Observations	473	473	473	473

Notes: The table reports ordinary least square estimates based on specification (4) at the plot level, for both Season 1 and Season 2. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield, y/m^2* is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. *Married* is a dummy variable =1 if the respondent was married at baseline. *Married* is demeaned by subtracting the sample mean (0.51), to ensure that the coefficients on the main treatment indicators preserve their interpretation as estimating the average treatment effects. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets *p*-values of the null hypothesis of no effect are provided which are calculated using randomization inference (with the exception of the main effect on *Married* which are analytic); *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference *p*-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE VII: EFFECTS ON OUTPUT, BY SCHOOLING

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	53.214**	53.600**	0.073**	0.072**
	(19.144)	(19.384)	(0.031)	(0.031)
	[0.012]	[0.013]	[0.030]	[0.031]
High y (T2)	8.260		0.001	
	(18.675)		(0.032)	
	[0.691]		[0.980]	
High y, safe (T2A)		23.737		0.046
		(28.784)		(0.051)
		[0.472]		[0.414]
High y, risky (T2B)		-6.220		-0.043
		(16.311)		(0.033)
		[0.709]		[0.221]
Schooling (years)	-7.004	-6.954	-0.002	-0.002
	(4.435)	(4.428)	(0.007)	(0.007)
	[0.116]	[0.118]	[0.747]	[0.781]
T1 × Schooling (years)	13.686*	13.509*	0.005	0.004
	(7.411)	(7.461)	(0.012)	(0.012)
	[0.065]	[0.073]	[0.743]	[0.753]
T2 × Schooling (years)	14.629*		0.005	
	(8.671)		(0.011)	
	[0.095]		[0.690]	
T2A × Schooling (years)		20.226*		0.008
		(11.407)		(0.014)
		[0.094]		[0.576]
T2B × Schooling (years)		4.513		-0.001
		(8.283)		(0.015)
		[0.619]		[0.980]
H_0: T1 = T2	0.052		0.073	
H_0: T1 = T2A		0.369		0.663
H_0: T1 = T2B		0.004		0.004
H_0: T2A = T2B		0.294		0.142
H_0: T1 × Sch. = T2 × Sch.	0.913		0.984	
H_0: T1 × Sch. = T2A × Sch.		0.600		0.830
H_0: T1 × Sch. = T2B × Sch.		0.360		0.791
H_0: T2A × Sch. = T2B × Sch.		0.227		0.688
H_0: Interactions Joint	0.083	0.163	0.904	0.959
Mean Outcome (C)	95.129	95.129	0.174	0.174
Observations	473	473	473	473

Notes: The table reports ordinary least square estimates based on specification (4) at the plot level, for both Season 1 and Season 2. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield, y/m^2* is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. *Schooling* is the years of schooling the respondent completed. *Schooling* is demeaned by subtracting the sample mean (8.2 years), to ensure that the coefficients on the main treatment indicators preserve their interpretation as estimating the average treatment effects. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets p-values of the null hypothesis of no effect are provided which are calculated using randomization inference (with the exception of the main effect on *Schooling* which are analytic); *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE VIII: EFFECTS ON OUTPUT, BY PLOT SIZE

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	56.628***	56.473***	0.075**	0.074**
	(18.552)	(18.674)	(0.031)	(0.031)
	[0.004]	[0.004]	[0.026]	[0.028]
High y (T2)	4.460		-0.000	
	(17.396)		(0.031)	
	[0.810]		[0.997]	
High y, safe (T2A)		18.079		0.042
		(25.949)		(0.047)
		[0.545]		[0.423]
High y, risky (T2B)		-8.136		-0.044
		(15.827)		(0.031)
		[0.605]		[0.210]
Plot size	-34.119	-32.621	-0.098	-0.095
	(31.767)	(31.832)	(0.063)	(0.062)
	[0.284]	[0.307]	[0.119]	[0.130]
T1 × Plot size	25.295	23.942	0.068	0.066
	(58.783)	(58.758)	(0.103)	(0.104)
	[0.693]	[0.713]	[0.595]	[0.605]
T2 × Plot size	-24.836		0.131	
	(65.837)		(0.187)	
	[0.763]		[0.575]	
T2A × Plot size		-48.777		0.174
		(94.434)		(0.304)
		[0.681]		[0.663]
T2B × Plot size		-4.180		0.036
		(43.794)		(0.082)
		[0.951]		[0.735]
H_0: T1 = T2	0.022		0.058	
H_0: T1 = T2A		0.211		0.589
H_0: T1 = T2B		0.001		0.001
H_0: T2A = T2B		0.342		0.132
H_0: T1 × Plot S. = T2 × Plot S.	0.566		0.820	
H_0: T1 × Plot S. = T2A × Plot S.		0.562		0.814
H_0: T1 × Plot S. = T2B × Plot S.		0.691		0.849
H_0: T2A × Plot S. = T2B × Plot S.		0.701		0.743
H_0: Interactions Joint	0.851	0.957	0.785	0.946
Mean Outcome (C)	95.129	95.129	0.174	0.174
Observations	473	473	473	473

Notes: The table reports ordinary least square estimates based on specification (4) at the plot level, for both Season 1 and Season 2. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield, y/m^2* is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. *Plot size* is the self-reported plot size (in acres) of the experimental plot cultivated by the respondent. *Plot size* is demeaned by subtracting the sample mean (0.57 acre), to ensure that the coefficients on the main treatment indicators preserve their interpretation as estimating the average treatment effects. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets p-values of the null hypothesis of no effect are provided which are calculated using randomization inference (with the exception of the main effect on *Plot size* which are analytic); *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

IV. Responsiveness to Weather Shocks: Details

This section lays out the details of how we measure the relative responsiveness of output to weather shocks across treatment arms (described in Section V.B).

To estimate the relative responsiveness of output to weather shocks, we proceed in three steps:
Step 1: We obtain satellite-imagery based daily rainfall estimates for each 0.1 degree grid cell between 2006 to 2015, provided by the Climate Prediction Center of the NOAA/National Weather Service. We match these data to the geolocation of experimental plots. We calculate the sum of rainfall, $r_{i,g,t}$, on plot i in part g of season t, where $g \in \{\text{planting, growing, harvesting}\}$. In this we take February and March to be the planting part of the first season, and August and September as the planting part of the second season; we take April, May and June as the growing part of the first season, and October, November and December as the growing part of the second season; we take July as the harvesting part of the first season, and January as the harvesting part o the second season. We denote the vector of $r_{i,\text{planting},t}$, $r_{i,\text{growing},t}$, and $r_{i,\text{harvesting},t}$, as well as their squared values and a constant with $\mathbf{r}_{i,t}$.
Step 2: We obtain a predictive model of how the multidimensional rainfall data maps into a unidimensional measure of weather conditions, scaling proportionately with output. To that end we regress output $y_{i,t}$ on $\mathbf{r}_{i,t}$ in the sample of T2 plots, pooled across seasons 1 and 2. Standard errors are clustered at the village level. Results are shown in Supplementary Table IX.

None of the regressors is individually significant. However, an F-test of the joint hypothesis that all coefficients on elements of $\mathbf{r}_{i,t}$ are zero is rejected with p-value 0.006. Denote the vector of estimated parameters associated with $\mathbf{r}_{i,t}$ as $\hat{\gamma}$. Define $\hat{\theta}_{i,t} = \hat{\gamma}\mathbf{r}_{i,t}$. Note that a regression of output on $\hat{\theta}_{i,t}$ within the sample of Supplementary Table IX will yield a coefficient estimate of 1 by construction. We calculate $\hat{\theta}_{i,t}$ for all plots in C, T1 and T2 in experimental seasons 1 and 2. In what follows we interpret $\hat{\theta}_{i,t}$ as proportional to the rainfall component of θ, up to a scaling factor that is constant across treatment groups.
Step 3: We regress output $y_{i,t}$ on $\hat{\theta}_{i,t} \times \mathrm{k}_i$ as well as the set of dummy variables k_i, where k_i indicates that plot i is in treatment arm $k \in \{\text{C}, \text{T1}, \text{T2}\}$, using the sample of C, T1 and T2 plots pooled across seasons 1 and 2. Denote the estimated coefficients as $\hat{\rho}_k$, respectively. These measure the strength of output responses to weather shocks for farmers in C and T1, relative to T2. The ratio $\frac{\hat{\rho}_{T1}}{\hat{\rho}_C}$ is then a consistent estimate of $\frac{a_{T1}f(x_{T1})}{a_C f(x_C)}$. Supplementary Table X reports the results of this regression.

For tenants in control C the responsiveness of output to $\hat{\theta}_{i,t}$ is estimated to be 0.614 (p-value

SUPPLEMENTARY TABLE IX: RAINFALL AND OUTPUT

	Output, y
Rainfall: Planting	-0.259
	(1.549)
Rainfall: Growing	-0.538
	(1.037)
Rainfall: Harvesting	1.168
	(1.388)
Rainfall^2: Planting	-0.0001
	(0.0027)
Rainfall^2: Growing	0.0005
	(0.0015)
Rainfall^2: Harvesting	-0.0057
	(0.0063)
Observations	165

Notes: The table reports ordinary least squares estimates of *Output, y* on $\mathbf{r}_{i,t}$ as well as a constant. The sample consists of plots in treatment arm T2, pooled across experimental seasons 1 and 2. Standard errors are clustered at the village level and given in round brackets. An *F*-test of the joint hypothesis that all coefficients on elements of $\mathbf{r}_{i,t}$ are zero is rejected with *p*-value 0.006. The mean values of *Rainfall: Planting*, *Rainfall: Growing* and *Rainfall: Harvesting* are 227, 328 and 36, respectively.

SUPPLEMENTARY TABLE X: RAINFALL AND OUTPUT

	Output, y
$\hat{\theta}_{i,t} \times \mathrm{C}_i$	0.614
	(0.229)
$\hat{\theta}_{i,t} \times \mathrm{T1}_i$	1.393
	(0.443)
$\hat{\theta}_{i,t} \times \mathrm{T2}_i$	1.000
	(0.402)
Observations	472

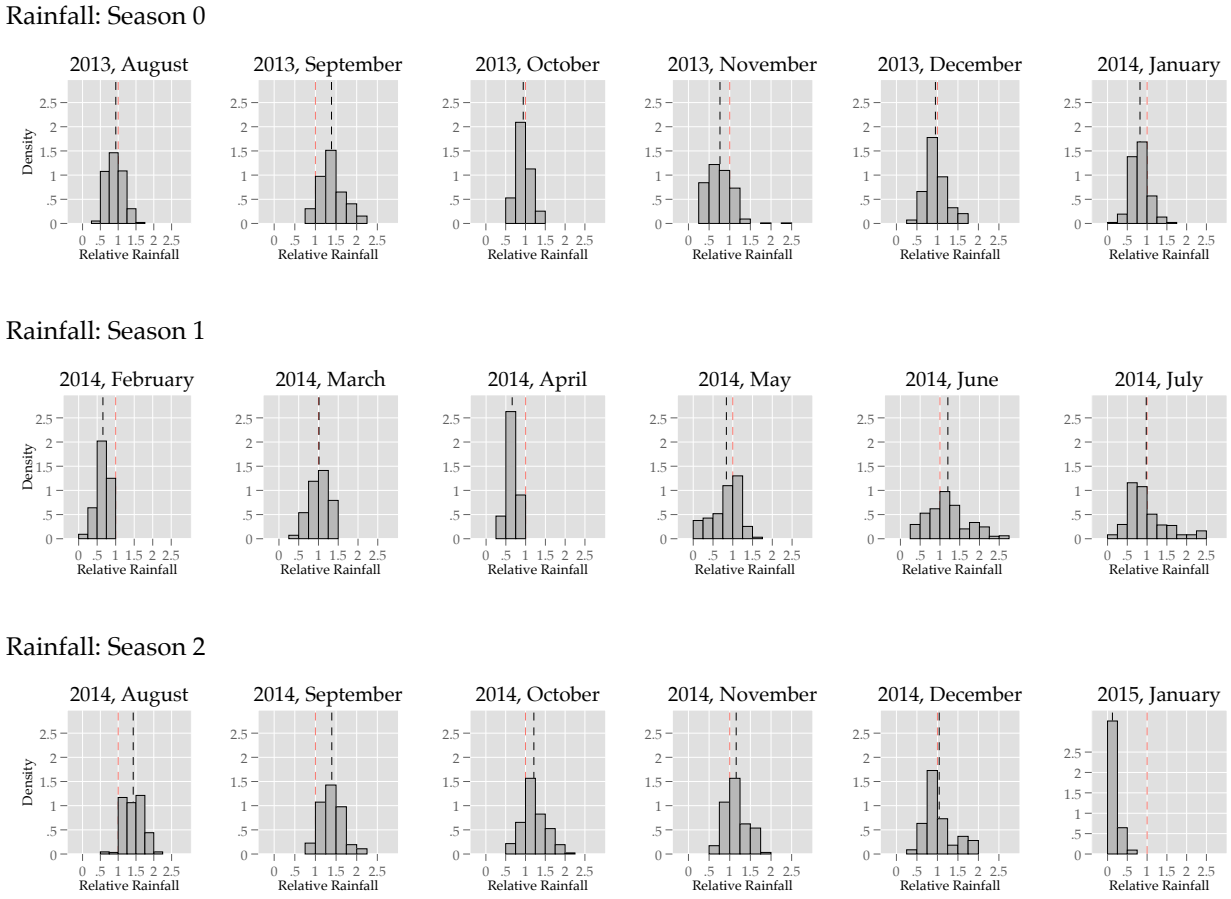
Notes: The table reports ordinary least squares estimates of *Output, y* on $\hat{\theta}_{i,t} \times \mathrm{k}_i$ as well as the set of dummy variables k_i (results omitted) where k_i indicates that plot i is in treatment arm $k \in \{\mathrm{C}, \mathrm{T1}, \mathrm{T2}\}$. The sample consists of C, T1 and T2 plots pooled across seasons 1 and 2. Standard errors are clustered at the village level and given in round brackets; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Details on how $\hat{\theta}_{i,t}$ is constructed are given in Step 2 of Appendix IV..

$= 0.008$), and in treatment group T1 it is estimated to be 1.393 (p-value $= 0.002$). In both treatment groups $\hat{\theta}_{i,t}$ is therefore a highly significant predictor of output. This suggests that $\hat{\theta}_{i,t}$ as constructed in Step 1 and Step 2 is indeed a meaningful measure of weather conditions.

V. Additional Results

V.A. Rainfall

SUPPLEMENTARY FIGURE I: RAINFALL ON EXPERIMENTAL PLOTS



Notes: Each subfigure depicts the distribution across experimental plots of the ratio of local rainfall during the month indicated above the figure relative to the historic mean of local rainfall in the same calendar month. All figures are constructed from daily rainfall estimates for each 0.1 degree grid cell between 1983 to 2015, provided by the Climate Prediction Center of the NOAA/National Weather Service. For each experimental plot i and each month m of every year j between 1983 and 2015 we calculate the total rainfall in the grid cell of plot i. The historic mean of local rainfall on plot i during calendar month m is approximated as the mean rainfall in the grid cell of i in month m across all years from 1983 through 2012. The distribution in the first, second and third row is taken over all experimental plots in season 0, 1 and 2 respectively. The dashed black line indicates the mean ratio between rainfall during the experimental season and the historic mean of local rainfall in the same calendar month. The dashed red line indicates a ratio of 1.

V.B. Attrition Analysis

SUPPLEMENTARY TABLE XI: ATTRITION SEASON 1

Attrition in:	*Crop A. Survey*		*Tenants Survey*	
	(1)	(2)	(3)	(4)
High s (T1)	-0.053	-0.053	-0.034	-0.033
	(0.052)	(0.052)	(0.054)	(0.054)
	[0.315]	[0.313]	[0.531]	[0.542]
High w (T2)	0.001		-0.038	
	(0.052)		(0.051)	
	[0.994]		[0.466]	
High w, safe (T2A)		0.010		-0.076
		(0.068)		(0.056)
		[0.874]		[0.189]
High w, risky (T2B)		-0.009		0.000
		(0.066)		(0.068)
		[0.881]		[1.000]
H_0: T1 = T2	0.341		0.921	
H_0: T1 = T2A		0.385		0.415
H_0: T1 = T2B		0.546		0.623
H_0: T2A = T2B		0.804		0.304
Mean Outcome (C)	0.245	0.245	0.204	0.204
Observations	304	304	304	304

Notes: The table reports ordinary least square estimates based on specification (4). The sample includes all tenants who signed a tenancy contract with BRAC at the beginning of Season 1. The dependent variable is an indicator variable that is equal to 1 if no pre-harvest crop assessment survey was conducted (in columns 1 and 2) or no Tenant survey was conducted (in columns 3 and 4) for that tenant at the end of Season 1. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference p-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE XII: ATTRITION SEASON 2

Attrition in:	*Crop A. Survey*		*Tenants Survey*	
	(1)	(2)	(3)	(4)
High s (T1)	-0.002	-0.002	-0.107	-0.106
	(0.065)	(0.065)	(0.068)	(0.068)
	[0.969]	[0.968]	[0.138]	[0.145]
High w (T2)	0.009		-0.070	
	(0.063)		(0.069)	
	[0.892]		[0.351]	
High w, safe (T2A)		0.004		-0.125
		(0.081)		(0.087)
		[0.962]		[0.180]
High w, risky (T2B)		0.014		-0.015
		(0.079)		(0.085)
		[0.859]		[0.875]
H_0: T1 = T2	0.846		0.579	
H_0: T1 = T2A		0.939		0.846
H_0: T1 = T2B		0.842		0.277
H_0: T2A = T2B		0.921		0.295
Mean Outcome (C)	0.367	0.367	0.469	0.469
Observations	304	304	304	304

Notes: The table reports ordinary least square estimates based on specification (4). The sample includes all tenants who signed a tenancy contract with BRAC at the beginning of Season 1. The dependent variable is an indicator variable that is equal to 1 if no pre-harvest crop assessment survey was conducted (in columns 1 and 2) or no Tenant Survey was conducted (in columns 3 and 4) for that tenant at the end of Season 2. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference p-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

V.C. Additional Output Results

SUPPLEMENTARY TABLE XIII: SELF-REPORTED OUTPUT

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	0.88	0.92	-0.00	-0.00
	(8.83)	(8.83)	(0.00)	(0.00)
	[0.927]	[0.925]	[0.322]	[0.324]
High y (T2)	-9.60		-0.01	
	(7.83)		(0.00)	
	[0.292]		[0.170]	
High y, safe (T2A)		-12.18		-0.01
		(9.25)		(0.00)
		[0.250]		[0.177]
High y, risky (T2B)		-6.68		-0.00
		(11.12)		(0.01)
		[0.605]		[0.417]
H_0: T1 = T2	0.303		0.754	
H_0: T1 = T2A		0.264		0.671
H_0: T1 = T2B		0.593		0.966
H_0: T2A = T2B		0.713		0.740
Mean Outcome (C)	43.41	43.41	0.02	0.02
Observations	396	396	395	395

Notes: The table reports ordinary least square estimates based on specification (4) at the plot level, for both season 1 and season 2. *Output, y* is the value of output of the plot, as reported by the tenants in the post-harvest survey. It is calculated by multiplying the quantity of output of crops reported with the price of the relevant crop measured on local markets and summing over crops. *Yield, y/m^2* is the output of the plot, as reported by the tenant, divided by the area (in square meters) of the plot. This is the only difference to Table II, were the yield measure is calculated from the Crop Assessment data. Values are in PPP USD terms. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference p-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE XIV: EFFECTS ON OUTPUT - WITHOUT TRIMMING

	Not truncated at 99th percentile			
	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	91.479***	91.133***	0.115***	0.114***
	(27.389)	(27.554)	(0.047)	(0.048)
	[0.000]	[0.000]	[0.008]	[0.009]
High y (T2)	-0.949		-0.010	
	(20.298)		(0.034)	
	[0.963]		[0.824]	
High y, safe (T2A)		22.952		0.013
		(32.012)		(0.058)
		[0.525]		[0.850]
High y, risky (T2B)		-24.585		-0.032
		(21.326)		(0.037)
		[0.271]		[0.439]
H_0: T1 = T2	0.004		0.017	
H_0: T1 = T2A		0.173		0.242
H_0: T1 = T2B		0.000		0.001
H_0: T2A = T2B		0.231		0.572
Mean Outcome (C)	98.870	98.870	0.184	0.184
Observations	479	479	479	479

Notes: The table reports ordinary least square estimates based on specification (4) at the plot level, for both season 1 and season 2. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield, y/m^2* is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD. The only difference from Table II is that the outcome variable is not trimmed at the 99th percentile. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference p-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE XV: EFFECTS ON OUTPUT - CONTINUOUS T2

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	49.981**	50.084**	0.071*	0.072*
	(19.507)	(19.535)	(0.035)	(0.035)
	[0.023]	[0.021]	[0.064]	[0.064]
High y (T2)	-0.245		-0.000	
	(0.360)		(0.000)	
	[0.829]		[0.970]	
High y, safe (T2A)		-0.004		0.000
		(0.469)		(0.000)
		[0.998]		[0.985]
High y, risky (T2B)		-0.524		-0.001
		(0.263)		(0.000)
		[0.495]		[0.712]
Observations	419	419	419	419

Notes: The table reports ordinary least square estimates based on specification (4) at the plot level. It is constructed the same way as Table II, with the exception of how we construct the variables T2, T2A and T2B. Denote with m^C_{bs} the median of the value of output of plots in the control group in season s in branch b. The variable T2, T2A and T2B take on the value $(m^C_{b0} \times 0.25)/(m^C_{bs} \times 0.25)$ for Season $s \in \{1,2\}$ for a tenant/plot randomized to be part of T2, T2A and T2B, respectively, and zero otherwise. The numerator of the ratio is the value of actual (expected) payments to T2 tenants, and the denominator is the value of (expected) payments to T2 tenants that would ex-post correspond to the pure treatment effect of T1 in Season s. All specifications control for strata fixed effects. The number of observations is smaller relative to Table II since m^C_{bs} does not exist or is zero for some b and $s, s \geq 1$. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference p-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE XVI: EFFECTS ON OUTPUT, BY SURVEY DAY

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	58.366***	58.148***	0.077**	0.076**
	(18.626)	(18.727)	(0.031)	(0.031)
	[0.004]	[0.004]	[0.023]	[0.024]
High y (T2)	3.678		-0.003	
	(17.441)		(0.030)	
	[0.838]		[0.906]	
High y, safe (T2A)		17.147		0.041
		(25.484)		(0.048)
		[0.557]		[0.461]
High y, risky (T2B)		-11.393		-0.047
		(16.269)		(0.032)
		[0.505]		[0.182]
Survey Day	-9.928**	-9.921**	-0.017**	-0.016**
	(4.991)	(4.972)	(0.007)	(0.007)
	[0.048]	[0.047]	[0.012]	[0.014]
T1 × Survey Day	-4.436	-4.517	-0.003	-0.003
	(4.630)	(4.629)	(0.007)	(0.007)
	[0.387]	[0.382]	[0.725]	[0.722]
T2 × Survey Day	-1.773		-0.001	
	(5.057)		(0.007)	
	[0.751]		[0.906]	
T2A × Survey Day		-0.590		-0.002
		(5.959)		(0.009)
		[0.943]		[0.820]
T2B × Survey Day		-4.423		-0.001
		(4.730)		(0.008)
		[0.438]		[0.905]
H_0: T1 = T2	0.015		0.032	
H_0: T1 = T2A		0.189		0.538
H_0: T1 = T2B		0.001		0.002
H_0: T2A = T2B		0.306		0.129
H_0: T1 × S. Day = T2 × S. Day	0.607		0.836	
H_0: T1 × S. Day = T2A × S. Day		0.529		0.952
H_0: T1 × S. Day = T2B × S. Day		0.985		0.827
H_0: T2A × S. Day = T2B × S. Day		0.520		0.931
H_0: Interactions Joint	0.675	0.785	0.936	0.987
Mean Outcome (C)	95.129	95.129	0.174	0.174
Observations	473	473	473	473

Notes: The table reports ordinary least square estimates at the plot level, for both Season 1 and Season 2. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield, y/m^2* is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. *Survey Day* is the number of days between the crop assessment conducted on tenant i's plot in season t and the very first crop assessment survey conducted in season t. *Survey Day* variable is demeaned by subtracting the sample mean (5 days), to ensure that the coefficients on the main treatment indicators preserve their interpretation as estimating the average treatment effects. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets p-values of the null hypothesis of no effect are provided which are calculated using randomization inference (with the exception of the main effect on *Survey Day* which are analytic); *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE XVII: EFFECTS ON OUTPUT, BY DISTANCE TO MARKET

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	54.240***	54.074***	0.072**	0.071**
	(18.044)	(18.092)	(0.030)	(0.030)
	[0.007]	[0.007]	[0.027]	[0.031]
High y (T2)	2.968		-0.004	
	(16.871)		(0.030)	
	[0.873]		[0.898]	
High y, safe (T2A)		10.074		0.032
		(25.410)		(0.045)
		[0.739]		[0.526]
High y, risky (T2B)		-8.649		-0.045
		(15.666)		(0.032)
		[0.600]		[0.196]
Distance to Market	-7.581	-6.741	-0.008	-0.007
	(4.790)	(5.162)	(0.008)	(0.009)
	[0.115]	[0.193]	[0.344]	[0.453]
T1 × Distance to Market	4.459	4.567	0.002	0.002
	(5.116)	(5.052)	(0.008)	(0.008)
	[0.670]	[0.655]	[0.912]	[0.914]
T2 × Distance to Market	-0.585		-0.005	
	(2.063)		(0.004)	
	[0.897]		[0.481]	
T2A × Distance to Market		-8.559		-0.015
		(10.261)		(0.020)
		[0.571]		[0.622]
T2B × Distance to Market		0.350		-0.004
		(2.199)		(0.004)
		[0.918]		[0.560]
H_0: T1 = T2	0.024		0.045	
H_0: T1 = T2A		0.152		0.442
H_0: T1 = T2B		0.001		0.002
H_0: T2A = T2B		0.471		0.139
H_0: T1 × D. to M. = T2 × D. to M.	0.641		0.697	
H_0: T1 × D. to M. = T2A × D. to M.		0.387		0.610
H_0: T1 × D. to M. = T2B × D. to M.		0.623		0.725
H_0: T2A × D. to M. = T2B × D. to M.		0.501		0.650
H_0: Interactions Joint	0.978	0.909	0.766	0.929
Mean Outcome (C)	95.129	95.129	0.174	0.174
Observations	473	473	473	473

Notes: The table reports ordinary least square estimates at the plot level, for both Season 1 and Season 2. *Output*, y is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield*, y/m^2 is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. *Distance to Market* is the geodetic distance (Km) from plot to the nearest village or town market, calculated using GPS coordinates of the plots and the markets. *Distance to Market* is demeaned by subtracting the sample mean (2.6km), to ensure that the coefficients on the main treatment indicators preserve their interpretation as estimating the average treatment effects. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets p-values of the null hypothesis of no effect are provided which are calculated using randomization inference (with the exception of the main effect on *Distance to Market* which are analytic); *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE XVIII: EFFECTS ON HAVING HARVESTED SOME CROPS

	Likelihood of Early Harvest		Value of Early Harvest	
	(1)	(2)	(3)	(4)
High s (T1)	-0.006	-0.006	0.581	0.588
	(0.048)	(0.048)	(2.226)	(2.230)
	[0.919]	[0.911]	[0.807]	[0.807]
High y (T2)	0.032		-1.024	
	(0.049)		(1.949)	
	[0.532]		[0.596]	
High y, safe (T2A)		0.062		-1.476
		(0.059)		(2.671)
		[0.330]		[0.633]
High y, risky (T2B)		0.003		-0.583
		(0.064)		(2.105)
		[0.973]		[0.821]
H_0: T1 = T2	0.455		0.511	
H_0: T1 = T2A		0.269		0.549
H_0: T1 = T2B		0.899		0.656
H_0: T2A = T2B		0.485		0.774
Mean Outcome (C)	0.423	0.423	8.296	8.296
Observations	473	473	473	473

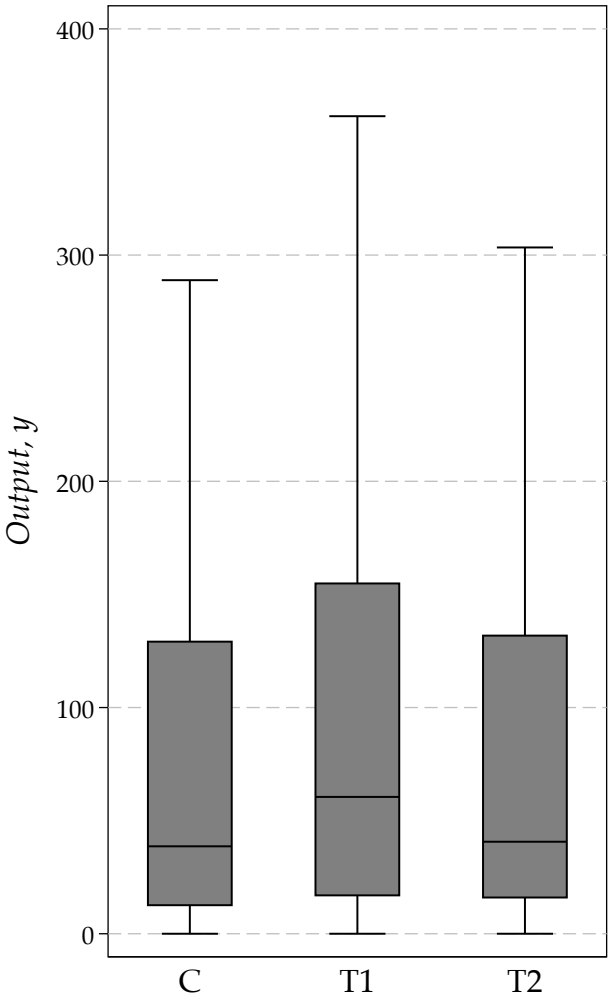
Notes: The table reports ordinary least square estimates based on specification (4) at the plot level, for both Season 1 and Season 2. Dependent variable in columns 1-2 is a dummy variable =1 if the farmer reported having already harvested some crops before the crop assessment. The dependent variable on columns 3-4 is the value of crops that had already been harvested before the crop assessment. Values are in PPP USD. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference p-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

SUPPLEMENTARY TABLE XIX: EFFECTS ON OUTPUT, BY SEASON

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	56.277***	84.856***	0.074**	0.104*
	(18.515)	(29.561)	(0.031)	(0.056)
	[0.004]	[0.005]	[0.024]	[0.066]
High y (T2)	5.356	23.809	-0.000	-0.000
	(17.169)	(27.171)	(0.030)	(0.047)
	[0.765]	[0.403]	[0.995]	[0.995]
Season 2		-69.021***		-0.111***
		(19.685)		(0.042)
		[0.001]		[0.008]
T1 × Season 2		-68.244**		-0.073
		(36.942)		(0.076)
		[0.041]		[0.315]
T2 × Season 2		-45.548		-0.004
		(34.597)		(0.060)
		[0.172]		[0.931]
H_0: T1 = T2	0.023	0.074	0.046	0.076
H_0: T1 × S.2 = T2 × S.2		0.595		0.350
H_0: Interactions Joint		0.113		0.549
H_0: T1 + T1 × S.2		0.378		0.348
H_0: T2 + T2 × S.2		0.227		0.898
Mean Outcome (C)	95.129		0.174	
Mean Outcome (C) in S1		123.868		0.218
Mean Outcome (C) in S2		60.895		0.121
Observations	473	473	473	473

Notes: The table reports ordinary least square estimates based on specification (4) at the plot level, for both Season 1 and Season 2. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield, y/m^2* is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD. T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets p-values of the null hypothesis of no effect are provided which are calculated using randomization inference (with the exception of the main effect on *Season 2* which are analytic); *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally randomization inference p-values for the specified compound hypotheses are reported.

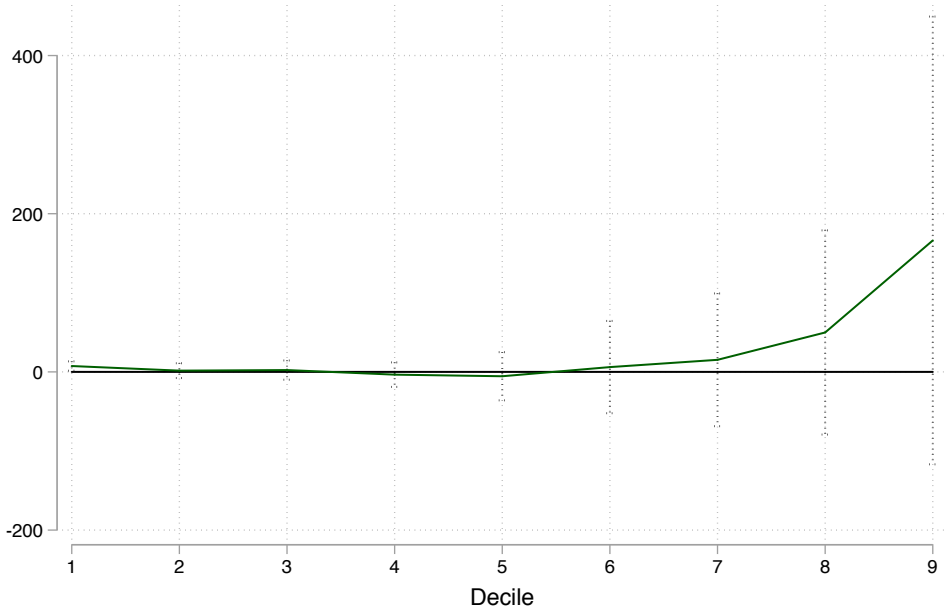
SUPPLEMENTARY FIGURE II: CONTRACTS AND *Output, y*



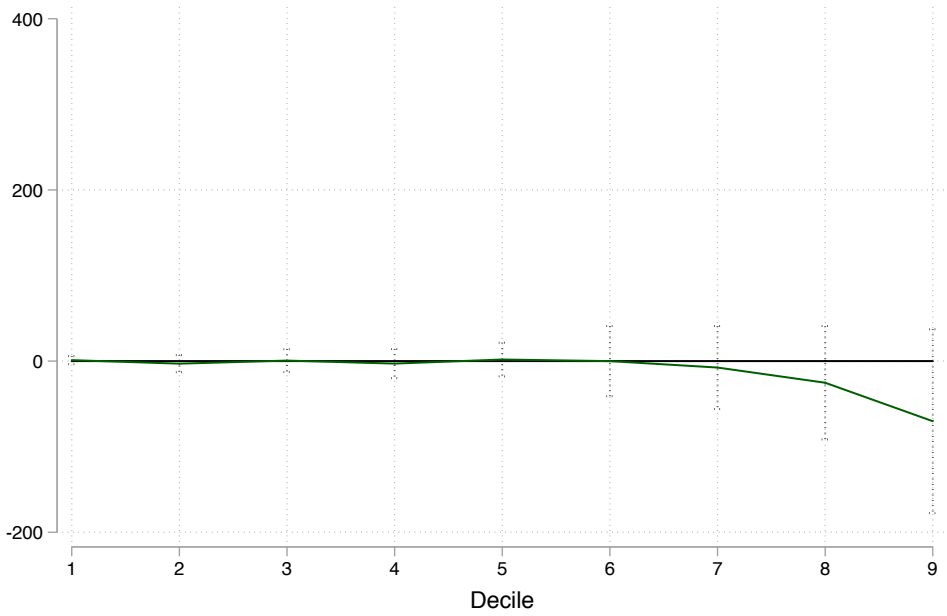
Notes: The figure plots the distribution of expected output from the plots, by treatment status. Tenants in T1 are those who were randomized to receive high (75%) output share, tenants in T2 received the same output share as control C (50%) and an additional cash transfer. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. Values are in PPP USD.

SUPPLEMENTARY FIGURE III: HETEROGENEITY OF IMPACT, SAFE VS RISKY INCOME w

(A) QUANTILE TREATMENT EFFECTS OF T2A



(B) QUANTILE TREATMENT EFFECTS OF T2B



Notes: The figure plots quantile treatment effect (QTE) estimates for *Output, y* and 90% confidence intervals based on bootstrapped (with 500 replications) standard errors clustered at the village level (unit of randomization). Each specification controls for the randomization strata. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. Values are in PPP USD.

V.D. Crop Risk Profile

SUPPLEMENTARY TABLE XX: CROP SENSITIVITY TO RAINFALL

	Maize (1)	Beans (2)	Peanuts (3)	Tomatoes (4)	Potatoes (5)
Panel A:	*Crop Sensitivity to Rainfall in the Control Group*				
Rainfall: Planting	-0.667	-9.928	3.451	-	-
	(12.635)	(21.091)	(10.322)		
Rainfall: Growing	-2.991	-15.325	-14.439**		
	(6.053)	(15.671)	(6.344)		
Rainfall: Harvesting	-33.554	-2.780	-8.758		
	(21.556)	(37.968)	(18.037)		
Rainfall^2: Planting	-0.015	0.012	-0.005		
	(0.026)	(0.042)	(0.019)		
Rainfall^2: Growing	0.005	0.010	0.023**		
	(0.009)	(0.020)	(0.010)		
Rainfall^2: Harvesting	0.281*	0.073	0.235		
	(0.168)	(0.290)	(0.189)		
Joint significance	0.037	0.180	0.069		
Observations	149	149	149	149	149
Panel B:	*Crop Sensitivity to Rainfall in Sub-Saharan Africa*				
Log Rainfall	0.212***	0.023	0.084*	0.093*	0.005
	(0.066)	(0.042)	(0.049)	(0.052)	(0.038)
Observations	2358	683	2245	1752	1697

Notes: In Panel A, *Rainfall: Planting*, *Rainfall: Growing* and *Rainfall: Harvesting* is the total rainfall (in mm) in the relevant season in a cell of size 10 km^2 that contains the plot. The sample is restricted to the control group with 50% output share. The dependent variable is the number of plants of the relevant crop observed on the plot during crop assessment survey. All specifications control for strata fixed effects. Standard errors are clustered at the village level and *** (**) (*) indicates significance at the 1% (5%) (10%) level. "Joint significance" gives the p-value for an *F*-test of the joint hypothesis test that all rainfall coefficients are equal to zero. In Panel B, the dependent variable is the log of annual crop yield (tonnes) in a country. 'Log Rainfall' is log annual precipitation in mm. Crop yield data are from FAOStat. Weather data is from the University of Delaware. Sample includes all Sub-Saharan African countries with recorded yield for a given crop in the data. All specifications control for country and year fixed effects. Standard errors are clustered at the country level.

SUPPLEMENTARY TABLE XXI: CROP VARIABILITY IN FAO DATA

	Maize (1)	Beans (2)	Peanuts (3)	Tomatoes (4)	Potatoes (5)
Panel A : Yield variability					
Cross-section	0.597	0.489	0.535	0.694	0.580
Time-series	0.335	0.191	0.253	0.236	0.293
Panel	0.655	0.543	0.546	0.752	0.623
Panel B : Price variability					
Price volatility	0.578	0.426	0.587	0.627	0.585

Notes: The table provides the coefficient of variation of the crop yield at the country level. Crop yield data are from FAOStat. Sample includes all Sub-Saharan African countries with recorded yield for a given crop in the data. The first row provides the average annual coefficient of variation across countries, the second row gives the country level average coefficient of variation of the crop yield within countries, the third row gives the coefficient of variation in the full panel.

SUPPLEMENTARY TABLE XXII: COVARIANCE OF CROP YIELDS IN THE CONTROL GROUP

	Maize (1)	Maize (2)	Beans (3)
Beans	0.071		
	(0.138)		
Peanuts		0.052	0.009
		(0.050)	(0.039)
Observations	150	150	150

Notes: The table provides the correlations of crop yields for maize, beans and peanuts in the control group with 50% output share. In column (1), expected yield of maize is regressed on the expected yield of beans; and in column (2) on expected yield of peanuts. In column (3), expected yield of beans is regressed on expected yield of peanuts. All specifications control for strata fixed effects. *** (**) (*) indicates significance at the 1% (5%) (10%) level.

SUPPLEMENTARY TABLE XXIII: EFFECTS ON CROP CHOICE

	Maize (1)	Beans (2)	Peanuts (3)	Tomatoes (4)	Potatoes (5)
Panel A:			*Extensive Margin*		
High *s* (T1)	0.112**	0.049	0.055	0.022***	0.012
	(0.047)	(0.042)	(0.040)	(0.010)	(0.008)
	[0.026]	[0.249]	[0.212]	[0.008]	[0.197]
High *w*, safe (T2A)	0.081	0.012	0.073	-0.008	0.005
	(0.059)	(0.052)	(0.050)	(0.008)	(0.004)
	[0.198]	[0.840]	[0.165]	[0.468]	[0.199]
High *w*, risky (T2B)	0.099	0.052	0.025	0.005	-0.001
	(0.062)	(0.051)	(0.049)	(0.005)	(0.005)
	[0.132]	[0.324]	[0.655]	[0.338]	[0.930]
H_0: T1 = T2A	0.606	0.518	0.776	0.029	0.122
H_0: T1 = T2B	0.828	0.965	0.626	0.001	0.184
H_0: T2A = T2B	0.812	0.556	0.511	0.242	0.388
Mean Outcome (C)	0.620	0.300	0.327	0.000	0.000
Observations	479	479	479	479	479
Panel B:			*Intensive Margin: Number of Plants*		
High *s* (T1)	161.64	0.26	327.11	41.14**	3.39
	(145.78)	(391.49)	(177.34)	(19.19)	(2.85)
	[0.291]	[0.998]	[0.131]	[0.019]	[0.324]
High *w*, safe (T2A)	-192.35	209.63	190.19	-6.82	1.40
	(162.95)	(495.43)	(179.45)	(16.01)	(1.30)
	[0.251]	[0.729]	[0.337]	[0.805]	[0.409]
High *w*, risky (T2B)	58.93	-377.51	-267.03	9.68	-0.04
	(167.79)	(329.34)	(203.90)	(10.52)	(1.72)
	[0.773]	[0.275]	[0.277]	[0.519]	[0.993]
H_0: T1 = T2A	0.073	0.692	0.560	0.048	0.265
H_0: T1 = T2B	0.598	0.135	0.038	0.008	0.233
H_0: T2A = T2B	0.248	0.200	0.075	0.503	0.556
Mean Outcome (C)	861.96	867.83	577.09	0.00	0.00
Observations	479	479	479	479	479
Panel C:			*Intensive Margin: Value of Output*		
High *s* (T1)	4.54	5.30	32.56***	7.69*	0.26
	(4.85)	(6.16)	(10.94)	(4.25)	(0.24)
	[0.381]	[0.393]	[0.003]	[0.050]	[0.450]
High *w*, safe (T2A)	-4.57	8.82	19.61*	-1.87	0.11
	(5.81)	(11.35)	(10.39)	(3.35)	(0.11)
	[0.474]	[0.478]	[0.077]	[0.737]	[0.556]
High *w*, risky (T2B)	-0.31	-5.18	-10.00	1.34	-0.00
	(4.51)	(4.89)	(13.84)	(2.23)	(0.15)
	[0.955]	[0.343]	[0.553]	[0.716]	[1.000]
H_0: T1 = T2A	0.153	0.775	0.396	0.179	0.340
H_0: T1 = T2B	0.351	0.070	0.025	0.030	0.323
H_0: T2A = T2B	0.486	0.250	0.093	0.623	0.672
Mean Outcome (C)	28.43	15.78	22.44	0.00	0.00
Observations	479	479	479	479	479

Notes: The table reports ordinary least square estimates based on specification (4). T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. T2A and T2B indicate subgroups of treatment group 2 (T2). T2A received a fixed income transfer, and T2B received a stochastic income transfer, with mean equal to T2A. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference *p*-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally the randomization inference *p*-value of a test of the null hypothesis that the effect of T1 and T2 are equal is provided for all estimating equations. Dependent variables in Panel A are dummy variables equal to 1 if at the time of the pre-harvest crop assessment survey, any harvestable plants of the specified crop were observed on the plot: maize in column (1), beans in column (2), peanuts in column (3), tomatoes in column (4), and potatoes in column (5). In Panel B, the dependent variable is the number of plants of the relevant crop; and in Panel C, the dependent variable is the output value from the relevant crop on the plot – calculated by multiplying the quantity of output of each crop with the price of the relevant crop measured on local markets. All monetary values are in PPP USD.

V.E. Attrition Bounds

SUPPLEMENTARY TABLE XXIV: EFFECTS ON OUTPUT - BOUNDS

	Output, y		Yield, y/m^2	
	(1)	(2)	(3)	(4)
High s (T1)	56.277***	56.072***	0.074**	0.073**
Lee Bounds	[35.111**, 64.072***]	[34.958**, 62.097***]	[0.017, 0.085**]	[0.016, 0.085**]
Imputation 5%	[43.446***, 54.353***]	[43.134***, 54.090***]	[0.064**, 0.082***]	[0.063**, 0.081***]
Imputation 10%	[37.993**, 59.807***]	[37.656**, 59.568***]	[0.055**, 0.091***]	[0.054**, 0.090***]
Imputation 20%	[27.086*, 70.713***]	[26.700*, 70.524***]	[0.036, 0.109***]	[0.036, 0.109***]
High y (T2)	5.356		-0.000	
Lee Bounds	[-0.541, 4.829]		[0.002, -0.003]	
Imputation 5%	[6.040, 14.504]		[0.003, 0.019]	
Imputation 10%	[1.809, 18.735]		[-0.004, 0.026]	
Imputation 20%	[-6.655, 27.199**]		[-0.020, 0.042*]	
High y, safe (T2A)		18.285		0.043
Lee Bounds		[8.793, 18.005]		[0.028, 0.046]
Imputation 5%		[27.142, 37.112**]		[0.038, 0.054]
Imputation 10%		[22.157, 42.097**]		[0.030, 0.063*]
Imputation 20%		[12.187, 52.067***]		[0.013, 0.079**]
High y, risky (T2B)		-7.250		-0.043
Lee Bounds		[-9.427,-10.982]		[-0.024, -0.048]
Imputation 5%		[-14.996, -9.064]		[-0.032, -0.018]
Imputation 10%		[-17.963, -6.098]		[-0.039, -0.011]
Imputation 20%		[-23.895**, -0.165]		[-0.053**, 0.003]
Observations	473	473	473	473
Lee Bounds	457	457	457	457
Imputation	656	656	656	656

Notes: The table reports ordinary least square estimates based on specification (4). T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. All specifications control for strata fixed effects. *** (**) (*) indicates significance for the test of the null hypothesis of no effect at the 1% (5%) (10%) level based on randomization inference. "Lee bounds" provides estimates where we trim observations from above (below) in the group with lower attrition, to equalize the response rates in groups T1, T2A, T2B with respect to the control group. We then re-estimate the treatment effects in the trimmed sample to deliver the lower (upper) bounds for the true treatment effects. "Imputation x%" provides estimates where we impute to the lower (upper) bound the mean minus (plus) a specified standard deviation multiple of the observed treatment group distribution to the nonresponders in the treatment group, and the mean plus (minus) the same standard deviation multiple of the observed control group distribution to the nonresponders in the control group. *Output, y* is the expected output of the plot measured through the pre-harvest crop assessment survey. It is calculated by multiplying the expected quantity of output of each crop with the price of the relevant crop measured on local markets, and summing over crops. *Yield, y/m^2* is the expected output of the plot divided by the area (in square meters) cultivated. Values are in PPP USD.

SUPPLEMENTARY TABLE XXV: EFFECTS ON CAPITAL INPUTS - BOUNDS

	Fertilizer (1)	Insecticide (2)	Tools (3)
Panel A:		*Extensive Margin*	
High *s* (T1)	0.094	-0.010	0.086
Lee Bounds	[0.040, 0.123*]	[-0.053, 0.016]	[0.047, 0.140**]
Imputation 5%	[0.087*, 0.110**]	[-0.029, -0.000]	[0.065, 0.093**]
Imputation 10%	[0.075, 0.121**]	[-0.043, 0.014]	[0.050, 0.108**]
Imputation 20%	[0.053, 0.144***]	[-0.071*, 0.042]	[0.021, 0.137***]
High *y* (T2)	0.027	-0.064	0.007
Lee Bounds	[-0.046, 0.053]	[-0.134**, -0.044]	[-0.052, 0.059]
Imputation 5%	[0.038, 0.060]	[-0.078*, -0.051]	[-0.012, 0.017]
Imputation 10%	[0.027, 0.071]	[-0.091**, -0.037]	[-0.026, 0.032]
Imputation 20%	[0.004, 0.094**]	[-0.118***, -0.011]	[-0.055, 0.061]
Observations	432	423	432
Lee Bounds	403	399	403
Imputation	608	608	608
Panel B:		*Intensive Margin (USD)*	
High *s* (T1)	1.127*	0.431	11.356**
Lee Bounds	[0.161, 1.241**]	[0.084, 0.626]	[3.392, 15.814***]
Imputation 5%	[1.199***, 1.752***]	[0.302, 0.593]	[7.603**, 10.494***]
Imputation 10%	[0.923**, 2.028***]	[0.156, 0.739**]	[6.158*, 11.939***]
Imputation 20%	[0.370, 2.581***]	[-0.136, 1.031***]	[3.267, 14.830***]
High *y* (T2)	0.592	-0.503	1.594
Lee Bounds	[-0.073, 0.741]	[-0.906**, -0.346]	[-5.001, 5.510]
Imputation 5%	[0.530*, 0.920***]	[-0.362, 0.271]	[-0.781, 1.976]
Imputation 10%	[0.336, 1.115***]	[-0.679**, 0.587]	[-2.159, 3.354]
Imputation 20%	[-0.054, 1.504***]	[-1.312***, 1.220***]	[-4.916, 6.111**]
Observations	419	413	427
Lee Bounds	397	392	398
Imputation	599	599	599

Notes: The table reports ordinary least square estimates based on specification (4). T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. All specifications control for strata fixed effects. *** (**) (*) indicates significance for the test of the null hypothesis of no effect at the 1% (5%) (10%) level based on randomization inference. "Lee bounds" provides estimates where we trim observations from above (below) in the group with lower attrition, to equalize the response rates in groups T1, T2A, T2B with respect to the control group. We then re-estimate the treatment effects in the trimmed sample to deliver the lower (upper) bounds for the true treatment effects. "Imputation x%" provides estimates where we impute to the lower (upper) bound the mean minus (plus) a specified standard deviation multiple of the observed treatment group distribution to the nonresponders in the treatment group, and the mean plus (minus) the same standard deviation multiple of the observed control group distribution to the nonresponders in the control group. "Fertilizer (Insecticide) use" is a dummy variable equal to 1 if the tenant said she used fertilizer (insecticide) on her plot during the past season. "Invested in tools" is a dummy variable equal to 1 if the tenant said she bought agricultural tools to cultivate her plot. In Panel B, the dependent variable is the monetary value of the input used in PPP USD. For tools, the intensive margin gives the value of agricultural tools that the tenant had at the time of the survey.

SUPPLEMENTARY TABLE XXVI: EFFECTS ON LABOR INPUTS - BOUNDS

	Own labor	Paid	Unpaid
	(hours/week)	*(days/season)*	
	(1)	(2)	(3)
High *s* (T1)	0.34	-0.05	8.02*
Lee Bounds	[-1.13, 1.06]	[-2.43, 0.54]	[6.23, 9.92**]
Imputation 5%	[-0.67, 0.01]	[-0.39, 0.03]	[8.13***, 8.91***]
Imputation 10%	[-1.01, 0.36]	[-0.60, 0.24]	[7.74**, 9.30***]
Imputation 20%	[-1.69*, 1.04]	[-1.01, 0.66]	[6.96**,10.09***]
High *y* (T2)	-0.03	1.06	1.79
Lee Bounds	[-1.49, 0.91]	[-2.04, 1.64]	[-0.60, 3.56]
Imputation 5%	[-1.39,-0.76]	[0.07, 0.44]	[0.87, 1.45]
Imputation 10%	[-1.70*,-0.45]	[-0.11, 0.63]	[0.58, 1.75]
Imputation 20%	[-2.32***, 0.17]	[-0.48, 1.00]	[0.00, 2.33]
Observations	417	432	432
Lee Bounds	399	403	403
Imputation	608	608	608

Notes: The table reports ordinary least square estimates based on specification (4). T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. All specifications control for strata fixed effects. *** (**) (*) indicates significance for the test of the null hypothesis of no effect at the 1% (5%) (10%) level based on randomization inference. "Lee bounds" provides estimates where we trim observations from above (below) in the group with lower attrition, to equalize the response rates in groups T1, T2A, T2B with respect to the control group. We then re-estimate the treatment effects in the trimmed sample to deliver the lower (upper) bounds for the true treatment effects. "Imputation *x*%" provides estimates where we impute to the lower (upper) bound the mean minus (plus) a specified standard deviation multiple of the observed treatment group distribution to the nonresponders in the treatment group, and the mean plus (minus) the same standard deviation multiple of the observed control group distribution to the nonresponders in the control group. "Own labor" is the number of hours that the tenant said she worked on the plot in a typical week during the past season. The dependent variables in columns 2 and 3 are the number of worker-days of paid and unpaid labor respectively that the tenant said she had working on the plot for throughout the season.

SUPPLEMENTARY TABLE XXVII: EFFECTS ON CROP CHOICE - BOUNDS

	Maize (1)	Beans (2)	Peanuts (3)	Tomatoes (4)	Potatoes (5)
Panel A:			*Extensive Margin*		
High *s* (T1)	0.112**	0.049	0.055	0.021***	0.012
Lee Bounds	[0.111**,0.130***]	[0.020,0.062]	[0.029,0.075*]	[0.000,0.023***]	[0.000,0.013]
Imputation 5%	[0.085**,0.108***]	[0.005,0.018]	[0.014,0.037]	[0.022***,0.026***]	[0.012***,0.013***]
Imputation 10%	[0.073*,0.120***]	[-0.002,0.025]	[0.002,0.049]	[0.020***,0.028***]	[0.011***,0.014***]
Imputation 20%	[0.049,0.144***]	[-0.015,0.038]	[-0.021,0.072**]	[0.016**,0.032***]	[0.010,0.015***]
High *y* (T2)	0.090*	0.032	0.049	-0.001	0.002
Lee Bounds	[0.097*,0.082*]	[0.022,0.029]	[0.057,0.046]	[0.000,-0.001]	[0.000,0.002]
Imputation 5%	[0.074**,0.100***]	[0.016,0.027]	[0.025,0.049]	[-0.001,-0.001]	[0.003,0.003]
Imputation 10%	[0.061,0.113***]	[0.010,0.033]	[0.012,0.062**]	[-0.001,-0.001]	[0.003,0.003]
Imputation 20%	[0.035,0.138***]	[-0.002,0.045]	[-0.013,0.087***]	[-0.001,-0.001]	[0.003,0.003]
Observations	479	479	479	479	479
Lee Bounds	463	463	463	463	463
Imputation	664	664	664	664	664
Panel B:			*Intensive Margin: Number of Plants*		
High *s* (T1)	159.82	4.53	330.43	41.02**	3.40
Lee Bounds	[12.01,182.31]	[-53.48,19.07]	[-38.78,372.23]	[0.00,43.38**]	[0.00, 4.13]
Imputation 5%	[110.83,176.54]	[-88.85, 5.17]	[269.40,350.98**]	[40.29***,47.65***]	[4.12***, 4.70***]
Imputation 10%	[77.97,209.39*]	[-135.85,52.18]	[228.61,391.77**]	[36.60***,51.33***]	[3.83**, 5.00***]
Imputation 20%	[12.26,275.10**]	[-229.87,146.19]	[147.04,473.35***]	[29.24*,58.70***]	[3.24, 5.58***]
High *y* (T2)	-66.01	-85.58	-39.70	1.48	0.67
Lee Bounds	[43.86,-71.69]	[180.70,-105.76]	[54.24,-46.53]	[0.00, 1.42]	[0.00, 0.81]
Imputation 5%	[-108.95,-44.94]	[-131.66,-29.96]	[-63.47,-1.23]	[1.59, 1.30]	[1.08, 1.05]
Imputation 10%	[-140.95,-12.94]	[-182.51,20.88]	[-94.59,29.89]	[1.74, 1.16]	[1.10, 1.03]
Imputation 20%	[-204.96**,51.07]	[-284.20,122.58]	[-156.82,92.12]	[2.03, 0.87]	[1.14, 1.00]
Observations	479	479	479	479	479
Lee Bounds	463	463	463	463	463
Imputation	664	664	664	664	664
Panel C:			*Intensive Margin: Value of Output*		
High *s* (T1)	4.51	5.40	32.77***	7.67*	0.27
Lee Bounds	[-0.41, 5.23]	[-3.58, 5.68]	[1.89,35.57***]	[0.00, 8.12*]	[0.00, 0.33]
Imputation 5%	[1.99, 4.47]	[2.31, 3.86]	[29.33***,34.56***]	[8.29***,10.07***]	[0.33***, 0.38***]
Imputation 10%	[0.74, 5.72]	[1.54, 4.63]	[26.71***,37.17***]	[7.39***,10.97***]	[0.31*, 0.41***]
Imputation 20%	[-1.75, 8.21*]	[0.00, 6.17]	[21.48**,42.40***]	[5.61,12.76***]	[0.26, 0.46***]
High *y* (T2)	-2.43	1.78	4.72	-0.25	0.05
Lee Bounds	[2.47,-2.58]	[3.83, 1.23]	[9.12, 4.59]	[0.00,-0.28]	[0.00, 0.07]
Imputation 5%	[-4.53,-2.08]	[0.72, 2.57]	[4.95, 8.00]	[0.02,-0.04]	[0.09, 0.09]
Imputation 10%	[-5.75*,-0.85]	[-0.21, 3.50]	[3.43, 9.53]	[0.04,-0.06]	[0.09, 0.08]
Imputation 20%	[-8.20***, 1.60]	[-2.07, 5.36]	[0.38,12.58*]	[0.10,-0.12]	[0.09, 0.08]
Observations	479	479	479	479	479
Lee Bounds	463	463	463	463	463
Imputation	664	664	664	664	664

Notes: The table reports ordinary least square estimates based on specification (4). T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. All specifications control for strata fixed effects. *** (**) (*) indicates significance for the test of the null hypothesis of no effect at the 1% (5%) (10%) level based on randomization inference. "Lee bounds" provides estimates where we trim observations from above (below) in the group with lower attrition, to equalize the response rates in groups T1, T2A, T2B with respect to the control group. We then re-estimate the treatment effects in the trimmed sample to deliver the lower (upper) bounds for the true treatment effects. "Imputation *x*%" provides estimates where we impute to the lower (upper) bound the mean minus (plus) a specified standard deviation multiple of the observed treatment group distribution to the nonresponders in the treatment group, and the mean plus (minus) the same standard deviation multiple of the observed control group distribution to the nonresponders in the control group. Dependent variables in Panel A are dummy variables equal to 1 if at the time of the pre-harvest crop assessment survey, any harvestable plants of the specified crop were observed on the plot: maize in column (1), beans in column (2), peanuts in column (3), tomatoes in column (4), and potatoes in column (5). In Panel B, the dependent variable is the number of plants of the relevant crop on the plot. In Panel C, the dependent variable is the output value from the specified crop on the plot – calculated by multiplying the quantity of output of each crop with the price of the relevant crop measured on local markets. All monetary values are in PPP USD.

SUPPLEMENTARY TABLE XXVIII: WELFARE - BOUNDS

	Labor income (1)	Consumpt. (2)	Cash savings (3)	Household income (4)	Household assets (5)
High s (T1)	4.07	4.43	56.83	33.04*	656.54*
Lee Bounds	[-4.87, 5.80]	[-3.85, 9.21]	[13.64, 67.65*]	[29.31, 36.02*]	[177.07, 879.75**]
Imputation 5%	[2.47, 8.37]	[-1.80, 2.44]	[13.74, 36.57*]	[37.43***, 51.54***]	[498.43***, 798.28***]
Imputation 10%	[-0.48, 11.32**]	[-3.92, 4.56]	[2.33, 47.98**]	[30.38**, 58.59***]	[348.51*, 948.20***]
Imputation 20%	[-6.38, 17.22***]	[-8.15, 8.79]	[-20.50, 70.81***]	[16.28, 72.69***]	[48.66,1248.05***]
High w (T2)	14.98*	-3.98	66.12	0.49	183.46
Lee Bounds	[-3.97, 19.34**]	[-9.64, 1.87]	[6.41, 82.47**]	[-16.26, 10.31]	[51.52, 263.41]
Imputation 5%	[9.19, 13.76**]	[-5.26, -0.87]	[12.01, 35.76]	[-8.27, 4.19]	[176.59, 326.06**]
Imputation 10%	[6.90, 16.05***]	[-7.45, 1.32]	[0.13, 47.63**]	[-14.50, 10.43]	[101.85, 400.79**]
Imputation 20%	[2.33, 20.62***]	[-11.83*, 5.70]	[-23.62, 71.39***]	[-26.96**, 22.89*]	[-47.62, 550.26***]
Observations	424	421	427	398	427
Lee Bounds	396	395	398	382	398
Imputation	600	600	600	600	600

Notes: The table reports ordinary least square estimates based on specification (4). T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. All specifications control for strata fixed effects. *** (**) (*) indicates significance for the test of the null hypothesis of no effect at the 1% (5%) (10%) level based on randomization inference. "Lee bounds" provides estimates where we trim observations from above (below) in the group with lower attrition, to equalize the response rates in groups T1, T2A, T2B with respect to the control group. We then re-estimate the treatment effects in the trimmed sample to deliver the lower (upper) bounds for the true treatment effects. "Imputation x%" provides estimates where we impute to the lower (upper) bound the mean minus (plus) a specified standard deviation multiple of the observed treatment group distribution to the nonresponders in the treatment group, and the mean plus (minus) the same standard deviation multiple of the observed control group distribution to the nonresponders in the control group. "Labor income" is the average monthly labor income of the respondent during the 12 months preceding the survey. "Consumption" is the monthly consumption expenditure of the respondent; it is calculated by adding her monthly personal consumption on non-food items and services with her household's per-capita food consumption where monthly food consumption is imputed from previous 2 days' recall."Cash savings" is the value of savings that the respondent has at the time of the survey. "Household income" is the response to the question "What is the total income of your household in a typical month?". "Household assets" is the monetary value of durable assets owned by the respondent's household. Values are in PPP USD.

V.F. Access to Credit

SUPPLEMENTARY TABLE XXIX: EFFECTS ON ACCESS TO CREDIT

	Any borrowing	Value of loans	Can borrow UGX 25,000	Can borrow UGX 300,000	Index
	(1)	(2)	(3)	(4)	
High *s* (T1)	-0.007	-8.923	0.009	-0.005	-0.015
	(0.062)	25.661)	(0.031)	(0.057)	(0.127)
	[0.949]	[0.761]	[0.800]	[0.938]	[0.925]
High *y* (T2)	0.057	13.275	0.019	0.022	0.111
	(0.062)	(24.566)	(0.031)	(0.057)	(0.126)
	[0.394]	[0.623]	[0.565]	[0.720]	[0.428]
Within-Equation Test					
H_0: T1 = T2	0.337	0.359	0.747	0.693	0.345
Cross-Equations Test					
H_0: T1 = 0			0.995		-
H_0: T2 = 0			0.917		-
H_0: T1 = T2			0.906		-
Mean Outcome (C)	0.436	120.751	0.932	0.684	-0.000
Observations	398	393	398	398	393

Notes: The table reports ordinary least square estimates based on specification (4). T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference *p*-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Cross-Equations Tests report the randomization inference *p*-value for a test of the hypothesis that the specified restriction holds in all estimating equations across columns. Within-Equation Tests report the randomization inference *p*-value for a test of the specified compound hypothesis. *Any borrowing* is a dummy variable equal to 1 if the tenant had any borrowing outstanding; *Value of loans* is the monetary value of borrowing outstanding in PPP USD terms; *Can borrow UGX 25,000* is a dummy variable equal to 1 if the tenant said she would be able to borrow UGX 25,000 for 6 months; *Can borrow UGX 300,000* is a dummy variable equal to 1 if the tenant said she would be able to borrow UGX 300,000 for 6 months. The *Index* combines the four indicators by first standardizing each outcome into a *z*-score (by subtracting the control group mean at the corresponding survey round and dividing by the control group standard deviation), then takes the average of the *z*-scores, and again standardizes to the control group.

SUPPLEMENTARY TABLE XXX: LIKELIHOOD TO BORROW FROM DIFFERENT SOURCES

	Friends (1)	MFIs or NGOs (2)	Cooperatives (3)	Moneylenders (4)
Panel A:		*Currently Borrowing from ...*		
High s (T1)	-0.009 (0.023) [0.733]	0.006 (0.065) [0.937]	0.012 (0.021) [0.603]	0.001 (0.003) [0.692]
High y (T2)	0.035 (0.025) [0.192]	0.034 (0.064) [0.629]	0.013 (0.022) [0.575]	0.007 (0.006) [0.656]
H_0: T1 = T2	0.046	0.685	0.928	0.372
Mean Outcome (C)	0.034	0.393	0.034	0.000
Observations	398	398	398	398
Panel B:		*Ever Borrowed from ...*		
High s (T1)	-0.038 (0.046) [0.447]	-0.029 (0.067) [0.719]	0.006 (0.044) [0.904]	0.018 (0.020) [0.430]
High y (T2)	-0.031 (0.050) [0.554]	0.001 (0.063) [0.992]	-0.007 (0.043) [0.875]	-0.003 (0.017) [0.864]
H_0: T1 = T2	0.880	0.681	0.792	0.246
Mean Outcome (C)	0.812	0.564	0.179	0.017
Observations	398	398	398	398

Notes: The table reports ordinary least square estimates based on specification (4). T1 is a dummy variable equal to 1 if the tenant/plot was randomized to receive high (75%) output share, T2 is a dummy variable equal to 1 if the tenant/plot was randomized to receive same output share as control (50%) and an additional cash transfer. All specifications control for strata fixed effects. Standard errors are clustered at the village level and given in round brackets. In square brackets randomization inference p-values of the null hypothesis of no effect are provided; *** (**) (*) indicates significance of that test at the 1% (5%) (10%) level. Additionally the randomization inference p-value of a test of the null hypothesis that the effect of T1 and T2 are equal is provided for all estimating equations. Dependent variables in Panel A (B) are dummy variables equal to 1 if the respondent has an outstanding loan (ever took a loan) from friends in column 1, an MFI or NGO in column 2, a cooperative or other community groups in column 3 and a moneylender in column 4.

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