

Codebook and Data Description

“Nudging Farmers to Use Fertilizer: Theory and Experimental Evidence from Western Kenya”

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Data Sources

The data comes from surveys collected with farmers in Western Kenya by the organization International Child Support (ICS), in collaboration with the authors. In accordance with IRB protocols, all identifying information has been removed from this dataset.

The data we provide includes key variables from several surveys:

- (1) Baseline surveys which include basic background demographic information, as well as previous usage of fertilizer and hybrid seeds.
- (2) Administrative data on take-up of the various programs which were offered to farmers.
- (3) Adoption data on usage of fertilizer in the seasons after the program.
- (4) Sampling information on the various treatments for which farmers were randomly selected.

All data was input in Microsoft Access and were cleaned and merged in Stata. The data we provide here are key variables from the final, merged dataset which was used in the analysis. More detail on the data collection methods is included in the text of the paper.

Datasets

We include key variables from 3 datasets, all in Stata format (all Stata files were saved such that they should be readable in previous versions of Stata):

- (1) `time_buying_fert_AER.dta`. This dataset was used to create Table 1 in the paper. It is a short survey of farmers which was conducted in late 2009, which includes information on when farmers bought fertilizer for use on their plots.
- (2) `pilot_SAFI_AER.dta`. This dataset is used to evaluate a series of small-scale pilots of the commitment savings program (the SAFI program) described in the paper. This dataset is used to generate Table 6.
- (3) `SAFI_main_dataset_AER.dta`. This is the main dataset used in the paper. It is used to evaluate the main interventions described in the paper.

Do Files

The analysis was done in Stata 11 SE. The do file named “`final_results_AER.do`” produces all the results in the paper and the appendix. All results are clearly commented in the do file with the Table number to which they refer (if there is any confusion, please contact the authors). The file makes use of the Stata ado program “`outreg`”, which is available for free download from Stata. The `outreg` program outputs the results into text files (labeled with an `.out` extension) which can then be formatted directly into tables.

Variable Descriptions

A list of all the variables in the dataset, along with a description, is included below. The variables are also labeled in the Stata files.

If there is any confusion with any of these files, please contact Jonathan Robinson for more information (jmrtwo@ucsc.edu).

List of Variables for Main SAFI dataset
(SAFI_main_dataset_AER.dta)

Variable	Description
hid	Household ID Number
sbsk1	Dummy = 1 if household sampled for starter kits
demo	Dummy = 1 if household sampled for demonstration plot program
sbsk1_demo	sbsk1 * demo
safi_lr04	Dummy = 1 if household sampled for SAFI in 2004 Long Rains
safi_sr04	Dummy = 1 if household sampled for SAFI in 2004 Short Rains
subsidy	Dummy = 1 if household sampled for 1/2 price subsidy in 2004 Short Rains
fullprice	Dummy = 1 if household sampled for full price visit in 2004 Short Rains
choice	Dummy = 1 if household sampled for SAFI with timing choice in 2004 Short Rains
buy	Dummy = 1 if household sampled to have maize bought in 2004 Short Rains
reminder	Dummy = 1 if household sampled for reminder intervention
choice_return	For those w/ timing choice, choice of date to get SAFI (1-harvest, 2-planting, 3-top dressing, 4-refused program)
buy_safi_sr04	buy * SAFI in 2004 Short Rains
house_ever_anyfert_05	household had ever used fertilizer prior to 2004
house_ever_anytreat_05	household had ever used fertilizer or hybrid seeds prior to 2004
house_ever_hyb_05	household had ever used hybrid seeds prior to 2004
house_lastyear_anyfert_05	household had ever used fertilizer in previous year (pre 2004)
house_lastyear_anytreat_05	household had used fertilizer or hybrid seeds in previous year (pre 2004)
house_ever_anyfert_05	household had ever used fertilizer prior to 2005
house_ever_anytreat_05	household had ever used fertilizer or hybrid seeds prior to 2005
house_ever_hyb_05	household had ever used hybrid seeds prior to 2005
house_lastyear_anyfert_05	household had ever used fertilizer in previous year (pre 2005)
house_lastyear_anytreat_05	household had used fertilizer or hybrid seeds in previous year (pre 2005)
educ_04	years education
income_04	income in past month
formalincome_04	formal income in past month
mud_walls_04	Dummy = 1 if household has mud walls
mud_floor_04	Dummy = 1 if household has mud floor
thatch_roof_04	Dummy = 1 if household has thatch roof
wives_04	# of wives of household head
gender_04	gender (1-male, 0-female) for 2004 survey
gender_05	gender (1-male, 0-female) for 2005 survey
std5parent	Dummy = 1 if parent of child in standard 5
std6parent	Dummy = 1 if parent of child in standard 5
father_wives_04	# of wives of respondent's father
bio_sibs_04	# of biological siblings
own_kids_04	# of own children
oth_kids_04	# of other children caring for
kids_04	total # of children
own_land_04	acres of land owned
own_land_rent_04	does respondent rent his own land?
own_land_rentacres_04	if yes, how many acres
own_land_rentamt_04	if yes, how much do they get in rent?
rent_land_04	does respondent rent land from somebody else?
rent_land_acres_04	if yes, how many acres
rent_land_amt_04	if yes, how much do they pay in rent?
anyfert_plus1_05	did HH use any fertilizer in 1st season after long rains 2004?
anyfert_plus2_05	did HH use any fertilizer in 2nd season after long rains 2004?
anyfert_plus3_05	did HH use any fertilizer in 3rd season after long rains 2004?
anytreat_plus1_05	did HH use any treatment in 1st season after long rains 2004?
anytreat_plus2_05	did HH use any treatment in 2nd season after long rains 2004?
anytreat_plus3_05	did HH use any treatment in 3rd season after long rains 2004?

List of Variables for Main SAFI dataset
(SAFI_main_dataset_AER.dta)

Variable	Description
ftd_plus1_05	did HH use fertilizer @ top dressing in 1st season after long rains 2004?
ftd_plus2_05	did HH use fertilizer @ top dressing in 2nd season after long rains 2004?
ftd_plus3_05	did HH use fertilizer @ top dressing in 3rd season after long rains 2004?
fap_plus1_05	did HH use fertilizer @ planting in 1st season after long rains 2004?
fap_plus2_05	did HH use fertilizer @ planting in 2nd season after long rains 2004?
fap_plus3_05	did HH use fertilizer @ planting in 3rd season after long rains 2004?
hyb_plus1_05	did HH use hybrid seeds in 1st season after long rains 2004?
hyb_plus2_05	did HH use hybrid seeds in 2nd season after long rains 2004?
hyb_plus3_05	did HH use hybrid seeds in 3rd season after long rains 2004?
man_plus1_05	did HH use manure in 1st season after long rains 2004?
man_plus2_05	did HH use manure in 2nd season after long rains 2004?
man_plus3_05	did HH use manure in 3rd season after long rains 2004?
qtyfert_plus1_05	quantity (kgs) of fertilizer used in 1st season after long rains 2004
qtyfert_plus2_05	quantity (kgs) of fertilizer used in 2nd season after long rains 2004
qtyfert_plus3_05	quantity (kgs) of fertilizer used in 3rd season after long rains 2004
acres_plus1_05	acres planted in 1st season after long rains 2004
acres_plus2_05	acres planted in 2nd season after long rains 2004
acres_plus3_05	acres planted in 3rd season after long rains 2004
ftd_all_plus1_05	Dummy = 1 if used top dressing fert. On entire maize crop in 1st season after LR04
ftd_all_plus2_05	Dummy = 1 if used top dressing fert. On entire maize crop in 2nd season after LR04
ftd_all_plus3_05	Dummy = 1 if used top dressing fert. On entire maize crop in 3rd season after LR04
fap_all_plus1_05	Dummy = 1 if used planting fert. On entire maize crop in 1st season after LR04
fap_all_plus2_05	Dummy = 1 if used planting fert. On entire maize crop in 2nd season after LR04
fap_all_plus3_05	Dummy = 1 if used planting fert. On entire maize crop in 3rd season after LR04
hyb_all_plus1_05	Dummy = 1 if used hybrid seeds On entire maize crop in 1st season after LR04
hyb_all_plus2_05	Dummy = 1 if used hybrid seeds On entire maize crop in 2nd season after LR04
hyb_all_plus3_05	Dummy = 1 if used hybrid seeds On entire maize crop in 3rd season after LR04
bought_anyfert_LR04	Dummy = 1 if bought any fertilizer through program in LR 04
bought_DAP_LR04	Dummy = 1 if bought DAP through program in LR 04
bought_DAP_kg_LR04	KGs DAP bought in LR04
bought_DAP_ksh_LR04	KGs DAP bought in LR04
bought_CAN_LR04	Dummy = 1 if bought CAN through program in LR 04
bought_CAN_kg_LR04	KGs CAN bought in LR04
bought_CAN_ksh_LR04	Ksh CAN bought in LR04
bought_anyfert_SR04	Dummy = 1 if bought any fertilizer through program in SR 04
bought_DAP_SR04	Dummy = 1 if bought DAP through program in SR 04
bought_DAP_kg_SR04	KGs DAP bought in SR04
bought_DAP_ksh_SR04	Ksh DAP bought in SR04
bought_CAN_SR04	Dummy = 1 if bought CAN through program in SR 04
bought_CAN_kg_SR04	KGs CAN bought in SR04
bought_CAN_ksh_SR04	Ksh CAN bought in SR04
safiLR04_what_05	If didn't use fertilizer from LR04 SAFI, what did the farmer do with it? 1 - gave away, sold it; 2 - lost it; 3 - stolen; 4 - spoiled; 5 - used on different crop; 6 - kept for another season; 7 - used on another plot; 8 - used on head of household's plot; 9 - other;
safiSR04_what_05	If didn't use fertilizer from SR04 SAFI, what did the farmer do with it? 1 - gave away, sold it; 2 - lost it; 3 - stolen; 4 - spoiled; 5 - used on different crop; 6 - kept for another season; 7 - used on another plot; 8 - used on head of household's plot; 9 - other;
subsidy_what_05	If didn't use fertilizer from SR04 subsidy, what did the farmer do with it? 1 - gave away, sold it; 2 - lost it; 3 - stolen; 4 - spoiled; 5 - used on different crop; 6 - kept for another season; 7 - used on another plot; 8 - used on head of household's plot; 9 - other;

List of Variables for Main SAFI dataset
(SAFI_main_dataset_AER.dta)

Variable	Description
deliver_date_LR04	requested delivery date Long Rains 04
deliver_date_SR04	requested delivery date Short Rains 04
sold_maize_gg_LR04	goro-goros maize sold LR04
sold_maize_ksh_LR04	Ksh maize sold LR04
sold_maize_SR04	Dummy = 1 if sold maize in SR 04
sold_maize_gg_SR04	goro-goros maize sold SR04
sold_maize_ksh_SR04	Ksh maize sold SR04
sold_maize_harv_SR04	Dummy = 1 if sold maize through 'buy' treatment in SR 04
sold_maize_harv_gg_SR04	goro-goros maize sold in 'buy' treatment SR04
sold_maize_harv_ksh_SR04	Ksh maize sold in 'buy' treatment SR04
remind_bought_fap	Reminder followup: had bought fertilizer @ planting
remind_bought_ftd	Reminder followup: had bought fertilizer @ top dressing
remind_bought_fap_qty	Reminder followup: qty of fertilizer @ planting purchased
remind_bought_ftd_qty	Reminder followup: qty of fertilizer @ top dressing purchased
remind_plan_fap	Reminder followup: was planning to buy fertilizer @ planting
remind_plan_ftd	Reminder followup: was planning to buy fertilizer @ top dressing
remind_planorbuy_fap	Reminder followup: had bought OR was planning to buy fertilizer @ planting
remind_planorbuy_ftd	Reminder followup: had bought OR was planning to buy fertilizer @ top dressing
remind_planorbuy_anyfert	Reminder followup: had bought OR was planning to buy any fertilizer
school1	Dummy for parent of School #1
school2	Dummy for parent of School #2
school3	Dummy for parent of School #3
school4	Dummy for parent of School #4
school5	Dummy for parent of School #5
school6	Dummy for parent of School #6
school7	Dummy for parent of School #7
school8	Dummy for parent of School #8
school9	Dummy for parent of School #9
school10	Dummy for parent of School #10
school11	Dummy for parent of School #11
school12	Dummy for parent of School #12
school13	Dummy for parent of School #13
school14	Dummy for parent of School #14
school15	Dummy for parent of School #15
school16	Dummy for parent of School #16

List of Variables for Pilot SAFI dataset
(pilot_SAFI_AER.dta)

Variable	Description
hid	Household ID Number
safi2_offer	Offered SAFI pilot program #2
safi2_sample	Sampled for SAFI pilot program #2
safi2_accept	Accepted SAFI pilot program #2
safi2_paid	Bought fertilizer in SAFI pilot program #2
safi3_eligible	Eligible for SAFI pilot program #3
safi3_sample	Sampled for SAFI pilot program #3
safi3_offer	Offered SAFI pilot program #3
safi3_accept	Accepted SAFI pilot program #3
safi3_paid	Bought fertilizer in SAFI pilot program #3
safi4_sample	Sampled for SAFI pilot program #4
safi4_offer	Offered SAFI pilot program #4
safi4_accept	Accepted SAFI pilot program #4
safi4_paid	Bought fertilizer in SAFI pilot program #4
safi4b_sample	Sampled for SAFI pilot program #4b
safi4b_offer	Offered SAFI pilot program #4b
safi4b_accept	Accepted SAFI pilot program #4b
safi4b_paid	Bought fertilizer in SAFI pilot program #3
safi5_sample	Sampled for SAFI pilot program #5
safi5_offer	Offered SAFI pilot program #5
safi5_accept	Accepted SAFI pilot program #5
safi5_paid	Bought fertilizer in SAFI pilot program #5
safi6_sample	Sampled for SAFI pilot program #6
safi6_offer	Offered SAFI pilot program #6
safi6_accept	Accepted SAFI pilot program #6
safi6_buy_sample	Sampled to be offered SAFI and have maize bought, pilot #6
safi6_buy_offer	Offered SAFI and bought maize, pilot #6
safi6_paid	Bought fertilizer in SAFI pilot program #6
house_ever_anyfert	Household have ever used fertilizer
educ	years education primary respondent
land_main	acres of land owned
income	income in past month
kids	# children
mud_walls	Dummy = 1 if household has mud walls
mud_floor	Dummy = 1 if household has mud floor
thatch_roof	Dummy = 1 if household has thatch roof
school1	Dummy for parent of School #1
school2	Dummy for parent of School #2
school3	Dummy for parent of School #3
school4	Dummy for parent of School #4
school5	Dummy for parent of School #5
school6	Dummy for parent of School #6
school7	Dummy for parent of School #7
school8	Dummy for parent of School #8
school9	Dummy for parent of School #9
school10	Dummy for parent of School #10
school11	Dummy for parent of School #11
school12	Dummy for parent of School #12
school13	Dummy for parent of School #13
school14	Dummy for parent of School #14
school15	Dummy for parent of School #15
school16	Dummy for parent of School #16
school17	Dummy for parent of School #17

List of Variables for Pilot SAFI dataset
(pilot_SAFI_AER.dta)

Variable	Description
school18	Dummy for parent of School #18
school19	Dummy for parent of School #19
school20	Dummy for parent of School #20
plan_anyfert_plus1	planned to use fertilizer in year after program
anyfert_plus1	used fertilizer in season after program
fert_why_not	why don't you use fertilizer? (A-don't know how to use it; B-Fertilizer doesn't work; C-It works, but isn't profitable; D-I won't have money; E-I will never have enough money; F-other)

List of Variables for Dataset on Time Farmers buy Fertilizer
(time_buying_fert_AER.dta)

Variable	Description
id	Household ID Number
used_tdfert_LR09	used top dressing fertilizer in the 2009 Long Rains
bought_td_immed_postharv_LR09	bought top dressing fertilizer immediately after harvest
always_used_TD	always used top dressing fertilizer in the 3 seasons
always_bought_td_early	always bought top dressing fertilizer early in those 3 seasons