A Data Appendix – For Online Publication Only

The baseline and all three endline surveys contained detailed questions on household consumption, savings, income, assets, borrowing and lending (mapping to the components of the household budget constraint, which we use to structure our empirical analysis). The midline survey, intended to be somewhat briefer as it took place immediately preceding the lottery, consisted of questions on consumption, savings, income, business assets (but not home durables, land, livestock, or other agricultural assets), and borrowing. We detail the measurement of key outcomes below.

In the first and second endline, we prime respondents with the consumption, savings, income, or asset level that they reported at baseline or midline, and we ask whether that level has increased, decreased, or stayed the same, to prevent drastically different interpretations of the same question across survey waves. If the level has changed, we then ask for the new level. In the third endline, we do not prime respondents with their earlier responses as six years have passed and earlier responses may not be a useful benchmark.

A.1 Consumption

Consumption is constructed from detailed questions on subcategories of regular spending over the period of a week plus questions on the frequency and amount of less regular expenses. Specifically, we ask about regular weekly spending on:

- Staple grains, beans, other (non-meat, non-fish) food that is prepared at home, and cooking supplies
- Meat
- Fish
- Milk
- Non-milk beverages, including tea, beer, liquor, coffee, soda, and juice
- Transportation, including fuel for transportation
- Airtime
- Electricity, gas, firewood, and charcoal

We ask whether the respondent has incurred any of these less regular expenses in the past year and, if so, then we follow-up with questions about how much:

- Visits to hospitals, doctors, or other healers, and medicine
- School fees
- Expenses associated with marriage and marital ceremonies

We combine spending on all of these categories and standardize the frequency of incurred expenses to generate a measure of weekly consumption.

A.2 Home Durables

To collect the value of home durables, which we group with consumption in our analyses, we first ask about ownership of home assets (lamps, radios, stoves, generators, cell phones, televisions, refrigerators, carpets, sofas, tables, bicycles, motorbikes, and any other household asset that we might have missed). If a respondent reports to own a particular asset, then we ask how many they own, and we ask for the average value of one unit. We then sum values across all home assets that a respondent owns to obtain our measure of home durables.

A.3 Savings

For savings, we first ask the respondent for an estimate of their total savings. We then ask where they hold their savings (formal bank, microfinance institution, a savings cooperative known as a SACCO, any other savings group, with another person, in a secret place, or in a mobile money account). For each place where they tell us they hold savings, we ask how much they hold in that place. We then sum these values over all of the respondent's recorded savings places and ask the respondent whether they believe that the aggregate sum they provided initially or this sum of components better represents their total savings. Their preferred measure becomes our measure of savings.

A.4 Income

We collect "typical monthly income" through detailed questions on subcategories of income: crop income, livestock income, non-farm business income, wage/salary income, and remittances. Like savings, we start by asking the respondent for their best guess of their typical monthly income, and we then follow-up with detailed questions on each income component and produce our own calculation of total monthly income. Finally, we ask the respondent which measure they believe is more accurate, their initial aggregate estimate or our calculation from components.

To collect crop income, we ask the respondent which crops they harvest and how frequently. For each crop, we ask for the typical quantity that they produce with each harvest, how much they consume, and how much they sell. For the sold quantity, we ask the average price per unit sold, and we then calculate revenue per crop. We separately ask for the typical costs incurred to harvest all crops over the course of a year (including labor, fertilizer, and pesticides). We then construct crop income as revenue across all crops less costs across all crops.

To collect livestock income, we ask the respondent which animals the household has owned in the past 12 months. For each one that the household has owned, we ask how many they have sold in the past year and their earnings from these sales. We then ask which types of expenses they incur to maintain livestock (animal feed, labor, veterinary services, or other expenses) and the cost of each. We produce profit per animal and sum across all animals to construct total income from livestock.

To collect (non-farm) business income, we ask the respondent whether they own any businesses and how many. For each business, we ask about the number of months per year that the business operates, the typical sales per month, what types of expenses are incurred (inventory, labor, and any other costs), and the cost of each per month. From these questions, we construct monthly profit for each business. We ask the respondent whether our monthly calculation seems accurate, and if not, then we give them the opportunity to provide a corrected measure of monthly business profit.

We ask the respondent if they or any other household members earn income from wage or salaried jobs. If so, then we collect the typical monthly amount earned by the respondent and, separately, by other household members. Finally, we ask the respondent if they receive remittances from family within Uganda or abroad and if so, then we follow-up with questions about the typical monthly value of remittances.

A.5 Agricultural Assets

Agricultural assets include livestock as well as durables (pangas, axes, hammers, spades, sickles, and ploughs). For each animal or durable that a household owns, we ask how many they own and the average value of one unit. We collect livestock at an aggregate level (current total value of livestock) and through disaggregated categories for each animal, with a follow-up question about which measure of total livestock value is better.

A.6 Business Assets

To construct business assets, we separately ask about the current level of business inventory and other non-inventory business assets (machines or equipment, non-home buildings or land that are primarily for business use, and other capital assets) used in each non-farm business. We sum across all enterprises owned by the household to construct total business assets.

A.7 Land

We ask respondents to report the value of their land, including any dwellings on the land. As with prior categories, we prime the respondent with their previously reported land value and ask whether their land has since increased, decreased, or stayed the same in value. If it has changed, we ask the new value. At the third endline survey only, we add questions to separately capture land purchases, land sales, and land investment, including retrospectively over the entire experimental period.

As discussed in Section 3.2, we find substantial appreciation in land values over time (i.e., across survey waves). To derive the total capital gain in land value over time, we sum land values across all control households in each district d at endline over the sum of the same set of control households' land values at baseline. We allow capital gains (ϕ) to vary by district. We do this for both the first and second endline and adjust the ratios to reflect appreciation solely between midline and each respective endline. Specifically, for control households in a given d district:

$$\phi_d = \left(\frac{\sum_i land_i^e}{\sum_i land_i^b} \right)^{\frac{x}{y}} \tag{10}$$

where $d \in \{Ntungamo, Ibanda, Kagadi\}$, i denotes household, x denotes time in months between midline and the relevant endline, y denotes time in months between baseline and the relevant endline, b specifies baseline, and e specifies the relevant endline (either the first or second). The calculated capital gains rates are listed in Table A.1. We find that land values appreciated at a rate of approximately 2% per month.

Table A.1: **Estimated capital gains by region**

	midline to endline 1 (4 months)	midline to endline 2 (18 months)	average monthly (baseline to endline 2)
Ntungamo	1.084	1.36	1.017
Ibanda	1.079	1.47	1.022
Kagadi	1.078	1.42	1.020
Overall	1.081	1.41	1.019

We then apply these capital gains rates to adjust land values downward, i.e., net of appreciation, such that we can measure the effect of the grants on real land values and such that the cross-equation budget constraint used in the SUR will hold. We construct new capital gains-adjusted land* values for all households in each district d at each endline:

$$land^*_{id} = \left(\frac{1}{\phi_d}\right) land_{id} \tag{11}$$

A.8 Net Credit

For credit, we ask the respondent if they have any loans outstanding and, if so, then the current amount owed. We also ask the same set of questions for loans that the respondent has made to others. We construct net credit as the current outstanding amount that the household owes to others less the current amount others owe to the household. Thus, a positive value of net credit reflects that the respondent owes money on net and a negative value reflects that others owe money to the respondent on net.

B Evidence of GE Effects for Land – For Online Publication Only

The model in Section 2 indicated that risk-loving behavior can be linked to large, indivisible investments, and Section 6 showed that if the investment good is not elastically supplied, the aggregate impacts of financial services can be limited through general equilibrium forces. Given that the empirical results in Section 5 demonstrated that winners of a large lottery have a large propensity to invest winnings in land, and that land price appreciation (2 percent per month) is sizable (Section 3.2), a natural question is whether general equilibrium forces are important for land. That is, does demand for land investment increase the prices of land?

Given the high propensity to purchase land out of large lottery winnings, our randomized experiment generated exogenous variation in the demand for land. We therefore test the impact of the local grant winnings on land values by estimating the impact of more grants being awarded within close proximity to a participant household, using 0.5 and 1 mile radii around the household as measures of proximity. That is, we run the following two-stage least squares model:

$$\Delta LocalLandValue_{id} = \beta_0 + \beta_1 GrantsWithinRadius_i + \gamma X_i + \lambda_d + \varepsilon_{id} \tag{12}$$

$$HouseholdOwnLandValue_{id} = \beta_0 + \beta_1 \Delta Local\widehat{Land}Value_i + \gamma X_i + \lambda_d + \varepsilon_{id} \tag{13}$$

Where X_i controls for the (sample) number of households within the radius of interest (0.5 miles or 1 mile), the number of households choosing the large lottery within the radius, whether the household won a grant itself (*won lottery*), whether the household itself chose the large lottery (*risk loving*), the household's own land value at baseline, and the same set of demographic controls included in our main estimating equation (Equation 6). We also include λ_d, district fixed effects, as in our main estimating equation. In this specification, the independent variation in winning a grant is the result of the realization of random draws within the area. The number of grants disbursed within a given radius vary at the household-level, and include only those grants which were given to *surrounding* households within the given radius. We cluster standard errors by the 141 geographic "neighborhoods" used in our census survey (with an average of 7 households per neighborhood).

Table B.1 presents the impact of local grants on local land values. At the first endline, we find that each additional grant within 0.5 miles increases local land values by approximately 6%. The effect is even larger in a 1 mile radius — each additional grant increases values by 7%.[39] While the first stage is a bit weak in the 0.5 mile radius specification with an F-statistic of 3.5, the F-statistic for the one mile specification is 17 (reported in Table B.2). Point estimates are similar at the second endline, and again the F-statistic is stronger in the one mile specification.

[39] The effects are large, but if one unit of land is sold above the status quo price, the values of *all* land may increase correspondingly. Indeed, this indirect impact is precisely our interest. Note also that the impact may also include any increase in local growth from people investing in their businesses.

Table B.1: **Effect of grants disbursed nearby on others' land values nearby (first stage)**

	(1) Ln sum of others' land values within 0.5 mi_{e1}	(2) Ln sum of others' land values within 0.5 mi_{e2}	(3) Ln sum of others' land values within 1 mi_{e1}	(4) Ln sum of others' land values within 1 mi_{e2}
num grants within 0.5 mi	.063*	.066**		
	(.034)	(.031)		
num grants within 1 mi			.072***	.063***
			(.018)	(.017)
num risk lovers within 0.5 mi	.00076	-.023		
	(.04)	(.034)		
num houses within 0.5 mi	.1***	.097***		
	(.024)	(.022)		
num risk lovers within 1 mi			.0077	.0071
			(.022)	(.02)
num houses within 1 mi			.041***	.044***
			(.012)	(.011)
won lottery (0/1)	-.02	-.02	.017	-.019
	(.065)	(.057)	(.048)	(.049)
risk loving (0/1)	-.18**	-.16**	-.045	-.064
	(.078)	(.07)	(.057)	(.058)
district fe's	Yes	Yes	Yes	Yes
demographic controls	Yes	Yes	Yes	Yes
R^2	.45	.47	.55	.55
Control mean (level)	108,967,724	146,208,633	198,887,799	267,238,782
Observations	740	774	764	801

All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Standard errors clustered at the neighborhood
Sample size changes due to restriction that land values must be positive, the likelihood of which does not vary by treatment
Conrols include: pre-intervention levels of own land value, hh income, patience, gender, hh head, age, age^2, num ad females, num ad males, num children

In the second stage (Table B.2), we find that a 1% increase in neighboring land values leads to a 0.42% increase in the household's own land values at the first endline and 0.47% increase at the second endline (using the 1 mi radius specification). Given an average of 6.67 grants disbursed within a mile of each house, a household's own land value is 19.7%(=6.67 grants*6.3% increase in local land values per grant*0.47% increase in own land value per 1% increase in local land values) higher at the second endline due to grants disbursed by the experiment, as reported in Section 3.2.

Table B.2: **Effect of others' land values nearby on own land value (second stage)**

	(1) Ln $land_{e1}$	(2) Ln $land_{e2}$	(3) Ln $land_{e1}$	(4) Ln $land_{e2}$
Ln sum of others' land values within 0.5 mi_{e1}	.24			
	(.42)			
Ln sum of others' land values within 0.5 mi_{e2}		.28		
		(.39)		
Ln sum of others' land values within 1 mi_{e1}			.42	
			(.26)	
Ln sum of others' land values within 1 mi_{e2}				.47*
				(.28)
num risk lovers within 0.5 mi	-.019	-.046		
	(.029)	(.034)		
num houses within 0.5 mi	-.035	-.032		
	(.06)	(.055)		
num risk lovers within 1 mi			-.019	-.035*
			(.02)	(.019)
num houses within 1 mi			-.027	-.025
			(.022)	(.023)
won lottery (0/1)	.034	.14**	.0045	.12*
	(.059)	(.058)	(.059)	(.061)
risk loving (0/1)	.057	.18*	.043	.16**
	(.11)	(.094)	(.073)	(.074)
district fe's	Yes	Yes	Yes	Yes
demographic controls	Yes	Yes	Yes	Yes
First stage F-stat	3.5	4.5	17	14
Control mean (level)	18,174,911	17,141,538	18,656,827	22,678,972
Observations	740	774	764	801

All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Standard errors clustered at the neighborhood; Sample size changes due to restriction that land values must be positive, the likelihood of which does not vary by treatment; Conrols include: pre-intervention levels of own land value, hh income, patience, gender, hh head, age, age^2, num ad females, num ad males, num children

Hence, we have direct evidence of price increases resulting from the demand for land, indicating that land is not perfectly elastically supplied even in the underbanked, peri- and semi-urban small cities that we study. In the context of our model, this limits the impacts that financial services can have in promoting development and the escape from poverty. Moreover, the emphasis on land as an investment good disproportionately favors savings services relative to credit services toward these ends, since credit had no impact when the investment capital was in fixed supply.

Assuming increases in demand are purely partial equilibrium and so induce true increases in land (i.e., land is not in absolutely fixed supply), we use the estimates in Table 7 to estimate the increase in quantity demanded. We can use this to yield the back-of-the-envelope calculation of an elasticity of the supply of land of 0.05 in the paper. Specifically, we calculate a percentage increase in demand, where the total increase in demand for land is the product of the number of participants (1048), their lottery-choice probabilities (0.27 for the large lottery and 0.73 for the small lottery), the respective probabilities of winning (0.3 and 0.49, respectively), and the increase in land demand as a result of winning, per Column 8 of Table 7 (7.5 million and 300 thousand UGX, respectively). This yields an increase in demand for land of roughly 750 million UGX. Total land demand is the number of households in our original census (3734) times average land holdings in the control of our sample (roughly 21 million UGX), which yields a baseline demand of land of 78 billion. The percentage increase in land demand is therefore close to 1 percent. Dividing this 1% increase in land demand by the 20% yields the reported elasticity of 0.05.

C Predicting Lottery Choice – For Online Publication Only

The following table presents the full set of covariates on which we test for differences between those selecting the large lottery and those selecting the small lottery:

Table C.1: **Characteristics of those choosing the large v. small lottery**

	large	N	small	N	diff	p-value
Income and consumption						
mthly income$_{m}$	398,608	283	371,090	765	27,518	0.29
mthly income/adult equiv$_{m}$	122,872	283	126,665	765	-3,793	0.68
total income per hour worked	911	283	910	765	.94	0.99
ln mthly income$_{m}$	12	283	12	765	-.043	0.73
Δ ln mthly income$_{m\text{-}b}$	.71	283	1.2	765	-.44**	0.02
mthly crop income$_{m}$	100,208	283	71,148	765	29,061***	0.00
crop income/total income$_{m}$	.3	283	.25	765	.05***	0.01
mthly crop income/adult equiv$_{m}$	30,562	283	22,981	765	7,580***	0.00
crop income per hour worked	860	283	696	765	164	0.14
ln mthly crop income$_{m}$	12	283	12	765	.21***	0.00
Δ ln mthly crop income$_{m\text{-}b}$	-1.5	283	-1.4	765	-.051	0.50
mthly bus income$_{m}$	125,247	283	119,725	765	5,523	0.68
bus income/total income$_{m}$	.28	283	.29	765	-.0087	0.79
mthly bus income/adult equiv$_{m}$	41,641	283	41,745	765	-103	0.98
bus income per hour worked	916	283	1,092	765	-176	0.49
ln mthly bus income$_{m}$	12	283	12	765	.033	0.54
Δ ln mthly bus income$_{m\text{-}b}$	6.7	283	7.6	765	-.87**	0.02
wkly consumption$_{m}$	44,466	283	39,453	765	5,013**	0.01
wkly cons/adult equiv$_{m}$	14,034	283	13,798	765	236	0.77
ln wkly cons$_{m}$	10	283	10	765	.18**	0.01
Δ ln wkly cons$_{m\text{-}b}$	.38	283	.24	765	.14**	0.03
Savings and wealth						
savings$_{m}$	322,675	283	275,817	765	46,858*	0.10
savings/adult equiv$_{m}$	103,375	283	96,393	765	6,982	0.51
ln savings$_{m}$	10	283	9.8	765	.31	0.35
Δ ln savings$_{m\text{-}b}$	2.5	283	1.7	765	.86**	0.03
bus assets$_{m}$	824,954	283	577,814	765	247,140**	0.01
bus assets/wealth$_{m}$	.29	283	.24	765	.053**	0.05
bus assets/adult equiv$_{m}$	295,958	283	218,673	765	77,285*	0.07
ln bus assets$_{m}$	5.3	283	4.3	765	.99**	0.03
Δ ln bus assets$_{m\text{-}b}$	.6	283	.23	765	.37	0.22
wealth (sav + bus assets)$_{m}$	1,245,155	283	920,185	765	324,970***	0.01
wealth/adult equiv$_{m}$	431,561	283	337,778	765	93,784*	0.07
ln wealth$_{m}$	11	283	11	765	.65**	0.05
Δ ln wealth$_{m\text{-}b}$	2.2	283	1.5	765	.7**	0.05
net wealth (sav + bus assets - credit)$_{m}$	1,070,910	283	744,418	765	326,492***	0.01
net wealth/adult equiv$_{m}$	377,813	283	277,547	765	100,265**	0.05
ln net wealth$_{m}$	16	283	16	765	.075*	0.06
Δ ln net wealth$_{m\text{-}b}$	-.22	283	-.25	765	.029	0.57
land value$_{b}$	13,345,159	283	9,852,680	765	3,492,479***	0.00
land value/adult equiv$_{b}$	3,936,519	283	3,010,483	765	926,036***	0.00
ln land value$_{b}$	13	283	12	765	.91**	0.04

Other financial indicators						
operates non-farm business$_{\mathrm{m}}$ (0/1)	.59	283	.54	765	.049	0.15
farmer$_{\mathrm{m}}$ (0/1)	.71	283	.75	765	-.041	0.18
work hours per week$_{\mathrm{m}}$	78	283	77	765	.52	0.74
had negative shock since baseline$_{\mathrm{m}}$ (0/1)	.63	283	.67	765	-.046	0.16
has formal savings$_{\mathrm{m}}$ (0/1)	.088	283	.12	765	-.035	0.12
acquired loans since baseline$_{\mathrm{m}}$ (0/1)	.29	283	.32	765	-.035	0.27
credit outstanding$_{\mathrm{m}}$	193,779	283	192,949	765	830	0.98
Desire to invest						
wants credit to increase income$_{\mathrm{b}}$ (0/1)	.84	283	.78	765	.062**	0.03
would invest >100_{\mathrm{b}}$ (0/1)	.95	283	.91	765	.038**	0.04
would use credit for bus investment$_{\mathrm{b}}$ (0/1)	.67	283	.59	765	.073**	0.03
would use credit for ag investment$_{\mathrm{b}}$ (0/1)	.053	283	.08	765	-.027	0.14
Hypothetical preferences						
would invest for 53% exp gain$_{\mathrm{b}}$ (0/1)	.67	283	.64	765	.032	0.33
would invest for 105% exp gain$_{\mathrm{b}}$ (0/1)	.7	283	.67	765	.031	0.34
would invest for 1% mthly interest$_{\mathrm{b}}$ (0/1)	.24	283	.23	765	.0054	0.86
desired mthly interest to invest now$_{\mathrm{b}}$	16	283	16	765	.22	0.88
Demographic characteristics						
female (0/1)	.42	283	.51	765	-.09***	0.01
household head (0/1)	.66	283	.6	765	.058*	0.09
respondent age	37	283	35	765	2.3***	0.00
education beyond primary school (0/1)	.26	283	.29	765	-.026	0.40
num people in household$_{\mathrm{b}}$	5.5	283	5	765	.47***	0.00
num adult females$_{\mathrm{b}}$	1.1	283	1.1	765	-.0095	0.82
num adult males$_{\mathrm{b}}$	1.5	283	1.4	765	.14*	0.08
num children$_{\mathrm{b}}$	2.8	283	2.5	765	.34***	0.00
Observations	1048					

All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Midline denoted by **m** and baseline denoted by **b** **bus** is an abbreviation for business; * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

In table C.2, we analyze the predictors of lottery choice using lasso. Among 160 baseline and midline covariates, the following are selected:

Table C.2: **Predicting those who chose the large lottery: Lasso-selected covariates**

	Penalized coeffient:
total income per hour worked	-.0000192
mthly crop income$_{\mathrm{m}}$	3.59e-07
bus income per hour worked	-3.15e-06
monthly livestock income$_{\mathrm{m}}$	2.16e-08
monthly livestock income$_{\mathrm{b}}$	2.39e-06
mthly wage income$_{\mathrm{m}}$	-5.37e-08
wealth$_{\mathrm{b}}$	1.46e-09
net savings$_{\mathrm{b}}$	-6.09e-08
bus assets$_{\mathrm{b}}$	4.06e-08
wkly consumption$_{\mathrm{b}}$	1.18e-06
farm assets$_{\mathrm{b}}$	2.63e-07
ag assets$_{\mathrm{b}}$	4.37e-08

ln mthly income$_{\text{m}}$	-.0189
ln mthly crop income$_{\text{m}}$	.0255
ln savings$_{\text{b}}$	-.005
Δ ln mthly income$_{\text{m-b}}$	-.00199
Δ ln mthly bus income$_{\text{m-b}}$	-.00236
Δ ln wkly cons$_{\text{m-b}}$	.0387
Δ ln wealth$_{\text{m-b}}$	.00288
mthly crop income/adult equiv$_{\text{b}}$	2.35e-08
farmer$_{\text{m}}$ (0/1)	-.0522
experienced bad event$_{\text{b}}$ (0/1)	-.0534
has formal savings$_{\text{m}}$ (0/1)	-.11
acquired loans since baseline$_{\text{m}}$ (0/1)	-.0311
wants credit to increase income$_{\text{b}}$ (0/1)	.0775
would invest >\$100$_{\text{b}}$ (0/1)	.0787
would use credit for bus investment$_{\text{b}}$ (0/1)	.0169
would use credit for ag investment$_{\text{b}}$ (0/1)	-.0654
female (0/1)	-.0339
respondent age^2	.0000217
num children$_{\text{b}}$	.0146
crop: Irish Potato (0/1)	-.0545
crop: Sweet Potato (0/1)	-.0644
crop: Yam (0/1)	-.451
new crops since baseline$_{\text{m}}$ (0/1)	-.0295
savings place: SACCO (0/1)	-.058
savings place: ROSCA or other cooperative/ community group (0/1)	.104
savings place: In a secret place (0/1)	.0434
bad event: Loss of crop due to disease, etc (0/1)	-.061
bad event: Assets damaged or destroyed (0/1)	.253
bad event: Sickness or injury to family member (0/1)	-.0456
opened a new business since baseline$_{\text{m}}$ (0/1)	-.0294
Observations	1048

The table depicts the unstandardized penalized coefficients of those covariates which were selected from among 160 baseline and midline variables given to lasso. We set the penalty parameter using adaptive lasso. All quantities in UGX. Outliers top/bottom coded to 95th/5th percentile. Midline denoted by **m** and baseline denoted by **b**; **bus** is an abbreviation for business. Full list of covariates which we give to lasso is available on request.

Looking only at demographic characteristics and those financial outcomes which are collected at both baseline and midline, we can compare the variables selected by lasso when predicting midline lottery choice relative to baseline (hypothetical) risk preferences:

Table C.3: **Lasso-selected predictors of midline lottery choice and baseline hypotheticals**

	Midline lottery choice	Baseline: Greater risk preference	Baseline: Moderate risk preference
mthly crop income	3.76e-07		
mthly livestock income	6.82e-07		
mthly wage income	-1.06e-07		
net wealth (sav + bus assets - credit)	6.61e-09		
ln mthly income	-.0245	.00852	.0102
ln mthly crop income	.0227	.000845	

ln wkly consumption$_m$	.019			
ln bus assets$_b$	.00311			
recent negative shock (0/1)	-.0348			
respondent age^2	.00003			-4.03e-06
num children$_b$	.0162			
gender	-.0428	-.0561		-.0779
net savings		3.61e-08		
savings		1.09e-07		1.35e-07
ln savings$_m$		.000706		
mthly income/adult equiv		1.23e-09		
wkly consumption/adult equiv		2.25e-06		5.54e-07
num adult females$_b$		-.00643		
Observations	1048	1048		1048

The table depicts the unstandardized penalized coefficients of those covariates which were selected by lasso from among 39 demographic characteristics and financial outcomes collected at both midline and baseline. We set the penalty parameter using adaptive lasso. All quantities in UGX. Outliers top/bottom coded to 95th/5th percentile. Midline denoted by **m** and baseline denoted by **b**; **bus** is an abbreviation for business. Full list of covariates which we give to lasso is available on request.

D Attrition – For Online Publication Only

We first compare balance on observable characteristics between the retained and attrited sample. We then compute Lee Bounds.

D.1 Balance Between Retained and Attrited Sample

Tables D.1 and D.2 show that observable characteristics are, in general, balanced between the retained versus attrited sample, suggesting that attrition was idiosyncratic.

Table D.1: **Balance between retained and attrited, among those choosing the small lottery**

	chose small retained	N	chose small attrited	N	diff	p-value
Household budget components						
mthly income$_{\mathrm{m}}$	373,736	634	358,289	131	-15,446	0.66
wkly consumption$_{\mathrm{m}}$	39,894	634	37,321	131	-2,573	0.33
savings$_{\mathrm{m}}$	279,172	634	259,580	131	-19,592	0.61
credit outstanding$_{\mathrm{m}}$	194,256	634	186,626	131	-7,630	0.84
home durable value$_{\mathrm{b}}$	504,709	634	583,386	131	78,678	0.32
Investment categories						
total divisible investments$_{\mathrm{m}}$	376,729	634	388,587	131	11,858	0.84
small livestock and ag. assets$_{\mathrm{b}}$	168,910	634	156,534	131	-12,377	0.58
bus inventory$_{\mathrm{m}}$	160,700	634	173,702	131	13,003	0.73
total indivisible investments$_{\mathrm{m}}$	11,175,818	634	10,075,985	131	-1,099,833	0.44
large livestock and ag. assets$_{\mathrm{b}}$	262,088	634	241,527	131	-20,562	0.80
land value$_{\mathrm{b}}$	10,003,707	634	9,121,756	131	-881,951	0.50
bus assets, no stock$_{\mathrm{m}}$	347,215	634	389,267	131	42,053	0.63
Other financial indicators						
operates non-farm business$_{\mathrm{m}}$ (0/1)	.54	634	.53	131	-.013	0.79
farmer$_{\mathrm{m}}$ (0/1)	.76	634	.73	131	-.032	0.44
work hours per week$_{\mathrm{m}}$	77	634	77	131	-.063	0.98
had negative shock since baseline$_{\mathrm{m}}$ (0/1)	.66	634	.73	131	.064	0.15
has formal savings$_{\mathrm{m}}$ (0/1)	.13	634	.099	131	-.029	0.37
acquired loans since baseline$_{\mathrm{m}}$ (0/1)	.33	634	.3	131	-.029	0.52
Demographic characteristics						
female (0/1)	.5	634	.55	131	.051	0.29
household head (0/1)	.6	634	.6	131	-.0087	0.85
respondent age	36	634	32	131	-4.5***	0.00
education beyond primary school (0/1)	.28	634	.33	131	.049	0.26
num people in household$_{\mathrm{b}}$	5	634	4.9	131	-.11	0.63
num adult females$_{\mathrm{b}}$	1.1	634	1.2	131	.029	0.59
num adult males$_{\mathrm{b}}$	1.4	634	1.3	131	-.13	0.20
num children$_{\mathrm{b}}$	2.5	634	2.5	131	-.00072	1.00
Observations	765					

All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Midline denoted by **m** and baseline denoted by **b** **bus** is an abbreviation for business; * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

Table D.2: **Balance between retained and attrited, among those choosing the large lottery**

	chose large retained	N	chose large attrited	N	diff	p-value
Household budget components						
mthly income$_{m}$	392,511	233	427,022	50	34,511	0.56
wkly consumption$_{m}$	44,677	233	43,485	50	-1,192	0.80
savings$_{m}$	304,584	233	406,980	50	102,396	0.11
credit outstanding$_{m}$	193,386	233	195,612	50	2,226	0.97
home durable value$_{b}$	722,479	233	564,394	50	-158,085	0.28
Investment categories						
total divisible investments$_{m}$	516,826	233	486,620	50	-30,206	0.79
small livestock and ag. assets$_{b}$	197,858	233	161,140	50	-36,718	0.36
bus inventory$_{m}$	233,197	233	234,000	50	803	0.99
total indivisible investments$_{m}$	16,022,090	233	13,242,000	50	-2,780,090	0.30
large livestock and ag. assets$_{b}$	614,914	233	537,000	50	-77,914	0.71
land value$_{b}$	13,724,807	233	11,576,000	50	-2,148,807	0.38
bus assets, no stock$_{m}$	511,661	233	502,800	50	-8,861	0.96
Other financial indicators						
operates non-farm business$_{m}$ (0/1)	.61	233	.48	50	-.13*	0.09
farmer$_{m}$ (0/1)	.72	233	.68	50	-.037	0.60
work hours per week$_{m}$	77	233	80	50	2.9	0.44
had negative shock since baseline$_{m}$ (0/1)	.63	233	.62	50	-.0066	0.93
has formal savings$_{m}$ (0/1)	.082	233	.12	50	.038	0.39
acquired loans since baseline$_{m}$ (0/1)	.3	233	.24	50	-.056	0.43
Demographic characteristics						
female (0/1)	.42	233	.42	50	.0037	0.96
household head (0/1)	.66	233	.66	50	-.00094	0.99
respondent age	38	233	36	50	-1.4	0.45
education beyond primary school (0/1)	.26	233	.28	50	.022	0.74
num people in household$_{b}$	5.4	233	5.6	50	.23	0.56
num adult females$_{b}$	1.1	233	1.2	50	.08	0.42
num adult males$_{b}$	1.5	233	1.6	50	.12	0.53
num children$_{b}$	2.8	233	2.8	50	.03	0.92
Observations	283					

All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Midline denoted by **m** and baseline denoted by **b** **bus** is an abbreviation for business; * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

D.2 Lee Bounds

We compute Lee Bounds (Lee, 2009) around the estimates in Tables 8, 10, and 12 (which also include the aggregate investment categories from Tables 6 and 7).

Table D.3: **Grant effects on components of the household budget constraint - First endline - Lee Bounds**

	(1) consum. (stock) wkly cons + home dur.	(2) savings	(3) div. investment	(4) indiv. investment*	(5) mthly income	(6) net credit
Lower bound:						
won lottery (0/1)	-148,151*	-54,110**	3,195	-2,375,215***	-62,680***	-70,405***
	(79,287)	(24,149)	(52,218)	(827,145)	(18,032)	(14,329)
won large lottery (0/1)	47,319	141,160**	187,413	5,111,855***	33,697	-19,604
	(154,848)	(61,070)	(138,772)	(1,811,346)	(35,939)	(32,414)
risk loving (0/1)	115,939	6,530	90,432	-1,886,169*	-3,501	2,400
	(108,737)	(35,059)	(76,377)	(963,842)	(26,011)	(22,577)
$\beta_1 + \beta_2$	-100,832	87,050	190,607	2,736,640	-28,983	-90,009
P-value: $\beta_1 + \beta_2 = 0$	0.45	0.12	0.14	0.08	0.35	0.00
Observations	830	830	830	830	830	830
Upper bound:						
won lottery (0/1)	209,641**	79,795**	253,603***	-483,214	6,398	24,335
	(93,427)	(31,801)	(63,307)	(942,183)	(20,738)	(18,058)
won large lottery (0/1)	-31,805	109,859	117,423	5,270,092**	46,522	-28,324
	(183,444)	(72,806)	(158,359)	(2,072,590)	(45,486)	(39,899)
risk loving (0/1)	112,830	12,760	79,779	-2,284,135**	-4,461	-1,839
	(109,195)	(35,447)	(75,989)	(967,924)	(25,969)	(22,542)
$\beta_1 + \beta_2$	177,836	189,654	371,026	4,786,878	52,920	-3,989
P-value: $\beta_1 + \beta_2 = 0$	0.26	0.00	0.01	0.01	0.19	0.91
Observations	830	830	830	830	830	830
Control mean if risk loving = 0	1,608,566	259,468	613,887	15,232,971	327,076	73,180
Control mean if risk loving = 1	1,798,491	271,428	787,251	17,160,718	321,271	80,220

This table constructs Lee Bounds around the point estimates reported in Table 8. All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Heteroskedasticity-robust standard errors in parantheses. *Total indivisible investment includes real land values, adjusted down to exclude appreciation in land values over time. All specifications include the following controls: pre-treatment levels of outcome, hh income, patience, gender, hh head, age, age^2, num ad females, num ad males, num children, district FE's. * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

Table D.4: **Grant effects on components of the household budget constraint - Second endline - Lee Bounds**

	(1) consum. (stock) wkly cons + home dur.	(2) savings	(3) div. investment	(4) indiv. investment*	(5) mthly income	(6) net credit
Lower bound:						
won lottery (0/1)	-407,772*	-67,797***	-117,762**	-2,562,868***	-45,320***	-102,605***
	(223,057)	(25,823)	(50,527)	(890,014)	(16,049)	(19,489)
won large lottery (0/1)	602,600	117,276*	57,066	5,285,826**	32,263	22,405
	(428,585)	(61,291)	(133,424)	(2,190,759)	(38,779)	(42,613)
risk loving (0/1)	192,877	2,274	98,264	-531,663	24,512	-43,127
	(294,575)	(38,317)	(76,822)	(1,218,042)	(23,907)	(30,008)
$\beta_1 + \beta_2$	194,827	49,479	-60,696	2,722,958	-13,057	-80,200
P-value: $\beta_1 + \beta_2 = 0$	0.59	0.38	0.62	0.17	0.71	0.03
Observations	830	830	830	830	830	830
Upper bound:						
won lottery (0/1)	572,033**	76,330**	113,912*	1,041,810	30,941	13,321
	(257,861)	(34,248)	(62,345)	(1,097,676)	(19,623)	(24,035)
won large lottery (0/1)	356,270	72,817	-12,360	4,969,695*	15,901	12,530
	(489,459)	(73,488)	(144,195)	(2,642,252)	(43,465)	(52,184)
risk loving (0/1)	161,890	2,165	88,106	-910,770	27,702	-45,812
	(295,049)	(38,354)	(76,570)	(1,221,176)	(24,130)	(30,347)
$\beta_1 + \beta_2$	928,303	149,147	101,551	6,011,505	46,842	25,852
P-value: $\beta_1 + \beta_2 = 0$	0.03	0.02	0.43	0.01	0.22	0.58
Observations	830	830	830	830	830	830
Control mean if risk loving = 0	4,603,540	273,166	596,244	15,040,343	264,233	119,272
Control mean if risk loving = 1	5,036,368	279,987	776,076	17,326,575	289,215	76,352

This table constructs Lee Bounds around the point estimates reported in Table 10. All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Heteroskedasticity-robust standard errors in parantheses. *Total indivisible investment includes real land values, adjusted down to exclude appreciation in land values over time. All specifications include the following controls: pre-treatment levels of outcome, hh income, patience, gender, hh head, age, age^2, num ad females, num ad males, num children, district FE's. * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

Table D.5: **Grant effects on components of the household budget constraint - Third endline - Lee Bounds**

	(1) weekly consumption	(2) home durables	(3) savings	(4) div. investment	(5) indiv. investment*	(6) mthly income
Lower bound:						
won lottery (0/1)	-12,834***	-337,951***	-165,523***	-296,537***	-2,954,864***	-100,943***
	(3,851)	(103,943)	(43,192)	(100,895)	(924,806)	(25,422)
won large lottery (0/1)	16,089**	-52,630	24,113	-23,768	156,257	129,368**
	(8,164)	(204,292)	(116,581)	(228,185)	(1,979,303)	(56,376)
risk loving (0/1)	5,015	61,534	182,096**	170,976	3,100,868**	-38,952
	(5,493)	(151,073)	(75,649)	(157,704)	(1,478,582)	(33,238)
$\beta_1 + \beta_2$	3,255	-390,581	-141,410	-320,305	-2,798,607	28,425
P-value: $\beta_1 + \beta_2 = 0$	0.65	0.03	0.20	0.12	0.11	0.57
Observations	807	807	807	807	807	807
Upper bound:						
won lottery (0/1)	4,093	66,252	56,236	130,791	1,270,593	-2,419
	(4,467)	(122,693)	(58,217)	(126,066)	(1,186,374)	(29,730)
won large lottery (0/1)	16,250*	-91,180	44,394	88,252	771,684	150,179**
	(9,022)	(242,751)	(144,561)	(287,047)	(2,556,211)	(66,362)
risk loving (0/1)	4,294	88,558	172,680**	186,672	2,974,328**	-32,484
	(5,539)	(151,965)	(76,191)	(157,743)	(1,488,632)	(33,246)
$\beta_1 + \beta_2$	20,343	-24,929	100,630	219,042	2,042,277	147,760
P-value: $\beta_1 + \beta_2 = 0$	0.01	0.91	0.45	0.40	0.37	0.01
Observations	807	807	807	807	807	807
Control mean if risk loving = 0	74,243	1,176,056	452,420	1,064,878	14,388,904	388,771
Control mean if risk loving = 1	81,032	1,304,103	633,123	1,258,952	18,360,600	355,319

This table constructs Lee Bounds around the point estimates reported in Table 12. All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Heteroskedasticity-robust standard errors in parantheses. *Total indivisible investment includes real land values, adjusted down to exclude appreciation in land values over time. All specifications include the following controls: pre-treatment levels of outcome, hh income, patience, gender, hh head, age, age^2, num ad females, num ad males, num children, district FE's. * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

E Multiple Hypothesis Corrections – For Online Publication Only

We apply multiple hypothesis corrections to the estimates in Tables 8, 10, and 12 (which also include the aggregate investment categories from Tables 6 and 7). Specifically, we estimate False Discovery Rate (FDR) sharpened q-values, per Anderson (2008), and apply one penalty at each endline across the six household budget categories on which we test for an effect of the small and large lottery. We separately penalize the set of hypotheses concerning the effect of winning the small lottery and the effect of the large lottery.

Table E.1: **Grant effects on components of the household budget constraint - First endline - Multiple hypothesis corrections**

	(1) consum. (stock) wkly cons + home dur.	(2) savings	(3) div. investment	(4) indiv. investment*	(5) mthly income	(6) net credit
won lottery (0/1)	121,277	57,204*	190,956***	-721,095	-8,344	-7,054
	(0.18)	(0.06)	(0.00)	(0.43)	(0.68)	(0.70)
	[0.32]	[0.18]	[0.00]	[0.56]	[0.56]	[0.70]
won large lottery (0/1)	-18,497	107,836	127,754	5,016,354**	38,551	-23,513
	(0.92)	(0.12)	(0.40)	(0.01)	(0.38)	(0.56)
risk loving (0/1)	110,406	12,933	76,005	-2,326,259**	-4,074	-788
	(0.31)	(0.71)	(0.32)	(0.02)	(0.88)	(0.97)
$\beta_1 + \beta_2$	102,781	165,040	318,710	4,295,259	30,207	-30,567
P-value: $\beta_1 + \beta_2 = 0$	.5	.0082	.02	.013	.44	.39
FDR sharpened q-value: $\beta_1 + \beta_2 = 0$	.33	.041	.041	.041	.33	.33
Control mean if risk loving = 0	1,608,566	259,468	613,887	15,232,971	327,076	73,180
Control mean if risk loving = 1	1,798,491	271,428	787,251	17,160,718	321,271	80,220
R^2	.29	.3	.41	.71	.42	.093
Observations	867	867	867	867	867	867

This table includes p-values in parentheses and FDR sharpened q-values in square brackets, corresponding to the point estimates in Table 8. All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Heteroskedasticity-robust standard errors in parantheses. *Total indivisible investment includes real land values, adjusted down to exclude appreciation in land values over time. All specifications include the following controls: pre-treatment levels of outcome, hh income, patience, gender, hh head, age, age^2, num ad females, num ad males, num children, district FE's. * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

Table E.2: **Grant effects on components of the household budget constraint - Second endline - Multiple hypothesis corrections**

	(1) consum. (stock) wkly cons + home dur.	(2) savings	(3) div. investment	(4) indiv. investment*	(5) mthly income	(6) net credit
won lottery (0/1)	294,543	48,839	69,303	506,277	16,240	-20,703
	(0.24)	(0.14)	(0.25)	(0.63)	(0.39)	(0.39)
	[.88]	[.88]	[.88]	[.88]	[.88]	[.88]
won large lottery (0/1)	386,636	84,891	-27,480	4,770,034*	7,896	8,687
	(0.41)	(0.23)	(0.84)	(0.06)	(0.85)	(0.87)
risk loving (0/1)	157,957	3,760	86,905	-1,002,692	27,946	-44,824
	(0.59)	(0.92)	(0.26)	(0.41)	(0.25)	(0.14)
$\beta_1 + \beta_2$	681,180	133,730	41,822	5,276,311	24,136	-12,016
P-value: $\beta_1 + \beta_2 = 0$	.091	.033	.74	.02	.51	.79
FDR sharpened q-value: $\beta_1 + \beta_2 = 0$	.14	.11	.65	.11	.62	.65
Control mean if risk loving = 0	4,603,540	273,166	596,244	15,040,343	264,233	119,272
Control mean if risk loving = 1	5,036,368	279,987	776,076	17,326,575	289,215	76,352
R^2	.28	.23	.32	.51	.29	.069
Observations	867	867	867	867	867	867

This table includes p-values in parentheses and FDR sharpened q-values in square brackets, corresponding to the point estimates in Table 10. All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Heteroskedasticity-robust standard errors in parantheses. *Total indivisible investment includes real land values, adjusted down to exclude appreciation in land values over time. All specifications include the following controls: pre-treatment levels of outcome, hh income, patience, gender, hh head, age, age^2, num ad females, num ad males, num children, district FE's. * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

Table E.3: **Grant effects on components of the household budget constraint - Third endline - Multiple hypothesis corrections**

	(1) weekly consumption	(2) home durables	(3) savings	(4) div. investment	(5) indiv. investment*	(6) mthly income
won lottery (0/1)	-818	-2,455	19,243	15,687	570,089	-15,468
	(0.85)	(0.98)	(0.73)	(0.89)	(0.60)	(0.59)
	[1]	[1]	[1]	[1]	[1]	[1]
won large lottery (0/1)	13,470	-80,403	32,624	16,592	-563,232	129,367**
	(0.14)	(0.72)	(0.81)	(0.95)	(0.81)	(0.04)
risk loving (0/1)	4,318	14,317	175,644**	95,343	2,127,393	-34,305
	(0.44)	(0.92)	(0.02)	(0.52)	(0.13)	(0.29)
$\beta_1 + \beta_2$	12,652	-82,858	51,867	32,280	6,857	113,900
P-value: $\beta_1 + \beta_2 = 0$	.12	.67	.69	.89	1	.042
FDR sharpened q-value: $\beta_1 + \beta_2 = 0$	.43	1	1	1	1	.34
Control mean if risk loving = 0	74,243	1,176,056	452,420	1,064,878	14,388,904	388,771
Control mean if risk loving = 1	81,032	1,304,103	633,123	1,258,952	18,360,600	355,319
R^2	.13	.18	.12	.18	.33	.18
Observations	838	838	838	838	838	838

This table includes p-values in parentheses and FDR sharpened q-values in square brackets, corresponding to the point estimates in Table 12. All quantities in UGX; Outliers top/bottom coded to 95th/5th percentile; Heteroskedasticity-robust standard errors in parantheses. *Total indivisible investment includes real land values, adjusted down to exclude appreciation in land values over time. All specifications include the following controls: pre-treatment levels of outcome, hh income, patience, gender, hh head, age, age^2, num ad females, num ad males, num children, district FE's. * $p < 0.1$, ** $p < .05$, *** $p < 0.01$

F Description of Grant Purchases – For Online Publication Only

The following table combines first and second endline data to report grant use for as many respondents as we were able to re-survey: when respondents were surveyed at both endlines, we take the grant use reported at second endline, allowing for the most recent update on spending. Many respondents purchased multiple different items with the grants, but these tables reflect mutually exclusive categories, where we depict the single item on which they spent the greatest fraction of their grant funds:

Table F.1: **Lottery winner grant uses**

	Percent among large lottery recipients	Percent among small lottery recipients
Purchased land	32	6
Business inventory	18	20
Land/building improvements (includes irrigation, solar, and iron roofs)	14	9
Business durables (includes vehicles for business use)	10	6
Small livestock	5	21
Cattle	5	2
School fees	4	9
Household durables (non-vehicle)	4	4
Savings	3	2
Hospital or funeral fees	3	2
Paid down debt	1	2
Farming inputs	1	6
Hired labor	1	0
Farming equipment	0	4
Regular consumption (food, transportation, precautionary health)	0	2
Rented land	0	2
Lost/stolen/did not receive	0	1
Vehicle (not for business)	0	1
Lended out	0	0
Total:	100	100

Besides land purchases, some commonly cited specific examples of purchases made with the grants (both large and small) include:

- Goats, pigs, and chickens
- Coffee seedlings / coffee plants
- Water tank / irrigation drum (for collecting rainwater)
- Iron sheets (as a roof material)
- Solar panels and batteries
- Motorcycle or bicycle, often for delivery
- Inventory for retail, such as soap, salt, and coffee

G Model Validation Regressions – For Online Publication Only

In this Appendix, we evaluate the model's ability to rationalize and reproduce our key empirical finding on the impact of lottery winnings. Specifically, we ask whether, first, the model replicates the fact that winners of the large lottery make large, indivisible investments and even in excess of their winnings. Furthermore, we ask whether our use of the SUR cross-equation budget constraints can be justified through the lens of the model.

Clearly, there are other empirical findings along which the parsimonious model is limited. We note two important examples of limitations. First, with only one investment good, the indivisible good which we will interpret as land, the model cannot replicate the investment in agricultural and business assets that small lottery winnings yield. Second, in the data capital gains appear to be an important return to investment in land, but in the model the returns to the indivisible investment are through realized income. Realized income leads to higher levels of both savings and consumption. Hence, we focus on capital investment in the model and compare it to land investment in the data.

To do so, we generate 500 samples of individual simulations from the ergodic distribution in model. These samples are identical in size to our empirical sample, 867 agents, and we have the full series of simulated monthly data for consumption, savings, income, and capital investment, with 16 months between baseline and midline. At midline, we simulate lotteries with lottery choice proportions and lottery winning proportions matching the field experiment via construction. We then simulate 4 months between midline and first endline, and 18 months between midline and second endline to again match the empirics.

Using these simulated data, we run Monte Carlo regressions analagous to those in Equation 6, with slight necessary modifications given the model. First, with only one capital good, we have only a single investment outcome (rather than agricultural investment, business investment, and land as separate outcomes). We focus on land investment as the empirical comparison, since business investment and agricultural investment are less discrete.[40] Second, we have no demographic controls other than age and age^2, and no geographic controls. Third, in the application of the cross-equation restriction (Equation 7, for our SUR regressions with cross-equation restrictions), we omit borrowing, which is zero by assumption.

Finally, in constructing our income and consumption outcomes, we distinguish between the true measure in the budget constraint (which we call "True Values"), an approach that more closely mirrors our empirics ("Empirical Proxy"), and an approach which introduces true measurement bias into the data used ("Biased Measurement"). "True Values" constructs income and consumption as sums of the full series between midline and (first) endline. "Empirical Proxy" constructs them as we do in the empirics, using the endline value multiplied by the number of months between midline and endline.[41] The point of "Empirical Proxy" is that

[40] Other work has emphasized the indivisibility or minimum scale of livestock that can lead to poverty traps, e.g., Balboni et al. (2022); Barrett et al. (2019).

[41] For consumption, we multiply endline values times the number of months *minus one* and then add consumption from the month directly after the midline. The empirics combines the past week's consumption with durable purchases since midline. Since these durables are likely purchased upon receiving winnings, we choose this as the closest analog because immediate consumption after winnings is generally highest.

our measurement at a point in time automatically introduces some deviation from the budget constraint.

Lastly, we account for two features of the empirical data not present in the model. First, the model has only one value for capital (land) investment and so, the precision of the estimates is quite high. In the empirical data, land purchases are of varied size and also likely reflect considerable measurement error. Second, expenditures may suffer not only from classical measurement error but actual bias. To mimic this, we consider multiplicative measurement error, multiplying land realizations in the simulated data by the random variable, $X = \tilde{X}\mu_e$, where $\tilde{X}$ is a log-normally distributed random variable with mean of one and log variance of ν_e^2. Here $\nu_e = 1.95$ is calibrated to match the average standard error on the coefficient for winning the large lottery to our empirical standard error. The coefficient $\mu_e = 2.2$ captures the bias in measurement and its value is calibrated to equal the average ratio of expenditures to income in the pre-experimental data, much of which may reflect overstatement of land values as discussed in Section 5.3. We call this alternative set of simulated data "Measurement Error".

Table G.1 presents a summary of the results of these regressions on simulated data focusing on the investment outcome and comparing those to the empirical estimates for indivisible investment in Column (4) of Table 8. The top panel presents results for the estimates of the impacts of winning the (small) lottery. In the first two columns, we see that across all estimation techniques the mean coefficients average small positive numbers, but the mean standard errors dwarf the mean coefficients. Using the Measurement Error data, standard errors on the OLS coefficient is comparable to that in the empirics (847,510 vs. 906,426). Looking at the SUR budget constraint, we see that the mean p-value for rejecting the constraint on winning the small lottery are high, and it is rejected in roughly 5% of the samples.

The lower panel shows results for the incremental impacts of winning the large lottery on indivisible investment, which are of greater interest. The model is able to generate the surprisingly large coefficients on winning the large lottery that (based on point estimates) indicate that the additional expenditures on indivisible investment actually exceed the incremental grant winnings of 1,350,000 UGX. Using the True Values, the estimated coefficients average roughly 2,000,000 with very small standard errors (11,837).[42] These values are actually somewhat above the confidence bands of the SUR estimate in Table 9 of 1,247,456 (standard error: 277,484). Moreover, the SUR estimation for the True Values yields high average p-values and the budget constraint is rarely rejected. Using the SUR on the Empirical Proxy, the average coefficient is virtually identical.[43] However, the average p-value of the SUR budget constraint is 0.16 for those winning the large lottery, and the constraint is rejected in 54% of the regressions. Finally, we turn to the Measurement Error regressions. By construction, the average OLS standard error in the estimates equals the empirical value of roughly 1,950,000. The estimated coefficients are much larger with the biased measurement error, averaging roughly 4,100,000 in the simulations, which compares well with the roughly 5,000,000 in the empirics, especially given the large standard errors. Focusing now on the SUR estimates for the Measurement Error data,

[42]For all estimations and simulated data, the realized 95% confidence intervals for the distributions of the estimated coefficients closely reflect those expected by the standard errors of the coefficients.

[43]We omit OLS for the Empirical Proxy, since it only changes consumption.

we see that applying the SUR budget constraint yields coefficients close to the true coefficient in the model of just over 2,100,000 and with a much smaller average standard error of roughly 210,000. These patterns mimic those in the actual data. Indeed, this coefficient in the empirics is statistically indistinguishable, roughly 1,200,000 with a standard error of about 300,000. The p-values on the large constraint average 0.29, but the constraint is again rejected more often (in 13% of the samples).

Together, these estimates show the usefulness of the SUR in a situation where biased measurement error can lead to unreasonably large estimates. As argued in the empirics, the SUR returns reasonable estimates (true to the actual estimates) and smaller standard errors.

Table G.1: **Model-Simulated Monte Carlo Regressions**

Simulated Data, Estimation	Mean Investment Coefficient	Mean Standard Error	Mean p-Value	Rejected at 5%
	Won Small Lottery			
			SUR Budget Constraint	
True Values, OLS	3,591	5,478	.	.
True Values, SUR	3,578	5,651	0.56	0.04
Empirical Proxy,† SUR	3,617	5,639	0.50	0.05
Measurement Error,†† OLS	391,660	898,616	.	.
Measurement Error,†† SUR	-2,836	97,935	0.48	0.04
	Won Large Lottery			
True Values, OLS	2,030,588	11,837	.	.
True Values, SUR	2,030,840	12,208	0.73	0.01
Empirical Proxy,† SUR	2,030,997	12,185	0.16	0.54
Measurement Error,†† OLS	4,073,000	*1,944,900*	.	.
Measurement Error,†† SUR	2,100,600	211,784	0.29	0.13

The natural empirical analogs are the estimates from indivisible investment equation in Tables 8 (OLS) and 9 (SUR). The coefficients coefficients for winning the (small) lottery are -721,095 (standard error: 906,426) and -78,531 (132,562) for the OLS and SUR estimations, respectively. The coefficients for additionally winning the large lottery are 5,016,354 (1,965,752) and 1,247,456 (277,484) for the OLS and SUR estimations, respectively.

† Empirical Proxy data constructs total consumption between endline and midline by multiplying the value of endline consumption times the number of months minus one and adding consumption from the month directly after the midline as we do to construct consumption in the empirics. OLS estimates are omitted since, for investment, they are identical to True Values, OLS.

†† Measurement Error data multiplies simulated land realizations by the random variable, $X = \tilde{X}\mu_e$, where $\tilde{X}$ is a log-normally distributed random variable with mean of one and log variance of ν_e^2. Here $\nu_e = 1.95$ is calibrated to match the average standard error on the coefficient for winning the large lottery to our empirical standard error in Table 8 (i.e., 1,965,752). This matching value is italicized. The coefficient $mu_e = 2.2$ captures the bias in measurement and its value is calibrated to equal the average ratio of expenditures to income in the pre-experimental data.