Risk Sharing Tests and Covariate Shocks: Tables & Figures

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December 16, 2025

Contents

1 Introduction

This document provides a scaffolding to report replications of the Tables & Figures found in *Risk Sharing Tests and Covariate Shocks*. Numbering of sections, tables, and figures are set to match the corresponding elements in the paper.

4 Data from Uganda

Table 1: Households' Attrition in the Ugandan LSMS. Includes only households with data necessary to estimate demand system.

	2005-06	2009-10	2010-11	2011-12	2013-14	2015-16	2018-19	2019-20
2005-06	2911	2313	2094	2139	1444	1354	1252	1187
2009-10	—	2760	2295	2336	1532	1441	1319	1253
2010-11	—	—	2457	2206	1444	1355	1251	1188
2011-12	—	—	—	2687	1575	1477	1364	1291
2013-14	—	—	—	—	2974	2638	2415	2265
2015-16	—	—	—	—	—	3115	2726	2546
2018-19	—	—	—	—	—	—	3010	2708
2019-20	—	—	—	—	—	—	—	2877

Table 2: Mean characteristics of households in Uganda by year. Figures in parentheses are standard deviations. Households missing data on any of these characteristics or with inadequate data on food expenditures are excluded from the analysis.

	Girls	Boys	Women	Men	Rural	log HSize
2005-06	1.62	1.61	1.22	1.06	0.73	1.53
2911	(1.48)	(1.49)	(0.80)	(0.83)	(0.44)	(0.64)
2009-10	1.79	1.83	1.29	1.15	0.75	1.65
2760	(1.53)	(1.60)	(0.81)	(0.91)	(0.43)	(0.60)
2010-11	1.91	1.91	1.34	1.18	0.78	1.70
2457	(1.60)	(1.61)	(0.86)	(0.94)	(0.41)	(0.59)
2011-12	1.85	1.83	1.31	1.16	0.80	1.67
2687	(1.57)	(1.58)	(0.80)	(0.91)	(0.40)	(0.58)
2013-14	1.62	1.62	1.27	1.13	0.74	1.57
2974	(1.50)	(1.50)	(0.76)	(0.87)	(0.44)	(0.61)
2015-16	1.32	1.33	1.20	1.06	0.75	1.38
3115	(1.39)	(1.39)	(0.76)	(0.89)	(0.43)	(0.71)
2018-19	1.51	1.46	1.26	1.13	0.75	1.53
3010	(1.40)	(1.36)	(0.71)	(0.87)	(0.43)	(0.60)
2019-20	1.49	1.43	1.27	1.11	0.77	1.51
2877	(1.40)	(1.32)	(0.70)	(0.86)	(0.42)	(0.60)
Pooled	1.63	1.62	1.27	1.12	0.76	1.56
22791	(1.49)	(1.49)	(0.78)	(0.88)	(0.43)	(0.63)

5 Estimates of the CFE Expenditure System

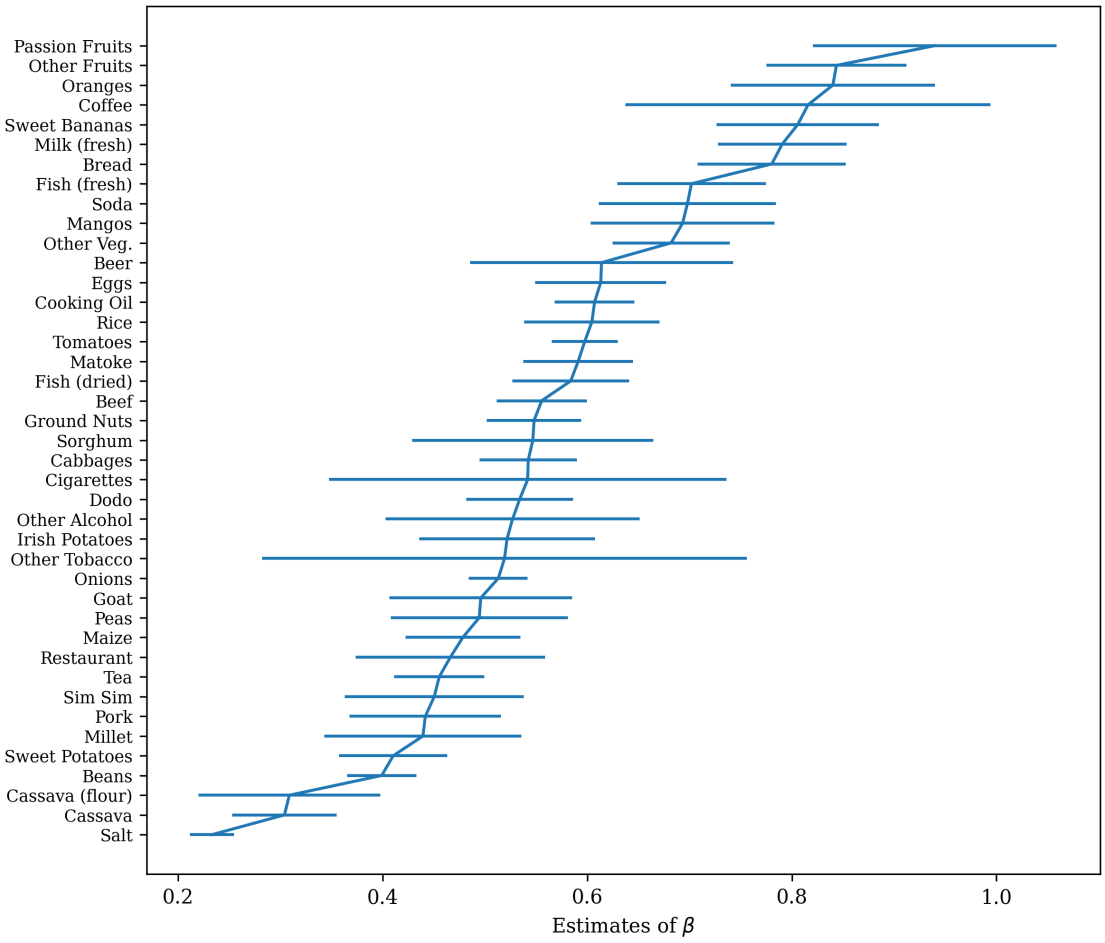

Figure 1: Estimates of Frishian elasticities β_j. These are proportional to income elasticities. Horizontal bars are 95% confidence intervals.

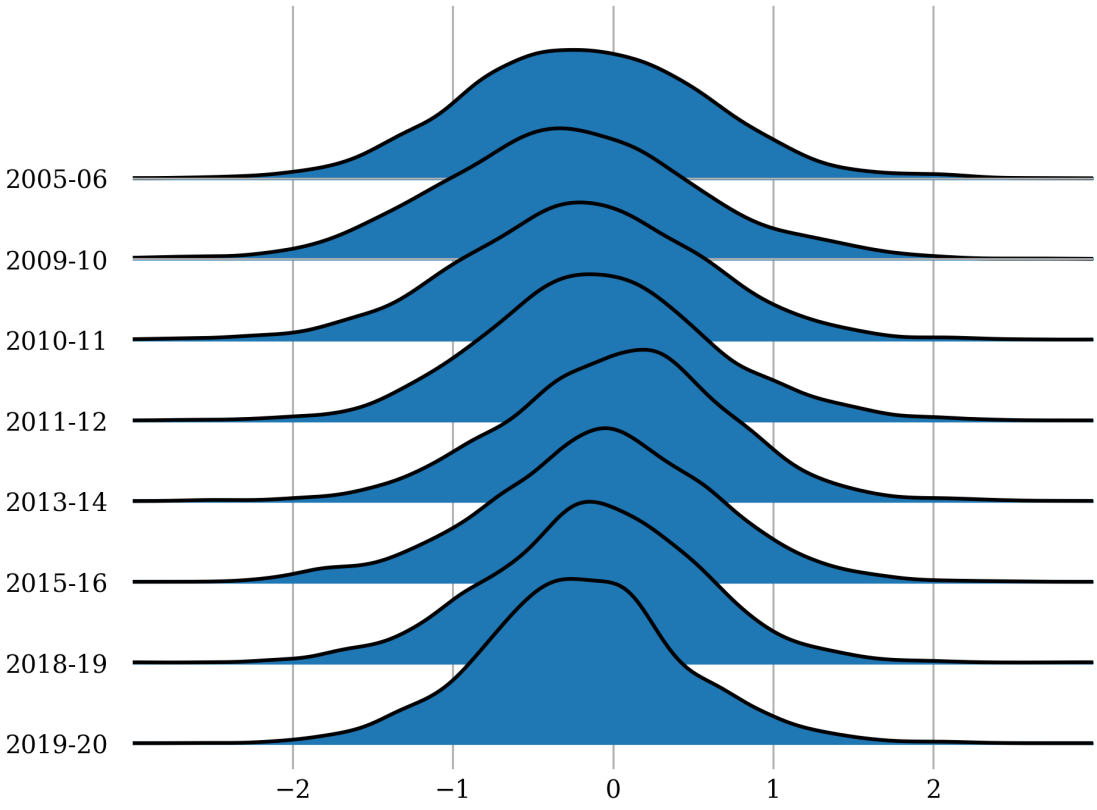

Figure 2: Distribution of w by year.

6 Tests of Risk Sharing in the Face of Covariate Shocks

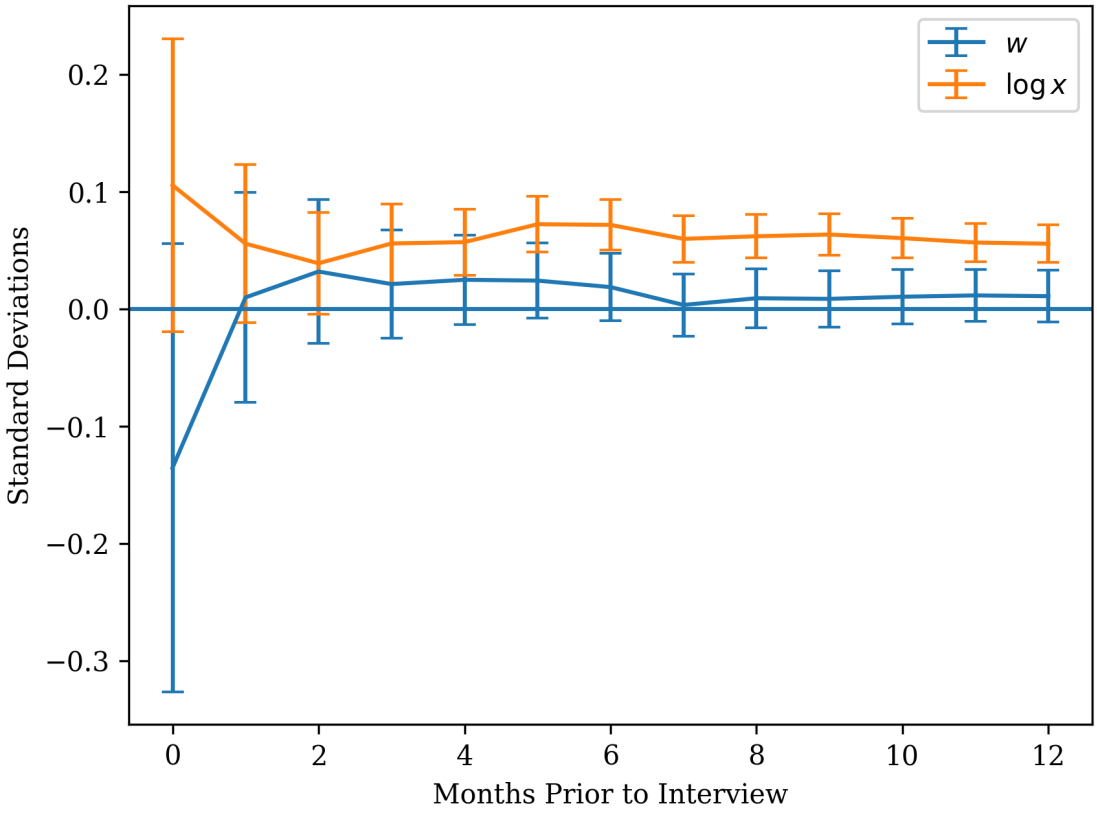

Figure 3: Effects of any covariate shock within the last m months on welfare measures, from a two-way panel regression otherwise specified as in Table 3. Scale is in standard deviations of the dependent variable (w or $\log x$). Error bars cover a span of two standard errors about the point estimate.

Table 3: Effects of different shocks on welfare measures w and $\log x$.^{N,T,H,X,FE}

	w	$\log x$
Death (non-earner)	0.021	0.019
	(0.050)	(0.035)
Death of earner	0.031	0.009
	(0.089)	(0.065)
Health	-0.059**	-0.028
	(0.024)	(0.018)
Theft	0.021	0.020
	(0.033)	(0.026)
Income	0.050*	0.071*
	(0.007)	(0.006)
Drought	0.010	0.046*
	(0.015)	(0.011)
Floods	0.035	0.097*
	(0.034)	(0.027)
Pests	0.041	0.095*
	(0.034)	(0.024)
Prices	-0.043	0.103*
	(0.038)	(0.028)

* $p<0.10$;
** $p<0.05$.
*** $p<0.01$.

N Total observations are 22791 unless otherwise noted.

T All regressions involve 8 rounds and 4 markets.

H A total of 5604 distinct households, unless otherwise noted (but not all households appear in all rounds).

X All regressions include the number of boys, girls, men, women, log of household size, and a "rural" dummy as additional covariates.

FE Household Fixed Effects: Yes; Market-year Effects: Yes

I The regression on income has $N = 9721$, and $H = 3851$.

Table 4: Effects of different shocks within the last m months on current log consumption expenditures.$^{N,T,H,X,\text{FE}}$

	Health	Theft	Death (non-earner)	Death of earner	Drought	Floods	Pests	Prices
0	0.01	0.05	0.09	0.77***	−0.07	0.28***	0.30**	−0.21
	(0.08)	(0.09)	(0.20)	(0.22)	(0.10)	(0.10)	(0.12)	(0.20)
1	−0.01	0.01	−0.02	0.22	−0.01	0.10	0.20***	0.07
	(0.04)	(0.05)	(0.10)	(0.14)	(0.05)	(0.09)	(0.07)	(0.10)
2	−0.03	−0.01	0.02	0.35**	−0.02	0.12*	0.18***	0.09
	(0.03)	(0.04)	(0.08)	(0.18)	(0.03)	(0.06)	(0.06)	(0.06)
3	−0.02	−0.01	0.04	0.29**	0.00	0.18***	0.16***	0.10**
	(0.03)	(0.04)	(0.06)	(0.14)	(0.02)	(0.05)	(0.05)	(0.05)
4	−0.03	−0.02	0.04	0.10	0.02	0.14***	0.14***	0.12***
	(0.03)	(0.03)	(0.05)	(0.12)	(0.02)	(0.04)	(0.04)	(0.05)
5	−0.03	−0.02	0.05	0.05	0.05***	0.12***	0.16***	0.10**
	(0.02)	(0.03)	(0.05)	(0.11)	(0.02)	(0.04)	(0.04)	(0.04)
6	−0.04*	−0.01	0.03	0.04	0.06***	0.09**	0.15***	0.12***
	(0.02)	(0.03)	(0.04)	(0.09)	(0.01)	(0.03)	(0.03)	(0.04)
7	−0.02	0.01	0.00	0.03	0.05***	0.07**	0.13***	0.11***
	(0.02)	(0.03)	(0.04)	(0.09)	(0.01)	(0.03)	(0.03)	(0.03)
8	−0.02	−0.00	0.02	0.05	0.05***	0.07**	0.13***	0.11***
	(0.02)	(0.03)	(0.04)	(0.08)	(0.01)	(0.03)	(0.03)	(0.03)
9	−0.02	0.00	0.02	0.03	0.06***	0.07**	0.12***	0.10***
	(0.02)	(0.03)	(0.04)	(0.07)	(0.01)	(0.03)	(0.03)	(0.03)
10	−0.02	0.01	0.03	0.02	0.05***	0.08***	0.12***	0.11***
	(0.02)	(0.03)	(0.04)	(0.07)	(0.01)	(0.03)	(0.03)	(0.03)
11	−0.03	0.01	0.03	0.03	0.05***	0.08***	0.11***	0.10***
	(0.02)	(0.03)	(0.04)	(0.07)	(0.01)	(0.03)	(0.02)	(0.03)
12	−0.03	0.02	0.02	0.01	0.05***	0.10***	0.09***	0.10***
	(0.02)	(0.03)	(0.04)	(0.06)	(0.01)	(0.03)	(0.02)	(0.03)

* $p<0.10$;

** $p<0.05$.

*** $p<0.01$.

N Total observations are 22791.

T All regressions involve 8 rounds and 4 markets.

H A total of 5604 distinct households (but not all households appear in all rounds).

X All regressions include the number of boys, girls, men, women, log of household size, and a "rural" dummy as additional covariates.

FE Household Fixed Effects: Yes; Market-year Effects: Yes

Table 5: Effects of different shocks within the last m months on current $w = -\log \lambda$.$^{N,T,H,X,\text{FE}}$

	Health	Theft	Death (non-earner)	Death of earner	Drought	Floods	Pests	Prices
0	−0.05	0.24**	−0.07	1.02**	−0.38**	0.36*	−0.09	−0.52***
	(0.09)	(0.12)	(0.31)	(0.45)	(0.15)	(0.21)	(0.15)	(0.18)
1	0.01	0.05	−0.08	0.41**	−0.06	0.10	0.12	0.06
	(0.05)	(0.06)	(0.15)	(0.20)	(0.06)	(0.10)	(0.10)	(0.15)
2	0.02	0.06	−0.09	0.49**	0.00	0.06	0.11	0.06
	(0.04)	(0.05)	(0.11)	(0.21)	(0.04)	(0.07)	(0.08)	(0.12)
3	0.01	0.01	0.03	0.37**	−0.00	0.10*	0.11*	−0.09
	(0.04)	(0.05)	(0.09)	(0.18)	(0.03)	(0.06)	(0.06)	(0.09)
4	−0.03	−0.01	0.02	0.11	0.01	0.12**	0.08	−0.06
	(0.03)	(0.04)	(0.08)	(0.16)	(0.03)	(0.05)	(0.06)	(0.07)
5	−0.04	−0.01	0.02	0.08	0.02	0.08*	0.10**	−0.10*
	(0.03)	(0.04)	(0.07)	(0.14)	(0.02)	(0.04)	(0.05)	(0.06)
6	−0.04	−0.01	0.03	0.07	0.02	0.04	0.09*	−0.08
	(0.03)	(0.04)	(0.06)	(0.12)	(0.02)	(0.04)	(0.05)	(0.05)
7	−0.04	0.01	0.01	0.06	0.00	0.02	0.05	−0.07
	(0.03)	(0.04)	(0.06)	(0.12)	(0.02)	(0.04)	(0.04)	(0.05)
8	−0.04	0.00	0.03	0.10	0.01	0.01	0.07	−0.07
	(0.03)	(0.04)	(0.06)	(0.11)	(0.02)	(0.04)	(0.04)	(0.04)
9	−0.04	0.00	0.07	0.08	0.01	0.03	0.07*	−0.07*
	(0.03)	(0.03)	(0.06)	(0.10)	(0.02)	(0.04)	(0.04)	(0.04)
10	−0.04	0.02	0.05	0.05	0.01	0.03	0.07*	−0.05
	(0.03)	(0.03)	(0.05)	(0.10)	(0.02)	(0.03)	(0.04)	(0.04)
11	−0.05**	0.02	0.05	0.08	0.01	0.03	0.05	−0.04
	(0.03)	(0.03)	(0.05)	(0.09)	(0.01)	(0.03)	(0.04)	(0.04)
12	−0.06**	0.02	0.02	0.03	0.01	0.04	0.04	−0.04
	(0.02)	(0.03)	(0.05)	(0.09)	(0.01)	(0.03)	(0.03)	(0.04)

* $p<0.10$;

** $p<0.05$.

*** $p<0.01$.

N Total observations are 22791.

T All regressions involve 8 rounds and 4 markets.

H A total of 5604 distinct households (but not all households appear in all rounds).

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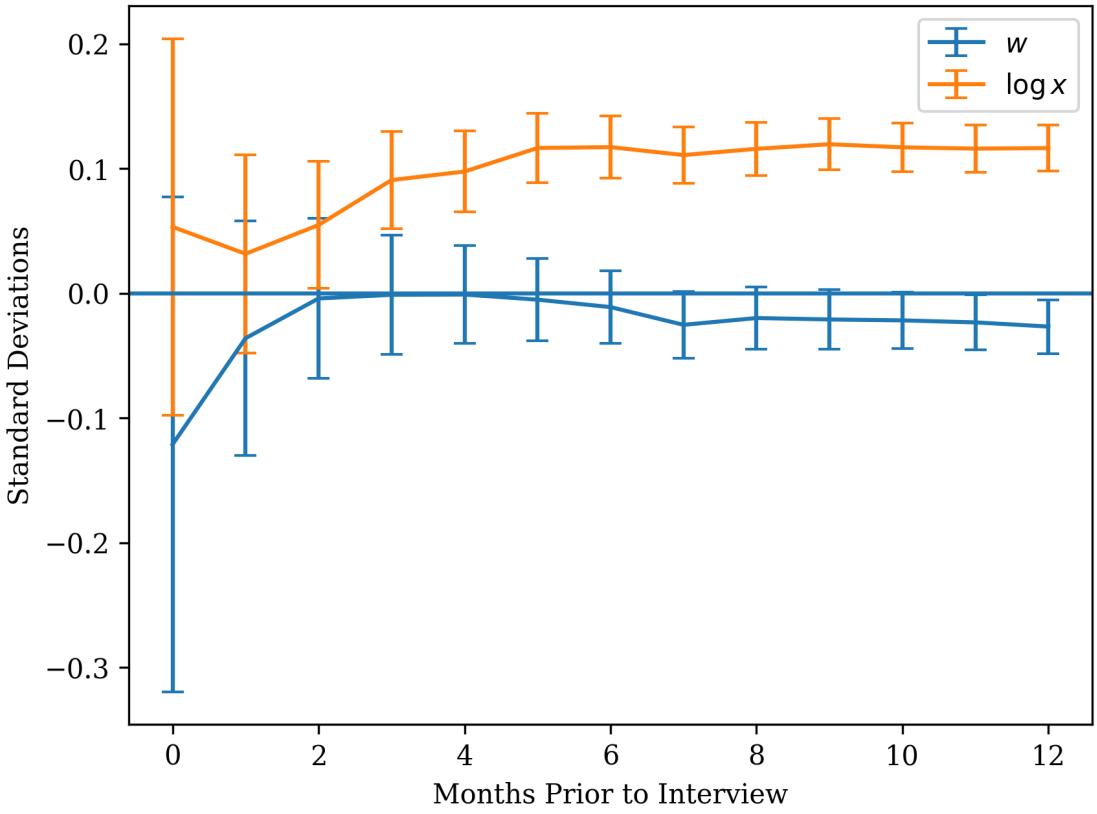

Figure 4: Effects of any covariate shock within the last m months on welfare measures with household fixed effects, but otherwise specified as in Table 3. Scale is in standard deviations of the dependent variable (w or $\log x$). Error bars cover a span of two standard errors about the point estimate.

C For Online Publication: Direct Evidence on the Effects of Covariate Shocks ONLINE

C.1 Maps of Shocks in Africa

Table C.1: Reported incidence of different kinds of shocks by year.

Shock	2005-06	2009-10	2010-11	2011-12	2013-14	2015-16	2018-19	2019-20	Pooled
Health	2%	12%	11%	5%	4%	2%	5%	6%	3%
Theft	11%	7%	3%	1%	2%	1%	2%	2%	2%
Death (non-earner)	13%	2%	2%	1%	2%	1%	1%	1%	1%
Death of earner	3%	0%	0%	0%	0%	0%	0%	0%	0%
Drought	39%	45%	26%	19%	29%	18%	22%	17%	13%
Floods	13%	2%	3%	5%	3%	1%	2%	3%	2%
Pests	15%	7%	2%	3%	2%	1%	4%	2%	2%
Prices	2%	3%	2%	2%	2%	0%	2%	0%	1%
N	3122	2974	2685	2843	3117	3305	3241	3076	24363

Table C.2: Proportion of total variance in shock reports attributable to variation between clusters, by year. Figures in parentheses are p-values† associated with the null hypothesis that the "between" variancc is no greater than the pooled variance.

	Drought	Floods	Pests	Prices	Health	Death (non-earner)	Death of earner	Theft
2005-06	0.11^{*}	0.09^{*}	0.08^{**}	0.06	0.06	0.08^{*}	0.07	0.07
	(0.00)	(0.00)	(0.01)	(0.84)	(0.69)	(0.01)	(0.27)	(0.17)
2009-10	0.18^{*}	0.12^{*}	0.11^{*}	0.11^{*}	0.08	0.09^{*}	0.07	0.09
	(0.00)	(0.00)	(0.00)	(0.00)	(0.45)	(0.08)	(0.77)	(0.12)
2010-11	0.21^{*}	0.17^{*}	0.13^{*}	0.09	0.11^{**}	0.09	0.10	0.10
	(0.00)	(0.00)	(0.00)	(0.66)	(0.02)	(0.73)	(0.30)	(0.25)
2011-12	0.19^{*}	0.15^{*}	0.12^{**}	0.12^{*}	0.09	0.10	0.12^{**}	0.11^{**}
	(0.00)	(0.00)	(0.01)	(0.00)	(0.29)	(0.15)	(0.03)	(0.04)
2013-14	0.34^{*}	0.27^{**}	0.19	0.17	0.23	0.22	0.16	0.19
	(0.00)	(0.01)	(0.63)	(0.80)	(0.14)	(0.35)	(0.78)	(0.61)
2015-16	0.46^{*}	0.29	0.19	0.25	0.23	0.23	0.17	0.29
	(0.00)	(0.15)	(0.92)	(0.47)	(0.69)	(0.59)	(0.81)	(0.25)
2018-19	0.32^{*}	0.27^{*}	0.20	0.20	0.24	0.23	0.10	0.23
	(0.00)	(0.06)	(0.84)	(0.72)	(0.19)	(0.44)	(0.96)	(0.41)
2019-20	0.29^{*}	0.28	0.19	0.20	0.26	0.30	0.19	0.28
	(0.00)	(0.13)	(0.95)	(0.74)	(0.22)	(0.14)	(0.69)	(0.17)

† All p-values computed using randomized permutation tests, with 1000 draws.
* $p < 0.10$.
** $p < 0.05$.
*** $p < 0.01$.
N Total observations are 28,588.
T All regressions involve 8 rounds, 4 markets, and an average of 550 clusters per round.
H A total of 5771 distinct households (an average of 3045 households per round).

Table C.3: Subjective reports as to whether shock resulted in a decline in particular outcomes. These reports are conditional on the respondent reporting that they'd experienced the shock in the last 12 months.

Shock Affected	Drought	Floods	Pests	Prices
Income	0.80	0.67	0.77	0.84
Assets	0.25	0.25	0.35	0.27
Production	0.92	0.89	0.73	0.47
Consumption	0.50	0.41	0.37	0.44

Table C.4: How did households cope with different covariate shocks? These reports are conditional on the respondent reporting that they'd experienced the shock in the last 12 months. Respondents could report up to three different coping mechanisms, so columns do not sum to one.

	Drought	Floods	Pests	Prices	Any
Reduced consumption	0.51	0.35	0.24	0.21	0.44
Used savings	0.45	0.47	0.38	0.37	0.44
Reduced leisure	0.31	0.26	0.14	0.18	0.28
Help from relatives/friends	0.21	0.20	0.14	0.10	0.20
Nothing	0.16	0.15	0.10	0.15	0.15
Other	0.10	0.12	0.24	0.35	0.13
Changed cropping practices	0.10	0.08	0.21	0.16	0.11
Sold assets	0.08	0.07	0.10	0.06	0.08
Used credit	0.08	0.07	0.05	0.07	0.07
Help from local government	0.03	0.03	0.06	0.01	0.03
Reduced investments in human capital	0.03	0.01	0.02	0.02	0.03
Sent children elsewhere	0.01	0.02	0.01	0.00	0.01
Migrated	0.01	0.01	0.01	0.00	0.01
Rented out assets	0.00	0.00	0.01	0.00	0.00
None	0.00	0.00	0.00	0.00	0.00
Average # Coping Methods	2.09	1.84	1.69	1.70	1.99

Table C.5: How did households cope with different idiosyncratic shocks? These reports are conditional on the respondent reporting that they'd experienced the shock in the last 12 months. Respondents could report up to three different coping mechanisms, so columns do not sum to one.

	Health	Theft	Death (non-earner)	Death of earner	Any
Help from relatives/friends	0.58	0.20	0.74	0.77	0.52
Used savings	0.47	0.34	0.38	0.29	0.40
Other	0.15	0.28	0.10	0.06	0.17
Reduced consumption	0.17	0.13	0.06	0.20	0.14
Nothing	0.12	0.17	0.12	0.12	0.13
Sold assets	0.17	0.04	0.08	0.14	0.11
Used credit	0.13	0.06	0.08	0.07	0.09
Reduced leisure	0.10	0.07	0.03	0.17	0.08
Help from local government	0.03	0.06	0.02	0.03	0.04
Reduced investments in human capital	0.03	0.02	0.02	0.04	0.03
Sent children elsewhere	0.02	0.01	0.02	0.04	0.02
Migrated	0.01	0.01	0.01	0.02	0.01
Rented out assets	0.01	0.00	0.01	0.01	0.01
Changed cropping practices	0.01	0.01	0.00	0.01	0.01
None	0.00	0.00	0.00	0.00	0.00
Average # Coping Methods	2.00	1.41	1.66	1.98	1.76

D For Online Publication: Data on Shocks ONLINE

Table D.7: Incidence of shocks by round

Shock	2005-06	2009-10	2010-11	2011-12	2013-14	2015-16	2018-19	2019-20
Conflict/Violence	268	34	27	46	11	12	22	25
Death of Income Earner(s)	99	27	17	19	30	19	20	19
Death of Other Household Member(s)	423	74	58	35	66	35	44	49
Drought	1234	<NA>	<NA>	<NA>	735	526	556	360
Drought/Irregular Rains	<NA>	1344	710	560	<NA>	<NA>	<NA>	<NA>
Erosion	<NA>	<NA>	<NA>	<NA>	15	3	19	13
Fire	105	26	21	20	17	18	12	9
Floods	426	61	102	148	98	62	74	117
Irregular Rains	<NA>	<NA>	<NA>	<NA>	179	72	180	169
Landslides	<NA>	<NA>	<NA>	<NA>	1	<NA>	2	2
Landslides/Erosion	<NA>	21	5	17	<NA>	<NA>	<NA>	<NA>
Loss of Employment of Previously Employed Household Member(s) (Not Due to Illness or Accident)	<NA>	9	10	8	5	10	5	6
Other (Specify)	111	101	60	57	62	45	50	75
Reduction in the Earnings of Currently (Off-Farm) Employed Household Member(s)	<NA>	28	3	10	6	4	15	15
Serious Illness or Accident of Income Earner(s)	82	189	152	91	86	56	107	119
Serious Illness or Accident of Other Household Member(s)	<NA>	188	149	65	47	32	83	78
Theft	349	<NA>	<NA>	<NA>	<NA>	<NA>	<NA>	<NA>
Theft of Agricultural Assets/Output (Crop or Livestock)	<NA>	127	48	21	35	27	41	40
Theft of Money/Valuables/Non-Agricultural Assets	<NA>	106	48	34	41	35	34	43
Unusually High Costs of Agricultural Inputs	71	60	19	27	49	7	10	12
Unusually High Level of Crop Pests & Disease	<NA>	137	40	61	54	35	<NA>	<NA>
Unusually High Level of Crop Pests & Disease	292	<NA>	<NA>	<NA>	<NA>	<NA>	120	79
Unusually High Level of Livestock Disease	183	82	37	31	17	18	10	5
Unusually Low Prices for Agricultural Output	<NA>	53	35	38	18	5	68	17

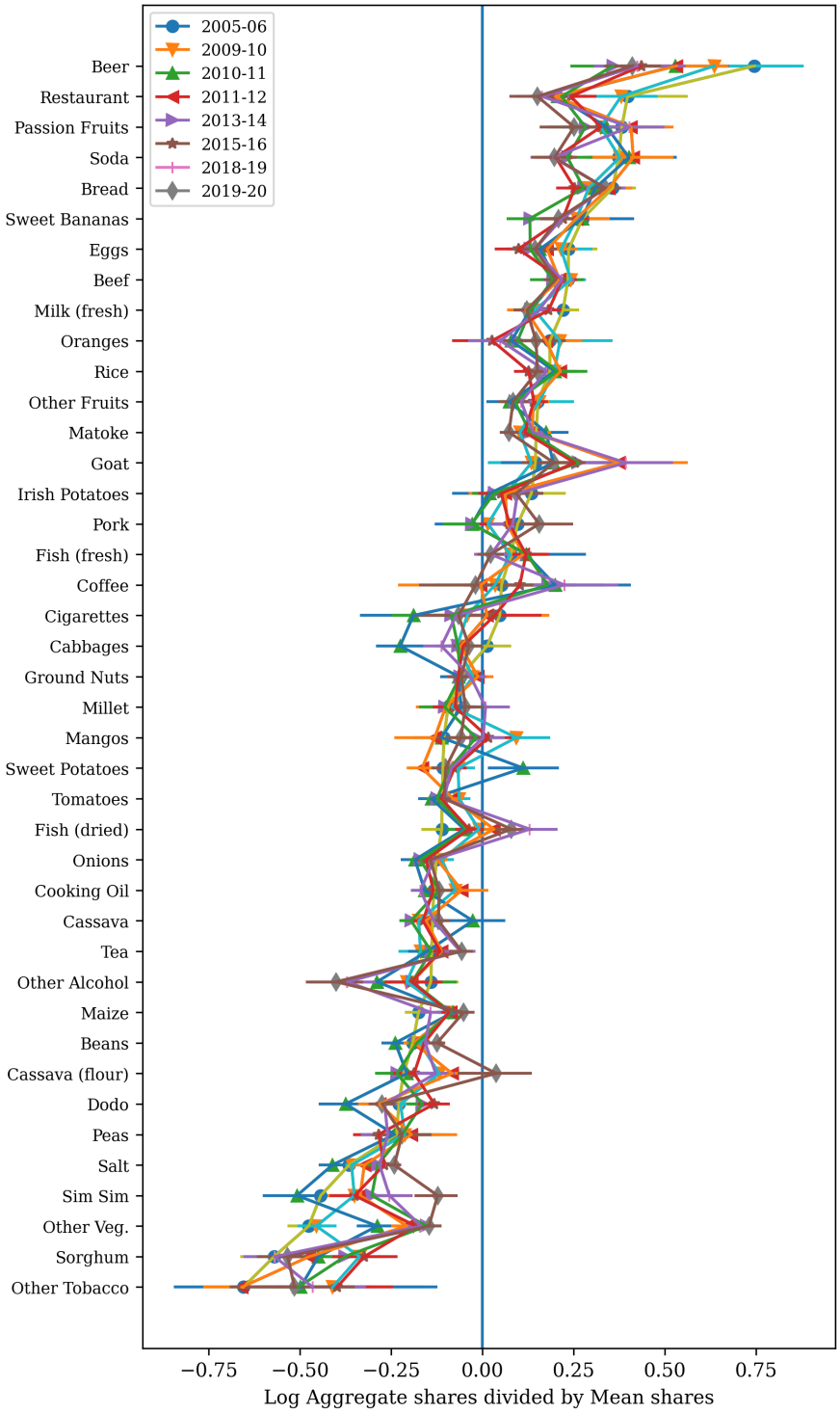

Figure C.1: Log of aggregate shares minus log of mean shares for different years (ordered by aggregate share averaged across years), with 95% confidence intervals.

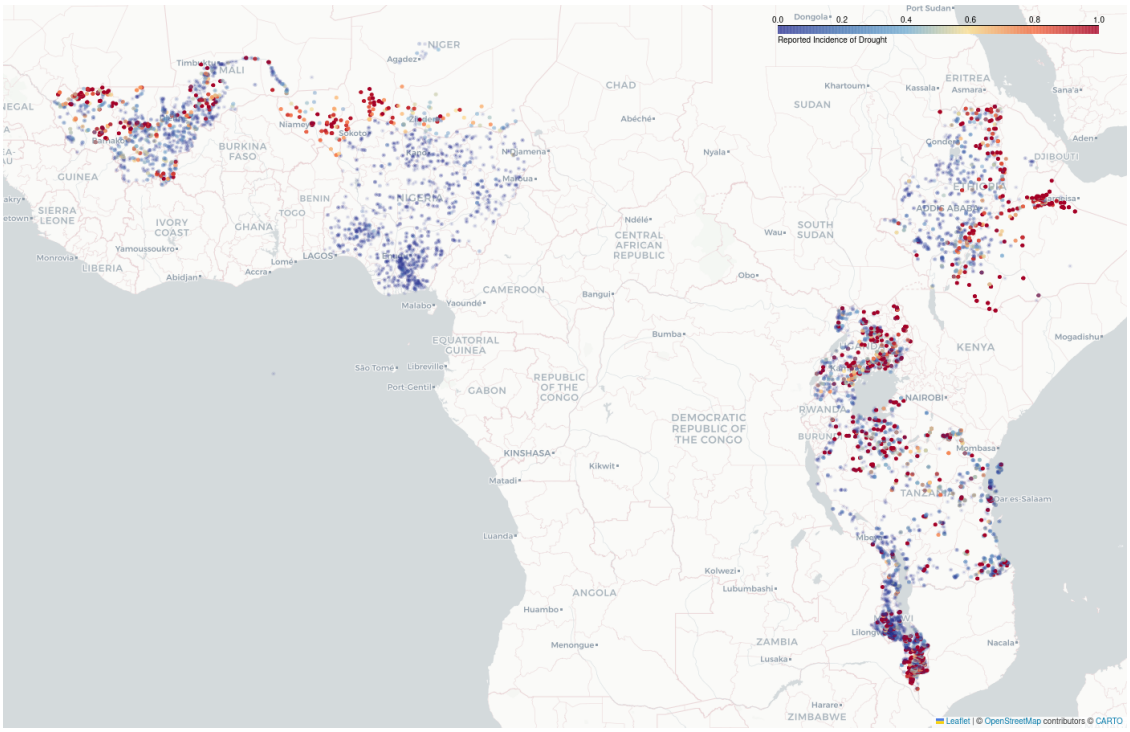

Figure C.2: Drought reports in the LSMS-ISA data across Africa. Each dot corresponds to a sample cluster; the "bluer" the dot the higher the proportion of households in the cluster which reported drought. Note that observations from later sample years often partly obscure data from earlier years.

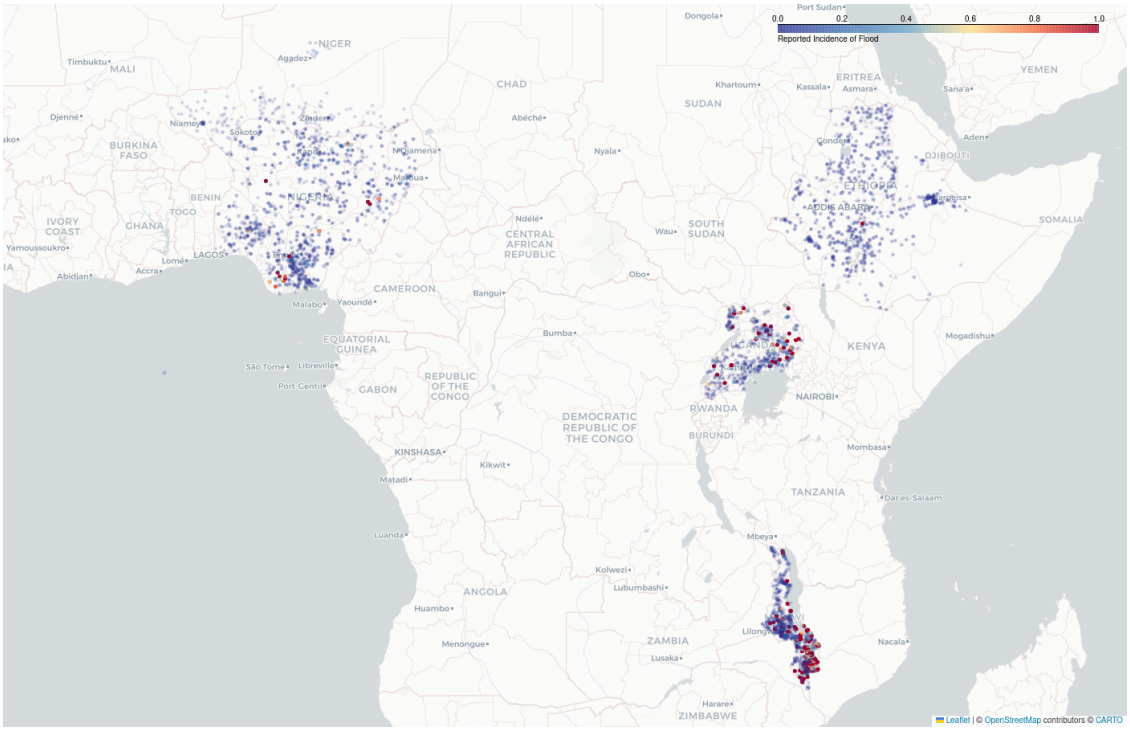

Figure C.3: Flood reports in the LSMS-ISA data across Africa. Each dot corresponds to a sample cluster; the "bluer" the dot the higher the proportion of households in the cluster which reported floods. Note that observations from later sample years often partly obscure data from earlier years.

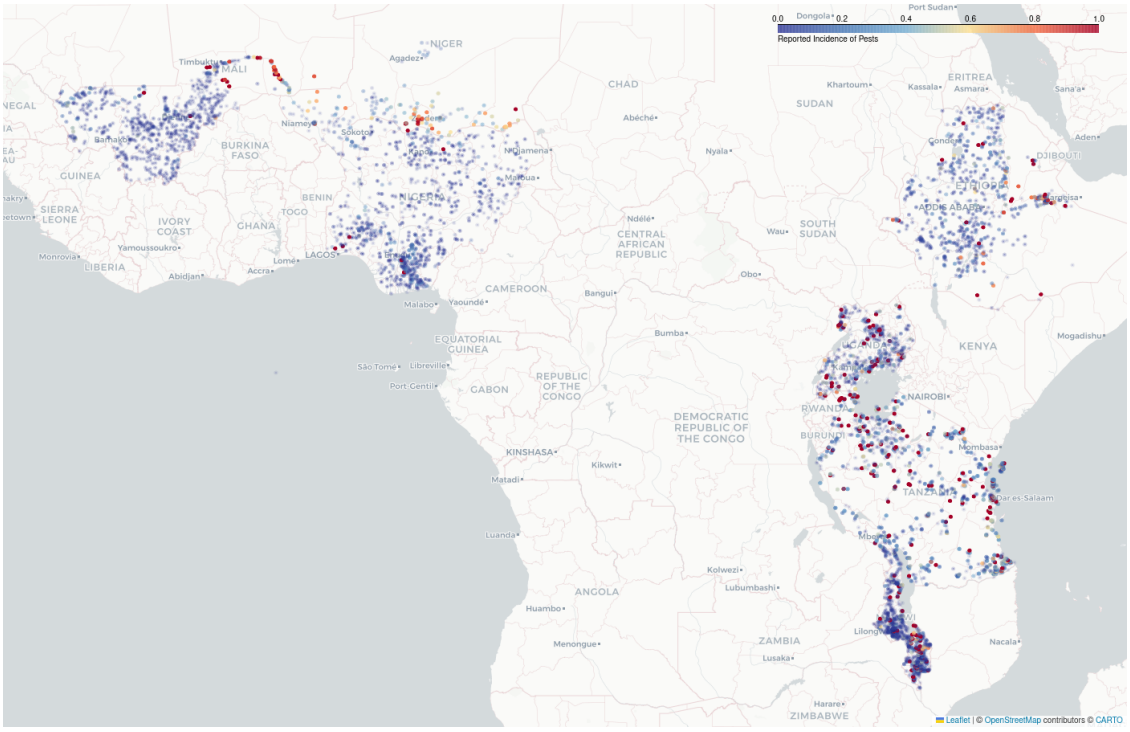

Figure C.4: Pest reports in the LSMS-ISA data across Africa. Each dot corresponds to a sample cluster; the "bluer" the dot the higher the proportion of households in the cluster which reported pests. Note that observations from later sample years often partly obscure data from earlier years.

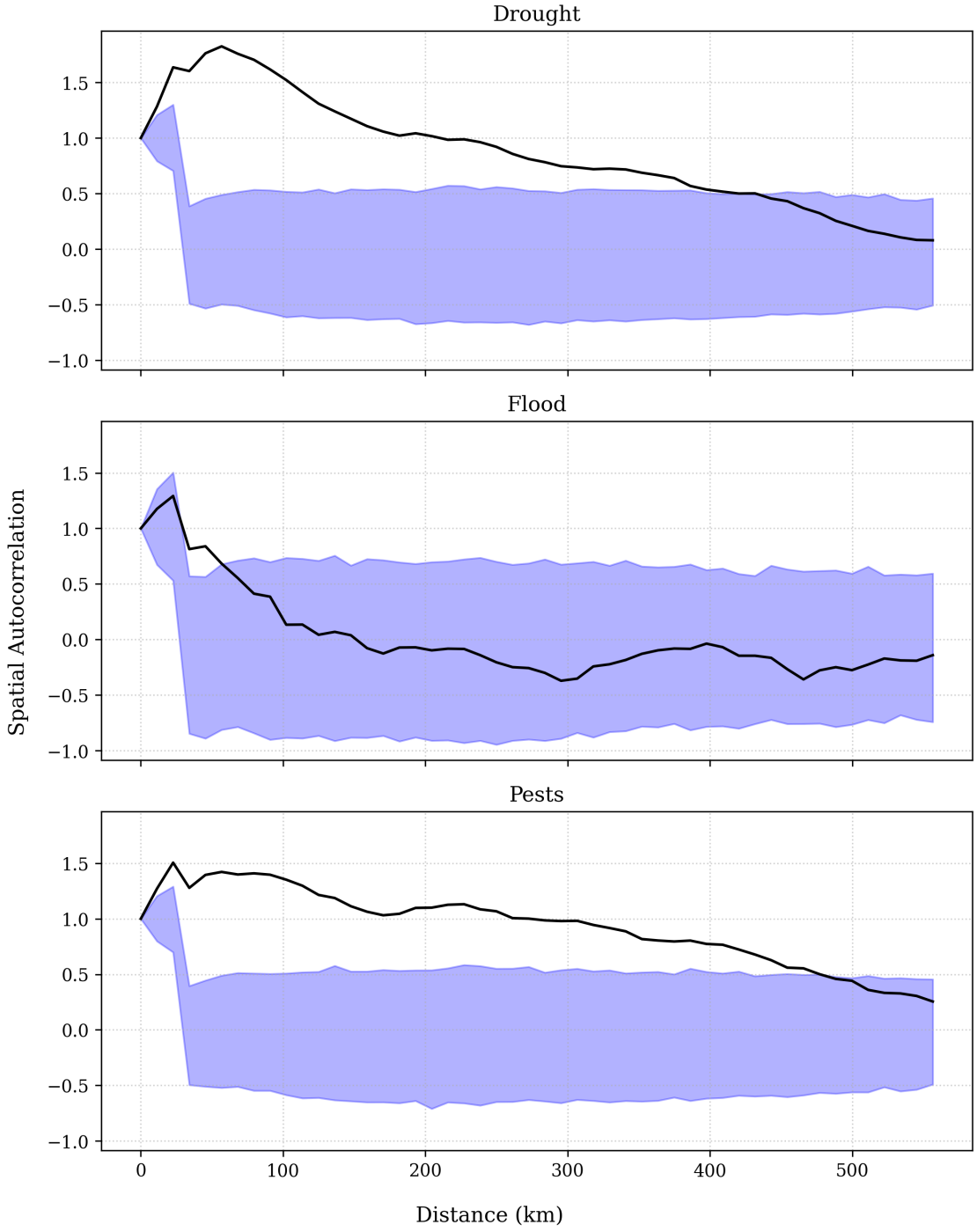

Figure C.5: Estimated spatial autocorrelation functions for shock reports. Dotted area indicates a point-wise 95% "acceptance" region of the null hypothesis of no correlation at a given distance.

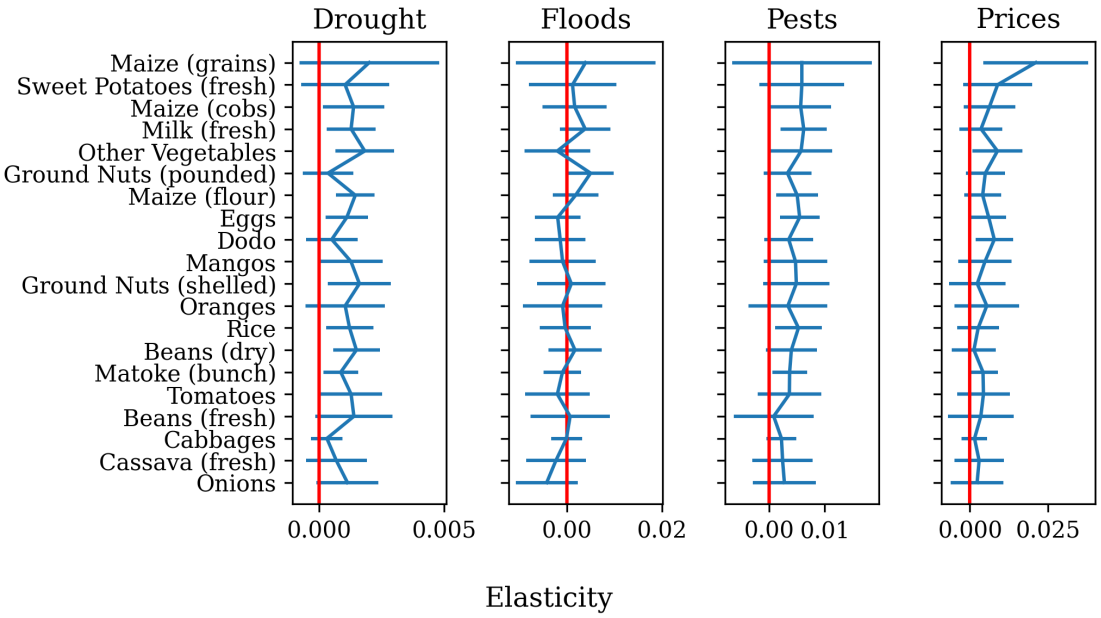

Figure C.6: Shocks and Farmgate Prices. Point estimates from a regression of changes in mean year-market (farmgate) log prices on the proportion of households reporting particular covariate shocks in a given year-market; includes year effects. Bars indicate 95% confidence intervals. Ordered by average magnitude of coefficient across shocks.

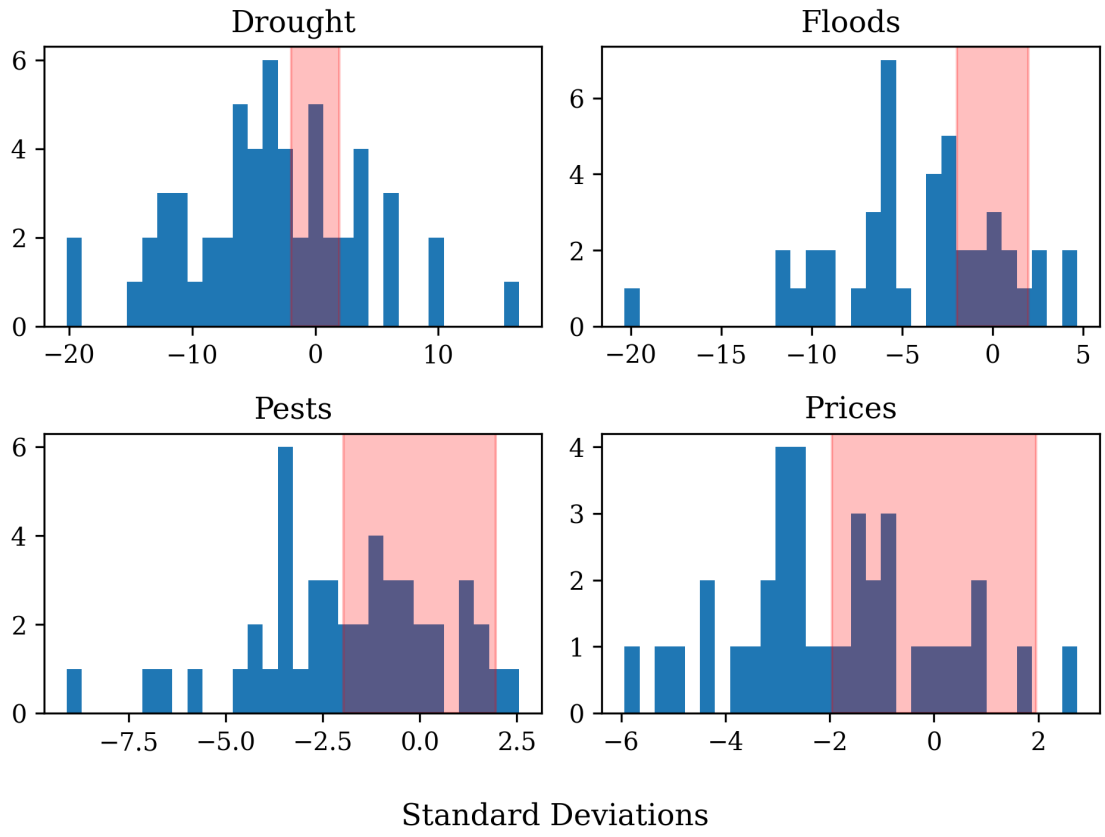

Figure C.7: Histograms of t-statistics testing hypothesis that covariate shocks have no effect on prices, by good. Shaded areas are 95% acceptance regions.

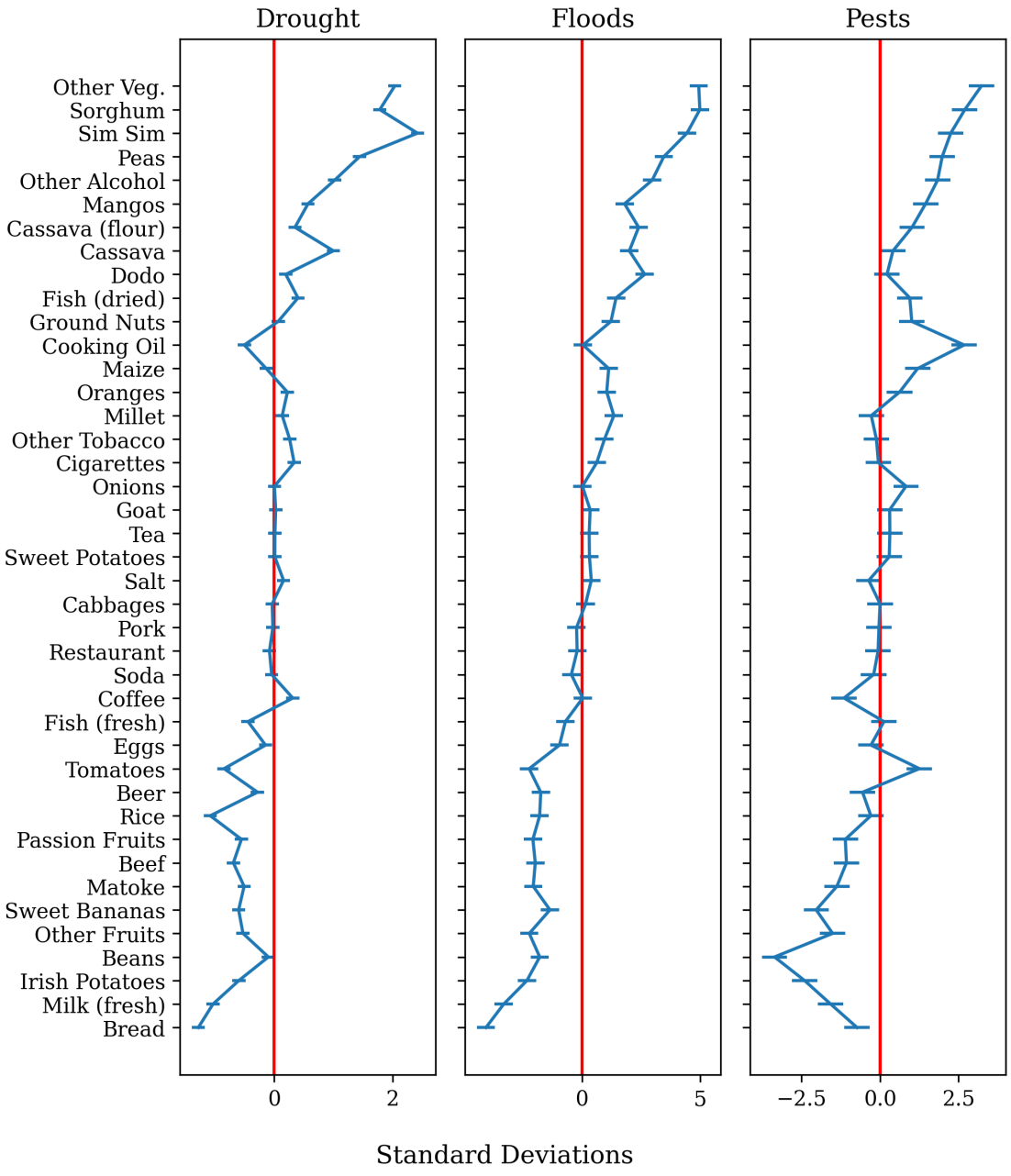

Figure C.8: Food Quantities and Shocks. Estimated coefficients from regression of standardized quantities of different food items on the share of households in a given market-year reporting given covariate shock (year effects included). Bars indicate 95% confidence intervals. Goods are ordered according to magnitude of coefficients averaged across different shock regressions.

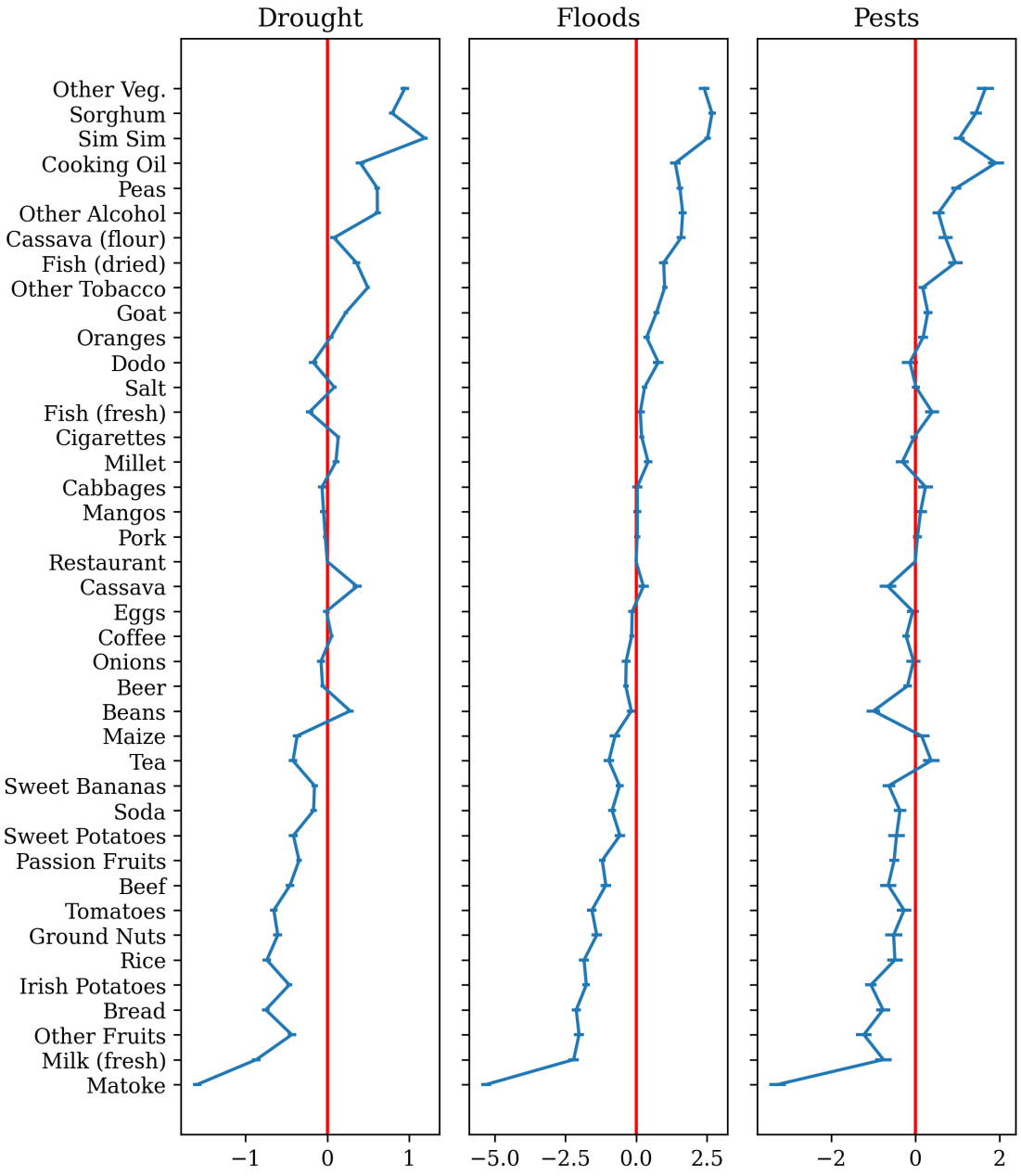

Figure C.9: Positive Quantities and Shocks. Estimated coefficients from regression of an indicator of positive quantities of different food items on the share of households in a given market-year reporting given covariate shock (year effects included). Bars indicate 95% confidence intervals. Goods are ordered according to magnitude of coefficients averaged across different shock regressions.

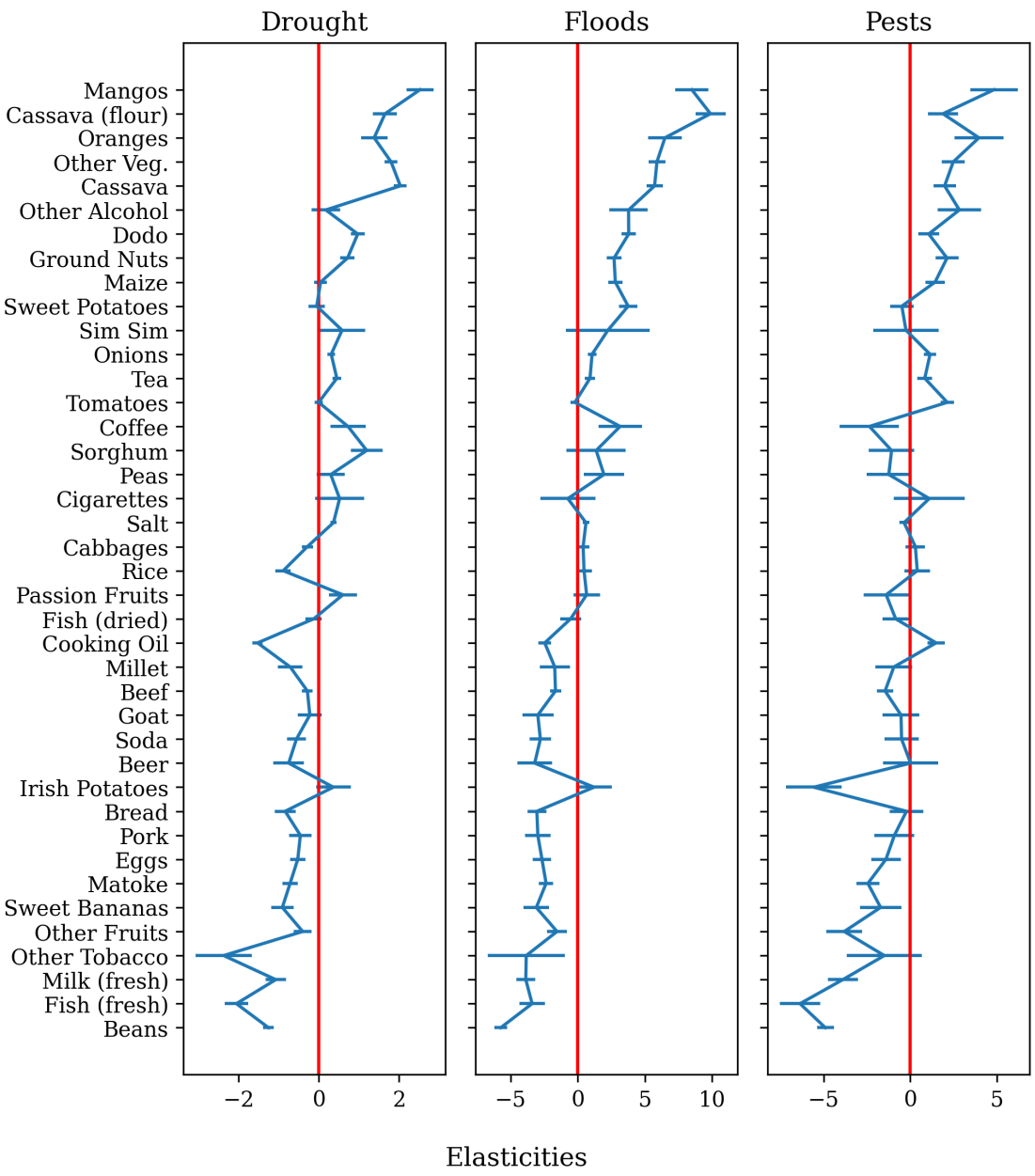

Figure C.10: Log Quantities and Shocks. Estimated coefficients from regression of log quantities of different food items on the share of households in a given market-year reporting given covariate shock (year effects included; zeros dropped). Bars indicate 95% confidence intervals. Goods are ordered according to magnitude of coefficients averaged across different shock regressions.