

Table 2: Ethnic Diversity and Local Public Goods (Kenya and Tanzania)

Explanatory variable	Annual school spending/pupil, USD (1)	desks/pupil (2)	latrines/pupil (3)	classrooms/pupil (4)	Proportion wells with normal flow (5)	H <sub>0</sub> : β = 0, p-value (SUR)
<b>Local ethnic diversity (ELF) * Kenya Indicator</b>	-7.7 (5.9)	-0.40** (0.15)	-0.014 (0.013)	-0.014 (0.012)	0.20 (0.31)	0.02**
Local ethnic diversity (ELF)	4.1 (5.6)	0.08 (0.09)	0.007** (0.003)	0.006 (0.005)	-0.26 (0.24)	0.44
Kenya indicator variable	-4.1 (3.6)	-0.08 (0.15)	0.025** (0.012)	0.024** (0.009)	-0.43 (0.26)	0.03**
<i>Socio-economic controls</i>						
Average years of education	0.52 (0.55)	0.013 (0.011)	0.0013*** (0.0004)	0.0013* (0.0007)	-0.083** (0.037)	0.08*
Proportion formal sector employment	-11.0 (9.0)	0.30* (0.17)	0.015** (0.006)	0.016 (0.010)	-0.31 (0.58)	0.38
Proportion homes with iron roofs	-1.9 (2.3)	-0.05 (0.07)	-0.006*** (0.002)	-0.002 (0.004)	0.12 (0.18)	0.82
Proportion households grow cash crops	-0.8 (2.2)	-0.03 (0.04)	0.000 (0.002)	-0.001 (0.002)	-0.12 (0.18)	0.96
Proportion households own cattle	-2.6 (2.5)	-0.05 (0.05)	0.011*** (0.003)	-0.002 (0.005)	-0.27 (0.24)	0.37
Proportion Catholic	1.9 (3.3)	-0.06 (0.09)	-0.003 (0.003)	-0.011 (0.009)	-0.64 (0.52)	0.37
Socio-economic controls * Kenya Indicator	Yes	Yes	Yes	Yes	Yes	
R <sup>2</sup>	0.15	0.19	0.13	0.41	0.19	
Root MSE	3.07	0.098	0.011	0.011	0.25	
Number of observations	150	150	150	150	150	
Ethnic diversity effect, Kenya	-3.6* (2.0)	-0.32** (0.12)	-0.007 (0.012)	-0.008 (0.010)	-0.06 (0.19)	0.02**

Table 2 Notes:

1.) Huber robust standard errors in parentheses. Significantly different than zero at 90% (\*), 95% (\*\*), 99% (\*\*\*) confidence. Regression disturbance terms are clustered at the zone level for Kenya, and at the ward level for Tanzania. The data contains 84 primary schools in Busia, Kenya, and for 66 villages in Meatu, Tanzania, for all outcomes.

2.) The hypothesis that the coefficient estimate on each term is equal to zero across the five outcomes in Table 2 is tested using SUR in the final column.

**Table 5: Logistic Estimates of Participation in Hezbollah**  
**Dependent Variable is 1 if Individual is a Deceased Hezbollah Militant, and 0 Otherwise**  
**Standard errors shown in parentheses**

	<i>All of Lebanon:</i>				<i>Heavily Shiite Regions:</i>	
	<u>Unweighted Estimates</u>		<u>Weighted Estimates</u>		<u>Weighted Estimates</u>	
	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	-4.886 (0.365)	-5.910 (0.391)	-5.965 (0.230)	-6.991 (0.255)	-4.658 (0.232)	-5.009 (0.261)
Attended Secondary School or Higher (1=yes)	0.281 (0.191)	0.171 (0.193)	0.281 (0.159)	0.170 (0.164)	0.220 (0.159)	0.279 (0.167)
Poverty (1=yes)	-0.335 (0.221)	-0.167 (0.223)	-0.335 (0.158)	-0.167 (0.162)	-0.467 (0.159)	-0.500 (0.166)
Age	-0.083 (0.015)	-0.083 (0.015)	-0.083 (0.008)	-0.083 (0.008)	-0.083 (0.008)	-0.082 (0.008)
Beirut (1=yes)	---	2.199 (0.219)	---	2.200 (0.209)	---	0.168 (0.222)
South Lebanon (1=yes)	---	2.187 (0.232)	---	2.187 (0.221)	---	1.091 (0.221)
Pseudo R-Square	0.020	0.091	0.018	0.080	0.021	0.033
Sample Size	120,925	120,925	120,925	120,925	34,826	34,826

Notes: Sample pools together observations on 129 deceased Hezbollah fighters and the general Lebanese population from 1996 PHS. Weights used in columns (3) and (4) are the relative share of Hezbollah militants in the population to their share in the sample and relative share of PHS respondents in the sample to their share in the population. Weight is 0.273 for Hezbollah sample and .093 for PHS sample.

Table 2: Vegetation Deviations and Economic Growth (First-Stage and Reduced-Form)

Explanatory variable	Dependent variable:					
	Annual economic growth rate (t - t-1)			Civil conflict $\geq$ 25 deaths.		Civil conflict $\geq$ 1000 deaths.
	OLS (1)	OLS (2)	OLS (3)	OLS (4)	PRIO OLS (5)	PRIO OLS (6)
Deviation from annual average vegetation, time t	0.31*** (0.10)					
Deviation from annual average vegetation, time t-1	-0.29*** (0.10)					
(Vegetation, time t) - (Vegetation, time t-1)		0.30*** (0.08)	0.31*** (0.08)	0.32*** (0.08)	-0.66*** (0.24)	-0.69*** (0.24)
Democracy (Polity IV), time t-1			-0.0003 (0.0006)			
Ethno-linguistic fractionalization			0.0007 (0.0113)			
Religious fractionalization			-0.007 (0.013)			
Oil exporting country			-0.013*** (0.005)			
Log(mountainous)			0.0005 (0.0020)			
Log (national population), time t-1			-0.0012 (0.0022)			
Country fixed effects	No	No	No	Yes	Yes	Yes
R <sup>2</sup>	0.03	0.03	0.04	0.09	0.55	0.49
Root MSE	0.064	0.064	0.064	0.064	0.31	0.28
Number of observations	647	647	647	647	647	647

Table 2 Notes:

1) Huber robust standard errors in parentheses. Significantly different than zero at 90% (\*), 95% (\*\*), 99% (\*\*\*) confidence. Regression disturbance terms are clustered at the country level. A year time trend is included in all specifications (coefficient estimates not reported). Regressions 1-4 are first-stage specifications; regressions 5 and 6 are the reduced-form specifications.

Table 3: Economic Growth and Civil Conflict

Explanatory variable	Dependent variable:					
	<u>Civil conflict ≥ 25 deaths, PRIO</u>			<u>Civil conflict ≥ 1000 deaths, PRIO</u>		
	Probit (marginal)	OLS	OLS	IV-2SLS	IV-2SLS	IV-2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
<b>Annual economic growth rate (t – t-1)</b>	-0.65** (0.28)	-0.58** (0.28)	-0.48* (0.25)	-2.27** (0.98)	-2.08** (0.96)	-2.17*** (0.78)
Democracy (Polity IV), time t-1	-0.005 (0.006)	-0.003 (0.005)		-0.003 (0.005)		
Ethno-linguistic fractionalization	0.22 (0.26)	0.21 (0.27)		0.21 (0.27)		
Religious fractionalization	-0.31 (0.26)	-0.26 (0.24)		-0.27 (0.24)		
Oil exporting country	-0.01 (0.20)	0.01 (0.19)		-0.01 (0.20)		
Log(mountainous)	0.080** (0.043)	0.074* (0.040)		0.075* (0.039)		
Log (national population), time t-1	0.082 (0.052)	0.073 (0.048)		0.71 (0.49)		
Country fixed effects	No	No	Yes	No	Yes	Yes
R <sup>2</sup>	-	0.11	0.55	-	-	-
Root MSE	-	0.43	0.31	0.44	0.33	0.30
Number of observations	647	647	647	647	647	647

Table 3 Notes:

1) Huber robust standard errors in parentheses. Significantly different than zero at 90% (\*), 95% (\*\*), 99% (\*\*\*) confidence. Regression disturbance terms are clustered at the country level. The IV for annual economic growth in (4) and (5) is {(Vegetation, time t) – (Vegetation, time t-1)}. A year time trend is included in all specifications (coefficient estimates not reported).

Table 3: Extreme Rainfall and Village Calamities

Explanatory variable	Dependent variable:				
	<u>Annual per capita consumption expenditures (USD)</u>			<u>Famine</u>	<u>Human disease epidemic</u>
	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)
<b>Extreme rainfall (drought or flood)</b>	-50.7** (24.8)	-50.1* (26.6)		0.47*** (0.07)	-0.03 (0.04)
Human disease epidemic		4.4 (25.7)		0.04 (0.05)	
Drought			-38.5* (21.3)		
Flood			-74.9 (48.4)		
Average years of education	1.7 (13.0)	1.8 (13.4)	0.0 (12.9)		
Proportion Sukuma ethnic group	-12.0 (63.5)	-12.1 (64.8)	-14.5 (65.3)		
Proportion households grow cash crops	-2.7 (56.2)	-2.9 (56.3)	3.7 (56.2)		
Households per village / 1000	0.07 (0.07)	0.07 (0.07)	0.07 (0.07)		
Proportion practice traditional religions	17.2 (52.5)	17.4 (53.4)	22.7 (52.4)		
Women's community groups per household	2116 (2492)	2083 (2465)	2333 (2571)		
Geographic division fixed effects	Yes	Yes	Yes	No	No
Village fixed effects (67 villages)	No	No	No	Yes	Yes
R <sup>2</sup>	0.14	0.14	0.15	0.26	0.06
Root MSE	81.4	82.1	81.8	0.34	0.37
Mean of dependent variable	196.8	196.8	196.8	0.18	0.15
Number of observations	67	67	67	736	736

**Table 3 Notes:**

1) Huber robust standard errors in parentheses. Significantly different than zero at 90% (\*), 95% (\*\*), 99% (\*\*\*) confidence. Observations are weighted by the number of households per village. Regression disturbance terms are clustered at the village level. Regression 1 only contains data for 2001, the only year in which a household consumption expenditure survey was conducted. In Regression 3, we cannot reject the hypothesis that the coefficient estimates on Drought and Flood are equal (p-value=0.50).

Table 4: Extreme Rainfall and Witch Murders

Explanatory variable	Dependent variable: <i>Witch murders</i>				
	OLS (1)	OLS (2)	OLS (3)	OLS (4)	OLS (5)
<b>Extreme rainfall (drought or flood)</b>	0.085** (0.042)	0.076** (0.037)	0.098 (0.059)	0.085** (0.042)	0.056 (0.038)
Extreme rainfall, previous year			-0.000 (0.042)		
Extreme rainfall, current year and previous year			-0.032 (0.080)		
Human disease epidemic				-0.006 (0.036)	
Village fixed effects (67 villages)	Yes	No	Yes	Yes	Yes
Socioeconomic controls, and geographic division fixed effects	No	Yes	No	No	No
Year fixed effects (11 years)	No	No	No	No	Yes
R <sup>2</sup>	0.15	0.05	0.16	0.15	0.19
Root MSE	0.32	0.32	0.31	0.32	0.31
Mean of dependent variable	0.09	0.09	0.09	0.09	0.09
Number of observations	736	736	736	736	736

Table 4 Notes:

1) Huber robust standard errors in parentheses. Significantly different than zero at 90% (\*), 95% (\*\*), 99% (\*\*\*) confidence. Observations are weighted by the number of households per village. Regression disturbance terms are clustered at the village level. Socioeconomic controls include Average years of education, Proportion Sukuma ethnic group, Proportion households grow cash crops, Households per village / 1000, Proportion practice traditional religions, and Women's community groups per household.

**Table 5: Satellite Vegetation (NDVI) Data and Witch Murders**

Explanatory variable	Dependent variable: <i>Witch Murders</i>			
	OLS (1)	OLS (2)	OLS (3)	OLS (4)
<b>Extreme rainfall (drought or flood)</b>	0.085** (0.042)			
Deviation from average vegetation during rainy season   > 0.08		0.047 (0.034)		
Deviation from average vegetation during rainy season   > 0.09			0.062* (0.037)	
Deviation from average vegetation during rainy season   > 0.1				0.051 (0.042)
Village fixed effects (67 villages)	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.15	0.15	0.15	0.15
Root MSE	0.32	0.32	0.32	0.32
Mean of dependent variable	0.09	0.09	0.09	0.09
Number of observations	736	736	736	736

**Table 5 Notes:**

1) Huber robust standard errors in parentheses. Significantly different than zero at 90% (\*), 95% (\*\*), 99% (\*\*\*) confidence. Observations are weighted by the number of households per village. Regression disturbance terms are clustered at the level of the satellite image pixel, and there are a total of 51 such clusters. Regression 1 reproduces the results of Table 4, Regression 1. When it is included as the main explanatory variable, the coefficient estimate on |Deviation from average vegetation during rainy season| is 0.31 (standard error 0.35).

**Table 6: Extreme Rainfall and Violent Crime**

Dependent variable	Coefficient estimate on <b>Extreme rainfall (drought or flood)</b>	R <sup>2</sup>	Root MSE
<b>Panel A: Witch Murders and Attacks</b>			
1) Witch murders	0.085** (0.042)	0.15	0.32
2) Witch murders per 1000 households	0.173* (0.094)	0.16	0.84
3) Witch murders and attacks	0.144* (0.082)	0.11	0.56
4) Witch murders and attacks per 1000 households	0.206 (0.162)	0.11	1.56
<b>Panel B: Non-witch Murders</b>			
5) Non-witch murders	-0.001 (0.036)	0.11	0.41
6) Non-witch murders per 1000 households	-0.01 (0.08)	0.14	0.99
<b>Panel C: Total Murders</b>			
7) Total murders	0.100 (0.068)	0.13	0.54
8) Total murders per 1000 households	0.125 (0.124)	0.12	1.33

**Table 6 Notes:**

1) Huber robust standard errors in parentheses. Significantly different than zero at 90% (\*), 95% (\*\*), 99% (\*\*\*) confidence. Observations are weighted by the number of households per village. Regression disturbance terms are clustered at the village level. Village fixed effects are included in all specifications, which are analogous to Table 4, regression 1. All regressions have 736 observations. Each coefficient estimate is from a separate regression.



Table 3--Correlation of Instruments with Economic Distress

	(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(ix)
	Non-Food Expenditure Change (1998 August - 1997 May)	Non-Food Expenditure Change (1998 August - 1997 May)	Non-Food Expenditure Change (1998 August - 1997 May)	Non-Food Expenditure Change (1998 August - 1997 May)	Non-Food Expenditure Change (1998 August - 1997 May)	Per-Capita (vi)	Control I (vii)	Control II (ix)
Wetland Ownership	5.363*** (1.589)	5.619*** (1.367)			5.618*** (1.367)	1.044*** (0.396)	-1.130 (1.302)	
Government			-21.049*** (3.275)	-3.976 (3.050)	-3.976 (3.050)	-1.536* (0.883)	4.994* (2.905)	2.030*** (0.565)
Dryland Ownership								-1.351 (2.302)
Service								
Controls	N	Y	N	Y	Y	Y	Y	Y
Fixed Effects	N	Village	N	Village	Village	Village	Village	Village

Standard errors are in parantheses. Coefficients represent OLS regressions.  
 All Controls Pre-Crisis May 1997 Values. Controls are  
 Characteristics of Household Head -- Age, Years of Education (8 = graduated), Gender, Ever-Married  
 Household Controls: Household Size, Modernity (Index of Stove, Radio, TV, Fridge, Satellite Dish, Motorbike, Car), Farming Dummy  
 Dryland Ownership (ha), Pre-Crisis Non-Food Expenditure  
 Village Controls: Urban, Population, Area (ha), Number of Shops  
 Geographic Controls: Flat, Steep, Beach, Forest, Valley, River Dummies  
 Fiscal Controls: 1996-97 INPRES Funding Received, Funds Used for Economics, Buildings, Offices, Human Resources, Total IDT Funds Received 1994-96  
 Per-Capita refers to Per-Capita Non-Food Expenditure Change (1998 August - 1997 May), Per-Capita Pre-Crisis NF Expenditure as Control  
 Percent refers to Percentage Change of Non-Food Expenditures (1998 August - 1997 May), Pre-Crisis Non-Food Expenditure Control removed  
 Control I refers to Correlation of Instruments with Non-Food Expenditure Change (1999 May - 1998 December)  
 Control II refers to Correlation of Placebo Instruments with Non-Food Expenditure Change (1998 August - 1997 May), Wetland replaces Dryland as Control

Table 4--Reduced Form Relationship between Instruments and Pengajian Change

Main Experiment: Relationship between Instruments and Pengajian Change During Crisis

	(i)	(ii)	(iii)	(iv)	(v)
Wetland Ownership	-0.019** (0.009)	-0.019* (0.010)			-0.018* (0.010)
Government		0.068*** (0.020)	0.040* (0.022)		0.040* (0.022)

Control Experiment I: Relationship between Instruments and Pengajian Change After Crisis

	(i)	(ii)	(iii)	(iv)	(v)
Wetland Ownership	-0.000 (0.009)	-0.005 (0.010)			-0.005 (0.010)
Government		-0.029 (0.019)	-0.025 (0.021)		-0.025 (0.021)

Control Experiment II: Relationship between Placebo Instruments and Pengajian Change During Crisis

	(i)	(ii)	(iii)	(iv)	(v)
Dryland Ownership	-0.001 (0.004)	0.000 (0.004)			0.000 (0.004)
Service		0.023 (0.016)	0.003 (0.017)		0.003 (0.017)

Controls	N	Y	N	Y	Y
Fixed Effects	N	Village	N	Village	Village

Control variables are discussed in Table 3. In Control Experiment II, dryland control is replaced by wetland control. Standard errors are in parentheses.

Table 5--Impact of Economic Distress

	OLS (i)	Pengajian Change in Past 3 Months (Increase +1 /Same 0 /Decrease -1 ) OLS (ii)	IV (iii)	IV (iv)	IV (v)	IV (vi)	IV (vii)	IV (viii)	Non-Rel IV (ix)	Labor IV (x)	Islamic IV (xi)	Secular IV (xii)
Non-Food Expenditure Change	-0.0000 (0.0001)	-0.0001 (0.0001)	-0.0036* (0.0021)	-0.0033* (0.0020)	-0.0032*** (0.0011)	-0.0101 (0.0095)	-0.0039** (0.0019)		-0.001 (0.001)	-0.142** (0.072)	-0.002 (0.002)	0.001 (0.004)
Per-Capita Non-Food Expenditure Change								-0.020** (0.010)				
IV Controls	N	N	Wet N	Wet Y	Govt N	Govt Y	Both Y	Both Y	Both Y	Both Y	Both Y	Both Y
Fixed Effects	N	Y Village	N	Village	N	Village	Village	Village	Village	Village	Village	Village

Standard errors are in parantheses. Excluded instruments are listed in column. Control variables are described in Table 3.

Non-Rel refers to Average Non-Religious Social Activities Participation Change in Past 3 Months (+1 / 0 / -1)

Labor refers to Household Average Hrs/Week Change

Islamic refers to # Kids Attending Islamic School Change

Secular refers to # Kids Attending Secular School Change

Table 8--Evidence Suggesting Religious Intensity Functions as Social Insurance: Credit

Does Religious Intensity Increase For Lack of Credit?

	Penggajian Change in Past 3 Months	
	(i)	(ii)
	IV	IV
Non-Food Expenditure Change	-0.0042*** (0.0015)	-0.0058** (0.0026)
Non-Food Expenditure Change * Credit Availability	0.0047** (0.0019)	0.0047** (0.0024)
Controls	N	Y
Fixed Effects	N	Province

Standard errors are in parentheses.  
 Excluded instruments are wetland ownership, government, and their interaction with credit availability.  
 Credit Availability is defined as having a Bank, Microfinance, or BRI Loan Product available in Village.

Does Religious Intensity Provide Credit?

	Credit Constrained in Aug 1998	Credit Constrained in Dec 1998	Absolute Change	N
Not Participating in Penggajian, Aug 1998	0.052 (0.004)	0.049 (0.004)	-0.003 (0.005)	3151
Decreased Participation in Penggajian, Aug 1998	0.034 (0.007)	0.027 (0.006)	-0.007 (0.009)	728
Same Participation in Penggajian, Aug 1998	0.042 (0.003)	0.032 (0.003)	-0.010 (0.004)	3510
Increased Participation in Penggajian, Aug 1998	0.039 (0.007)	0.020 (0.005)	-0.019 (0.008)	753

Credit Constrained: Waiting for package, (try to) borrow from someone else, waiting for someone to give in order to meet basic needs.

Table 9--Evidence Suggesting Religious Intensity Functions as Social Insurance: Consumption Smoothing and Public Assistance

	Do Religious Institutions Provide Social Insurance?			Do Religious Institutions Provide Social Insurance?		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
Total Worship Buildings Per 1000 Pop	-5** (2)	-5** (2)	-7** (3)	0.777 (0.574)	0.966 (0.631)	1.053 (0.699)
1996-97 INPRES Funds for Productive Economic, \$/1000		-10	-11			
1996-97 INPRES Funds for Buildings/Facilities, \$/1000		-47*	-88**	-0.083** (0.039)	-0.090** (0.040)	-0.113* (0.061)
1996-97 INPRES Funds for Offices/Institutions, \$/1000		58	79			
1996-97 INPRES Funds for Human Resources, \$/1000		-24	-24			
MicroFinance Available		(39)	(42)			
BRI Loan Product Available		-14	-26			
N	95	(16)	(19)			
Crisis Characteristics Village, Geographic Controls	N	(17)	(20)			
Fixed Effects	N	93	93	94	92	92
		N	Y	N	N	Y
		N	Province	N	N	Province
		N	Province	N	N	Province

Crisis Characteristics Includes Fraction of Villagers Report Falling Income, Fraction Report Same Income Village-level OLS regressions.

Does Public Spending Reduce Religious Intensity?

	1996-1997 Presidentially Instructed Program to Assist Village Development		
	1998 August	1999 May	1999 August
Funds Per 1000 Pop Used for Productive Economic Effort	-0.076*** (0.027)	-0.119*** (0.030)	-0.072* (0.038)
Buildings and Facilities	-0.067 (0.077)	-0.079 (0.073)	-0.002 (0.075)
Offices and Institutions	0.260* (0.140)	0.107 (0.112)	0.001 (0.098)
Human Resources	-0.194* (0.103)	0.012 (0.089)	-0.105 (0.104)
N	7522	7519	7522
All Non-Fiscal Controls	Y	Y	Y
Fixed Effects	Province	Province	Province
	Province	Province	Province

OLS regressions clustered at village level. All funds in per-capita terms.