

APPENDIX

Table A1: Country Composition and Total Duration of Water Shortages

Country	Year	Total duration of water shortages last month (in days)
Angola	2,010	0.84
Argentina	2,010	0.05
Burkina Faso	2,009	0.01
Cameroon	2,009	0.19
Cabo Verde	2,009	0.45
Democratic Republic of Congo	2,013	1.20
Ghana	2,013	6.75
Guatemala	2,010	0.29
Kenya	2,013	0.65
Myanmar	2,014	0.68
Peru	2,010	0.09
Rwanda	2,011	0.02

Table A2: Informal Firm Activity for 8 economies

Firm Activity	No. of Firms	Percentage of Sample
Manufacturing of clothes or shoes	68	12.69
Manufacturing of baked food (Baker)	63	11.75
Manufacturing of coffee, sugar, oil, dry fruits and other processed foods (exclude restaurants, street food-sellers)	19	3.54
Manufacturing of handicrafts	15	2.80
Manufacturing of furniture	31	5.78
Manufacturing of metal products	22	4.10
Manufacturing of household items	8	1.49
Other manufacturing (not included above)	53	9.89
Selling food or Groceries (street-food sellers, restaurants)	119	22.20
Selling of clothes or household items	2	0.37
Selling of other goods	7	1.31
Selling of business/computer/phone service	27	5.04
Transport Services	3	0.56
Cleaning and washing services	7	1.31
Hairdressers and barber shops	49	9.14
Professional Services (including internet services)	1	0.19
Repairing services	11	2.05
Construction	3	0.56
Other services (not included above)	28	5.22
Total	536	100.00

The 8 economies are: Angola, Argentina, Democratic Republic of Congo, Guatemala, Kenya, Myanmar, Peru, and Rwanda

Table A3: Extreme Observations Exclusion

Extreme Value Observation Exclusion: Total Water Shortage Duration			
	Bottom 1%	Top 1%	Top and Bottom 1 %
	coef/se	coef/se	coef/se
Total duration of water shortages last month (in days)	-0.036*** (0.010)	-0.035** (0.015)	-0.035*** (0.011)

Extreme Value Observation Exclusion: Labor Productivity			
	Bottom 1%	Top 1%	Top and Bottom 1 %
	coef/se	coef/se	coef/se
Total duration of water shortages last month (in days)	-0.027*** (0.010)	-0.032*** (0.010)	-0.022** (0.011)

Table A4: Water Shortage and Correlates

	Total duration of water shortages last month (in days)
	coef/se
Log of total number of employees in regular month	-0.217 (0.205)
Largest owner has secondary education or higher: Y/N	0.189 (0.188)
Manager experience (years)	0.011 (0.019)
Largest owner has a job in formal sector or looked for one over last 2 years Y/N	0.151 (0.148)
Largest owner started another business in the last three years Y/N	-0.172 (0.361)
Firm uses electricity for activity Y/N	-0.269 (0.309)
Firm uses machinery in its current operations Y/N	-0.090 (0.266)
Firm uses vehicles in its current operations Y/N	-0.240 (0.555)
Manufacturing firm Y/N	0.273* (0.153)
Produces or sells under contract from another business or person Y/N	-0.025 (0.184)
Firm uses bank account to run business Y/N	0.083 (0.258)
Firm has a loan at this time Y/N	0.308 (0.470)
Firm pays informal payment to remain unregistered Y/N	-0.590 (0.441)
Firm experienced crime last month Y/N	-0.040 (0.756)

Firm pays for security Y/N	-0.093 (0.199)
Firm located within household or fixed premises & permanent structure Y/N	-0.883** (0.358)
Constant	2.411*** (0.798)
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Location (within country) Fixed Effects	YES
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Number of observations	706
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Adjusted R2	0.405
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note: *** p<0.01, ** p<0.05, * p<0.1	

Table A5: Water Shortages and Capital and Labor use

Model	Probit	Probit	OLS	OLS
Dependent Variable	Firm uses machinery in its current operations Y/N	Firm uses vehicles in its current operations Y/N	Log of total number of employees in regular month	Manager experience (years)
	coef/se	coef/se	coef/se	coef/se
Total duration of water shortages last month (in days)	-0.005 (0.019)	-0.010 (0.036)	-0.007 (0.006)	0.065 (0.129)
Log of total number of employees in regular month	0.201 (0.160)	0.532*** (0.107)		1.544*** (0.542)
Largest owner has secondary education or higher: Y/N	0.434*** (0.119)	0.013 (0.151)	0.006 (0.058)	-1.831** (0.862)
Manager experience (years)	0.018*** (0.006)	-0.000 (0.005)	0.007*** (0.002)	
Largest owner has a job in formal sector or looked for one over last 2 years Y/N	-0.238** (0.099)	-0.118 (0.149)	0.175*** (0.053)	-0.826 (0.513)
Largest owner started another business in the last three years Y/N	-0.148 (0.106)	0.051 (0.154)	0.027 (0.032)	-2.248*** (0.630)
Firm uses electricity for activity Y/N	0.819*** (0.157)	0.217 (0.207)	0.023 (0.059)	-0.374 (0.773)
Manufacturing firm Y/N	0.557*** (0.116)	0.111 (0.095)	0.060** (0.029)	0.657 (0.403)
Produces or sells under contract from another business or person Y/N	0.106 (0.119)	-0.145 (0.148)	0.197*** (0.062)	0.954 (1.019)
Firm uses bank account to run business Y/N	0.146 (0.192)	0.479*** (0.153)	0.194*** (0.068)	-0.055 (0.826)
Firm has a loan at this time Y/N	-0.040 (0.125)	0.159 (0.190)	0.151 (0.097)	1.408 (0.938)
Firm pays informal payment to remain unregistered Y/N	0.486*** (0.165)	0.314 (0.250)	-0.112 (0.079)	-0.253 (1.343)
Firm experienced crime last month Y/N	-0.554*** (0.121)	-0.055 (0.199)	0.103 (0.103)	1.004 (1.103)
Firm pays for security Y/N	-0.064 (0.073)	-0.097 (0.147)	0.229*** (0.075)	-0.701 (0.618)

Firm uses machinery in its current operations Y/N			0.077 (0.081)	2.122*** (0.755)
Firm uses vehicles in its current operations Y/N			0.274*** (0.055)	-0.122 (0.655)
Constant	-0.917*** (0.148)	-2.351*** (0.173)	2.190*** (0.087)	0.308 (1.342)
Location (within country) Fixed Effects	YES	YES	YES	YES
Number of observations	691	677	710	710
Adjusted R2	0.204	0.203	0.400	0.072

note: *** p<0.01, ** p<0.05, * p<0.1

Table A6: Enumerator bias

Dependent Variable	Labor Productivity (logs)		
	Interviewer Fixed Effects	Interviewer and Supervisor Fixed Effects	Interviewer, Supervisor, and Survey Month Fixed Effects
	coef/se	coef/se	coef/se
Total duration of water shortages last month (in days)	-0.033*** (0.013)	-0.028*** (0.010)	-0.030*** (0.011)
Log of total number of employees in regular month	-0.685*** (0.174)	-0.687*** (0.185)	-0.655*** (0.172)
Largest owner has secondary education or higher: Y/N	0.179 (0.150)	0.152 (0.155)	0.155 (0.143)
Manager experience (years)	0.025** (0.013)	0.026** (0.013)	0.027** (0.013)
Largest owner has a job in formal sector or looked for one over last 2 years Y/N	0.277 (0.212)	0.215 (0.231)	0.215 (0.229)
Largest owner started another business in the last three years Y/N	-0.091 (0.135)	-0.099 (0.142)	-0.120 (0.169)
Firm uses electricity for activity Y/N	0.131 (0.157)	0.205 (0.158)	0.228 (0.166)
Firm uses machinery in its current operations Y/N	-0.208* (0.118)	-0.235* (0.130)	-0.269** (0.129)
Firm uses vehicles in its current operations Y/N	0.229 (0.204)	0.261 (0.187)	0.217 (0.213)
Manufacturing firm Y/N	0.316*** (0.077)	0.312*** (0.077)	0.327*** (0.084)
Produces or sells under contract from another business or person Y/N	0.557*** (0.189)	0.553*** (0.183)	0.544** (0.221)
Firm uses bank account to run business Y/N	0.431** (0.203)	0.548** (0.228)	0.517** (0.243)
Firm has a loan at this time Y/N	0.267 (0.212)	0.291 (0.216)	0.261 (0.240)
Firm pays informal payment to remain unregistered Y/N	-0.412** (0.182)	-0.383* (0.203)	-0.360* (0.205)

Firm experienced crime last month Y/N	0.088 (0.372)	0.147 (0.357)	0.115 (0.389)
Firm pays for security Y/N	-0.089 (0.125)	-0.134 (0.112)	-0.168 (0.111)
Constant	7.948*** (0.879)	7.838*** (0.859)	6.167*** (0.690)
Interviewer Fixed Effects	YES	YES	YES
Supervisor Fixed Effects	YES	YES	YES
Survey Month Fixed Effects	YES	YES	YES
Location (within country) Fixed Effects	YES	YES	YES
Number of observations	479	479	479
Adjusted R2	0.485	0.497	0.510

note: *** p<0.01, ** p<0.05, * p<0.1

Table A7: Time reference of sales and Interview length

	Labor Productivity (logs) based on sales of the last month	Labor Productivity (logs) based on sales of the usual month
	coef/se	coef/se
Total duration of water shortages last month (in days)	-0.028*** (0.008)	-0.037*** (0.011)
Interview length (in minutes)		-0.0003 (0.001)
Log of total number of employees in regular month	-0.552*** (0.100)	-0.561*** (0.112)
Largest owner has secondary education or higher: Y/N	0.300*** (0.088)	0.286** (0.136)
Manager experience (years)	0.017** (0.007)	0.015** (0.007)
Largest owner has a job in formal sector or looked for one over last 2 years Y/N	0.045 (0.136)	-0.004 (0.134)
Largest owner started another business in the last three years Y/N	-0.092 (0.074)	-0.134* (0.078)
Firm uses electricity for activity Y/N	0.024 (0.068)	0.071 (0.083)
Firm uses machinery in its current operations Y/N	0.030 (0.078)	0.058 (0.089)
Firm uses vehicles in its current operations Y/N	0.399*** (0.082)	0.477*** (0.100)
Manufacturing firm Y/N	0.118 (0.074)	0.143* (0.086)
Produces or sells under contract from another business or person Y/N	0.242** (0.120)	0.391*** (0.147)
Firm uses bank account to run business Y/N	0.198* (0.104)	0.164 (0.133)
Firm has a loan at this time Y/N	-0.127 (0.130)	0.002 (0.074)
Firm pays informal payment to remain unregistered Y/N	-0.002 (0.123)	-0.219 (0.158)
Firm experienced crime last month Y/N	-0.062 (0.207)	0.067 (0.231)
Firm pays for security Y/N	0.098 (0.105)	-0.110 (0.198)
Constant	5.858***	6.155***

	(0.198)	(0.209)
Location (within country) Fixed Effects	YES	YES
Number of observations	713	706
Adjusted R2	0.339	0.343

note: *** p<0.01, ** p<0.05, * p<0.1

Table A8: Family labor

	Labor Productivity (logs)		
	coef/se	coef/se	coef/se
Total duration of water shortages last month (in days)	-0.025** (0.010)	-0.024** (0.011)	-0.028*** (0.010)
Family labor Y/N	-0.134 (0.112)		
No. of family labor		0.004 (0.046)	
Share of family labor			-0.095 (0.143)
Log of total number of employees in regular month	-0.513*** (0.125)	-0.547*** (0.130)	-0.540*** (0.113)
Largest owner has secondary education or higher: Y/N	0.280** (0.131)	0.288** (0.132)	0.273** (0.137)
Manager experience (years)	0.015** (0.007)	0.015** (0.007)	0.015** (0.007)
Largest owner has a job in formal sector or looked for one over last 2 years Y/N	0.101 (0.150)	0.105 (0.154)	0.105 (0.152)
Largest owner started another business in the last three years Y/N	-0.167** (0.068)	-0.180** (0.072)	-0.167** (0.067)
Firm uses electricity for activity Y/N	0.090 (0.080)	0.085 (0.080)	0.092 (0.078)
Firm uses machinery in its current operations Y/N	0.036 (0.085)	0.041 (0.087)	0.043 (0.085)
Firm uses vehicles in its current operations Y/N	0.390*** (0.086)	0.385*** (0.086)	0.383*** (0.087)
Manufacturing firm Y/N	0.101 (0.088)	0.100 (0.089)	0.094 (0.089)
Produces or sells under contract from another business or person Y/N	0.341*** (0.104)	0.334*** (0.105)	0.337*** (0.107)
Firm uses bank account to run business Y/N	0.183 (0.120)	0.189 (0.123)	0.193 (0.122)
Firm has a loan at this time Y/N	0.005 (0.067)	-0.012 (0.068)	0.000 (0.072)

Firm pays informal payment to remain unregistered Y/N	-0.104 (0.104)	-0.091 (0.104)	-0.098 (0.103)
Firm experienced crime last month Y/N	0.021 (0.241)	0.027 (0.243)	0.024 (0.244)
Firm pays for security Y/N	-0.004 (0.138)	0.006 (0.133)	-0.001 (0.135)
Constant	5.021*** (0.265)	4.986*** (0.250)	5.006*** (0.266)
Location (within country) Fixed Effects	YES	YES	YES
Number of observations	704	704	702
Adjusted R2	0.369	0.367	0.369

note: *** p<0.01, ** p<0.05, * p<0.1

Table A9: Accounts together versus accounts separate

Dependent Variable	Labor Productivity (logs)	
	Business and Household Accounts Separate	Business and Household Accounts Together
Sample	coef/se	coef/se
Total duration of water shortages last month (in days)	-0.111*** (0.043)	-0.014* (0.008)
Log of total number of employees in regular month	-0.722*** (0.206)	-0.491*** (0.113)
Largest owner has secondary education or higher: Y/N	0.407* (0.233)	0.186 (0.144)
Manager experience (years)	-0.001 (0.005)	0.020** (0.010)
Largest owner has a job in formal sector or looked for one over last 2 years Y/N	-0.272 (0.200)	0.229 (0.155)
Largest owner started another business in the last three years Y/N	-0.143 (0.089)	-0.069 (0.108)
Firm uses electricity for activity Y/N	0.141 (0.136)	0.163 (0.111)
Firm uses machinery in its current operations Y/N	0.339** (0.150)	-0.092 (0.126)
Firm uses vehicles in its current operations Y/N	0.460*** (0.143)	0.397*** (0.135)
Manufacturing firm Y/N	0.277** (0.138)	-0.009 (0.064)
Produces or sells under contract from another business or person Y/N	0.554*** (0.135)	0.167 (0.137)
Firm uses bank account to run business Y/N	0.396** (0.176)	0.212** (0.088)
Firm has a loan at this time Y/N	0.258 (0.167)	-0.126 (0.145)
Firm pays informal payment to remain unregistered Y/N	-0.963** (0.392)	0.143 (0.201)
Firm experienced crime last month Y/N	0.185 (0.379)	-0.055 (0.202)

Firm pays for security Y/N	-0.218 (0.390)	-0.090 (0.085)
Constant	5.103*** (0.730)	6.894*** (0.276)
Location (within country) Fixed Effects	YES	YES
Number of observations	276	430
Adjusted R2	0.299	0.402

note: *** p<0.01, ** p<0.05, * p<0.1

Figure A1: Country Dominance

