

Returns to Treatment in the Formal Health Care Sector: Evidence from Tanzania

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Online Appendix

A Checks and Additional Results

A Additional Plots

Figure A6 below checks that the rainfall distributions, both during the survey period and historically, do not vary systematically by distance to health facility. We repeat the exercise from Figure 3 for subsamples of households with above and below median distance to nearest health facility.

We see from Figure A6 that the rainfall distributions for locations close to and far from health facilities are nearly identical both during the survey period and historically. Rainfall in February appears to differ by distance to facility; however, these differences also exist in the historical distributions and ought to be sufficiently controlled for by the inclusion of historical means and standard deviations as well as month of survey fixed effects.

In Figure A7 a contour plot of fraction of households seeking care against both distance to nearest health facility and rainfall deviations from the historical mean. Figure A7 also shows that distance and rainfall interact to determine health-seeking.

B First Stage Robustness

Column 1 of table A1 reports results from the regression of just the main effects of rainfall, distance to nearest health facility, and distance to nearest market on healthcare choice, including all the usual controls. That is, the specification in column 1 does not include the interaction of rainfall and distance to nearest health facility nor the interaction of rainfall and distance to nearest market. As expected, the main effects of both distance and rainfall are negative and significant.

Columns 2-4 of table A1 present results from the estimation of alternate specifications of the first stage equation. The specification in column 2 includes no additional controls beyond those listed; the specification in column 3 includes only age, region, wealth, education, and month of survey group effects; and the specification in column 4 is a reproduction of the main specification in column 1 of table 2 which includes all controls and group effects. Note that the estimates with and without controls are not statistically significantly different from each other at conventional levels.

C Reduced Form Effects

Table A2 reports estimates of the reduced form effects of the interaction of rainfall and distance to the nearest health facility on the incidence of fever and malaria, the number of medicines received, adherence to malaria medicines, and the number of days delayed before receiving malaria medication conditional on receiving at least one malaria medication. Given that the point estimates in the reduced form regressions are arithmetically equivalent to the point estimates from the second stage IV regression multiplied by those from the first stage, the signs and magnitudes of the reduced form results are exactly as expected. Significance is also preserved across all regressions, excepting incidence of malaria.

D Robustness to Additional Controls of Interactions of Rainfall with Other Covariates

Table A3 reports results from first stage and select second stage regressions including additional controls of rainfall in the month of reported illness interacted with all other covariates. The specifications reported in table A3 are identical to those reported in the main results except for these additional controls. Again, we find that the first stage is robust to the inclusion of these additional controls. Furthermore, in columns 2-6 we see that the main results are entirely preserved. The coefficients of interest are all of the same sign and magnitude as in the main results; they are also all significant at the same level, except for in the regression of incidence of malaria.

E Selection into sickness

We test whether the instrument drives selection into sickness. The dependent variable in this test is whether the mother reported that her child under 5 had been sick at some time in the two weeks before date of survey. Results are reported in table A4 column 1. We estimate a tightly bound 0 on the effect of the interaction instrument on self-report of fever, indicating the instrument did not drive selection into the sick sample.

F Falsification test among children who were not sick

We show next that the interaction term *does not* significantly predict prevalence of malaria. In particular, we regress the result of the malaria test given to children on the interaction of distance and rainfall, the distance and rainfall main effects, and the same controls as in the analysis above. We do this for the non-sick sample only, noting that the same regression run on the

sick sample is just the reduced form regression reported in column 2 of table A2.²⁴ We should *expect* to find an effect for the reduced form regression on the sick sample, if the instrument is driving formal-sector healthcare choice, and these changes are driving changes in outcomes. The coefficient estimate of this regression, reported in table A2 column 2, is indeed positive (though insignificant).

On the other hand, we should expect to find no effect of the interaction in the sample of non-sick children. The results of this estimation are reported in table A4 column 2. The results indicate that for the non-sick sample of children, the interaction term does not predict the local prevalence of malaria. This serves as evidence in support of the interaction instrument's exclusion from second stage regressions of health outcomes on healthcare choice.

G Falsification Test with Past and Future Rainfall

Another concern we must deal with is the transience of the rainfall variation. Should this variation in the cost of formal-sector care be insufficiently transitory (that is, should it persist from last period or into next period), the interaction term could affect health outcomes outside of its effect on contemporaneous acute healthcare choice and therefore violate the exclusion restriction. To rule out this possibility, we explore the predictive power of the interaction of distance to nearest health facility with rainfall in the months prior to and after the individual was surveyed.

Columns 3 and 4 of table A4 report results from the estimation of specifications identical to the first stage regressions reported in table 2, but with rainfall in the month of interview replaced by rainfall in the month following the month of survey and rainfall in the month preceding the month of survey, respectively. These replacements are made in the interaction terms as well, of course. The results show that the interaction of future or past rainfall and distance to nearest health facility is not predictive of healthcare choice. These serve as falsification exercises for the validity of the instrument, verifying that the predictive power of the instrument is in fact coming from a transient shock to the cost of traveling long distances to formal-sector care.

H Robustness of Results to Future and Past Rain Interaction Controls

Table A5 reports results from first stage and select second stage regressions including additional controls of rainfall in the month before and after the month of reported illness and their interaction with distance to nearest health facility. As in the previous table, the specifications reported in table A5 are identical to those reported in the main results except for these additional controls. Again, we find that the first stage is robust to the inclusion of these additional controls.

²⁴Of course, we cannot replicate this analysis using fever (at the time of survey) as the dependent variable, since the question related to fever is only asked of individuals who answered "yes" to having been acutely ill in the two weeks prior to survey.

Furthermore, in columns 2-6 we see that the main results are, with some exceptions, preserved. Results from regressions of the incidence of fever and malaria on formal care are of the same sign and magnitude as the main results, and are statistically significant. The estimate of the effect of formal care on the number of medicines received is still insignificant. Results from the regressions of adherence to malaria medicines and the number of days delayed before receiving malaria medication on formal care are no longer significant at conventional levels, but are of the same sign.

I Robustness of Results to Nonlinear Distance Terms

Here, we discuss the specific functional form requirements for the exclusion of the interaction term given that we have established the possibility that distance to nearest health facility is endogenous. In particular, if distance to nearest health facility enters the true data generating process of the health outcome nonlinearly, the interaction of distance with rainfall might correlate with these nonlinear terms and cause a violation of the exclusion restriction. That is, the interaction of rainfall and distance to nearest health facility might simply pick up the more extreme effects of living far away from a health facility on health outcomes if we do not control for these nonlinearities.

To explicitly account for this possibility, we include 2nd and 3rd degree polynomial terms in distance and dummies for the deciles of the distance distribution in the specifications reported in table A6. For the sake of parsimony, we chose not to include these terms in the main specifications of the analysis. However, it is clear from table A6 that the first stage and main second stage results are robust to the inclusion of nonlinear terms in distance.

Table A6 reports results from first stage and select second stage regressions including nonlinear terms in distance as additional controls. In particular, the specifications reported in table A6 are identical to those reported in the main results above except for the inclusion of 2nd and 3rd degree polynomials in distance to nearest health facility and a vector of dummies representing the deciles of the distance distribution. It is clear that the first stage is robust to the inclusion of these additional controls. Furthermore, in columns 2-6 of table A6 we see that the main results on the incidence of fever and malaria, the number of medicines received, adherence to malaria medicines, and the number of days delayed before receiving malaria medication conditional on receiving at least one malaria medication are preserved.

J Robustness to Additional Controls of Interactions of Rainfall with Measures of Severity

Table A7 reports results from first stage and select second stage regressions including additional controls of rainfall in the month of reported illness interacted with anemia and a dummy for

whether the child is under the age of 1 as measures of severity as well as the main effects of these measures. The specifications reported in table A7 are identical to those reported in the main results except for these additional controls. Again, we find that the first stage is robust to the inclusion of these additional controls, though the F-statistic is a bit smaller. Furthermore, in columns 2-6 we see that the main results are again entirely preserved. The coefficients of interest are all of the same sign and magnitude as in the main results; they are also all significant at the same level, except for in the regression of incidence of malaria.

K Comparison of Self-Selection Bias in Estimates

Table A8 reproduces the main health outcomes results from this study in columns 1 and 2. The remaining columns present results from other studies which also attempt to overcome the issue of bias due to self-selection on severity. The results show that severity bias significantly attenuates estimates of the effects of healthcare quality on health outcomes. The degree of bias appears to be on a similar order of magnitude as the results found in this study.

B Construction of Variables

The following variables were constructed for use in the analysis:

- $formalhealthcare = 1$ if child visited a government or private hospital or health centre; $formalhealthcare = 0$ if child did not visit a government or private hospital or health centre
- $histmean$ of rainfall and temperature are calculated using average rainfall or temperature over the month of survey in the year of survey back to the year 1949
- $histsd$ is calculated as the standard deviation from historical mean for average rainfall or temperature in month of survey from 2007-1949
- $shocknorm = (rain - histmean)/(histsd)$
- $infodisease = TB + STD + HIV/AIDS + otherSTD$, where each variable on the RHS is a multinomial variable taking values 1 and -1 for the right and wrong answer, respectively, and value 0 for a response of “don’t know” in response to questions of whether the respondent had heard of the disease
- $infotransmission = TBair + TButensils + TBtouch + TBfood + TBsex + TBunknown + AIDSabst + AIDScondom + AIDS1prtnr + healthyAIDS + AIDSmsqto + AIDSfood + AIDSwitch$, where each variable on the RHS is a multinomial variable taking values 1 and

-1 for the right and wrong answer, respectively, and value 0 for a response of “don’t know” in response to questions of whether the disease could be transmitted in that particular way

- $infotreatment = TBcure + AIDSdrugs + AIDSdrugsbaby$, where each variable on the RHS is a multinomial variable taking values 1 and -1 for the right and wrong answer, respectively, and value 0 for a response of “don’t know” in response to questions regarding the existence of a cure for TB, drugs to help HIV/AIDS infected individuals live a long life, and drugs to block transmission of HIV/AIDS from an infected mother to her baby.
- $info = infodisease + infotransmission + infotreatment$
- $nummeds$ is the number of medications the child received of any type, including 0 if the child did not receive any medication
- $nummedscon$ is the number of medications the child received of any type, it is missing if the child did not receive any medication
- $nummalmeds$ is the number of malaria medications the child received, including 0 if the child did not receive any malaria medication
- $numnonmalmeds$ is the number of non-malaria medications the child received, including 0 if the child did not receive any non-malaria medication
- $adhereone = 1$ if the child received and adhered to at least one malaria medication; $adhereone = 0$ if the child did not adhere to any of the medications received or did not receive any medications
- $numadhere$ is the number of malaria medications the child received and adhered to, including 0 if the child did not receive any malaria medication or if he received malaria medications but did not adhere to any of them
- $adhereall = 1$ if the child adhered to all of the malaria medications received; $adhereall = 0$ if the child did not adhere to all of the malaria medications received or did not receive any medications
- $adhereonecon = 1$ if the child received and adhered to at least one malaria medication; $adhereonecon = 0$ if the child did not adhere to any of the medications received
- $numadherecon$ is the number of malaria medications the child received and adhered to, including 0 if he received malaria medications but did not adhere to any of them; it is missing if the child did not receive any malaria medication

- $adhereallcon = 1$ if the child adhered to all of the malaria medications received; $adhereall = 0$ if the child did not adhere to all of the malaria medications received
- $meddelay = \min(delay)$, where $delay$ is measured in days for each malaria medication observed and is missing if the child did not receive that malaria medication at all.

FIGURE 6: SURVEY PERIOD AND HISTORICAL MONTHLY RAINFALL VARIATION BY DISTANCE

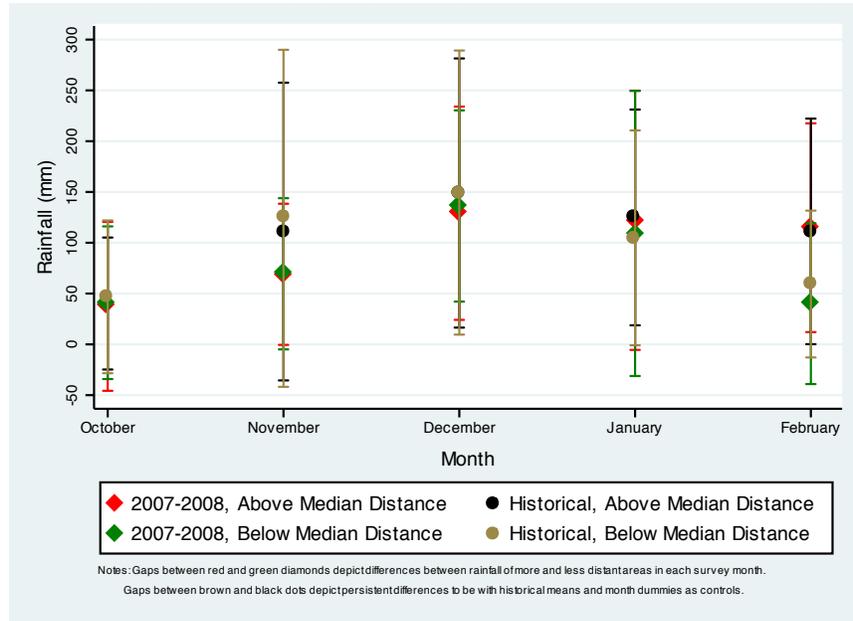


FIGURE 7: CONTOUR PLOT OF HEALTH CARE CHOICE, DISTANCE TO FACILITY, AND RAINFALL

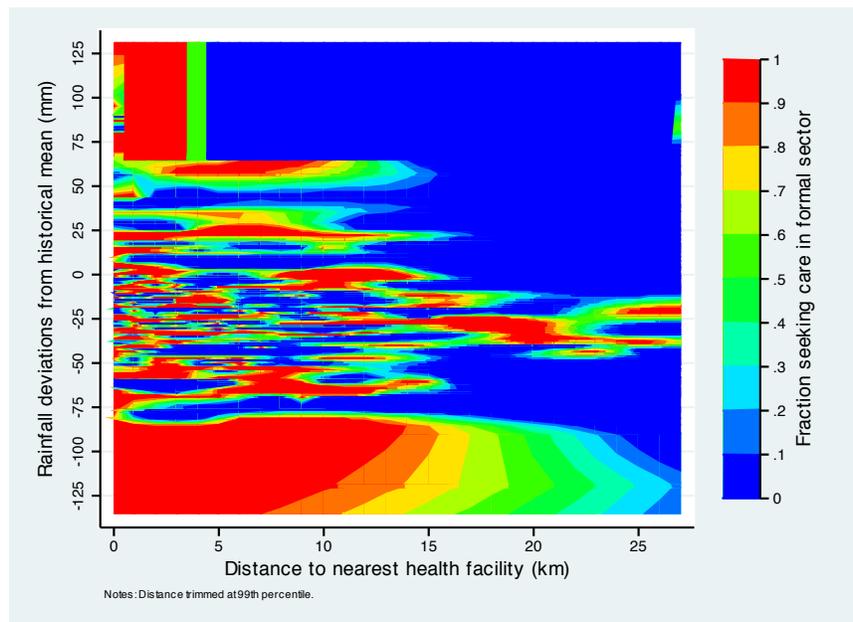


Table A1
Incremental Addition of Controls to First Stage

	Main Effects Only	No Controls	Fixed Effects	Main Specification
Rain x Distance		-0.0184*** (0.00543)	-0.0176*** (0.00513)	-0.0204*** (0.00516)
Distance	-0.0108*** (0.00310)	0.00161 (0.00529)	0.00390 (0.00502)	0.00569 (0.00489)
Market	-0.000794 (0.000756)	-0.00253** (0.00123)	-0.00182 (0.00130)	-0.00167 (0.00130)
Rain	-0.148** (0.0662)	-0.00756 (0.0409)	-0.0322 (0.0557)	-0.139* (0.0706)
Rain x Market		0.00110 (0.00106)	0.000851 (0.00114)	0.000776 (0.00118)
F-test: Rain x Distance=0		11.52	11.72	15.60
Prob>F		0.000761	0.000688	9.37e-05
Observations	1130	1130	1130	1081
R-squared	0.166	0.062	0.150	0.178

Notes: Robust standard errors in parentheses (** p<0.01, ** p<0.05, * p<0.1). Standard errors are clustered at the sampling cluster level. All specifications include age, region, wealth, education, and month of survey group effects. Other controls include temperature, historical means and standard deviations of both rainfall and temperature, altitude, household size, number of living children, number of children under 5, gender, mother's age at marriage, year in which mother was married, and a dummy for whether the household is located in a rural or urban area. For the sake of parsimony, all coefficients are not reported here, but are available upon request. Results from linear probability model estimations shown.

Table A2
Reduced Form Estimates

	Health Outcomes		Medications		
	Fever	Malaria	No. of Meds	Adherence	Days Delayed Before Medicating
Rain x Distance	0.0127** (0.00559)	0.00769 (0.00496)	-0.0125 (0.00941)	-0.0122* (0.00633)	0.0334** (0.0152)
Distance	-0.00786 (0.00500)	-0.00300 (0.00424)	0.00323 (0.00871)	0.00655 (0.00634)	-0.0132 (0.0156)
Market	-0.000845 (0.00113)	0.00110 (0.000948)	-0.00304 (0.00225)	2.62e-05 (0.00129)	-0.00316 (0.00453)
Rain	0.0663 (0.0838)	0.0612 (0.0585)	-0.0250 (0.119)	-0.144* (0.0779)	0.159 (0.225)
Rain x Market	0.000119 (0.000983)	-0.00105 (0.000767)	0.00108 (0.00166)	-0.000405 (0.00101)	0.000797 (0.00312)
Observations	1073	934	1049	1049	554
R-squared	0.106	0.286	0.122	0.119	0.216

Notes: Robust standard errors in parentheses (** p<0.01, * p<0.05, * p<0.1). Standard errors are clustered at the sampling cluster level. All specifications include age, region, wealth, education, and month of survey group effects. Other controls include temperature, historical means and standard deviations of both rainfall and temperature, altitude, household size, number of living children, number of children under 5, gender, and a dummy for whether the household is located in a rural or urban area. Sample sizes are reduced by some observations in these specifications due to missing values in the outcomes. Results from linear probability model estimations shown.

Table A3
Robustness to Adding Interactions of Rainfall with Other Covariates

	First Stage	Health Outcomes		Medications		
	Formal Healthcare	Fever	Malaria	No. of Meds	Adherence	Days Delayed Before Medicating
Formal Healthcare		-0.771** (0.309)	-0.399 (0.265)	0.568 (0.462)	0.522* (0.291)	-1.403** (0.591)
Rain x Distance	-0.0190*** (0.00557)					
Distance	0.00500 (0.00523)	-0.00569 (0.00417)	-8.56e-05 (0.00319)	-0.000368 (0.00645)	0.00210 (0.00463)	-0.00648 (0.0107)
Market	-0.00177 (0.00143)	-0.00259* (0.00151)	0.000700 (0.00116)	-0.00273 (0.00252)	0.00137 (0.00136)	-0.00628 (0.00421)
Rain	0.294 (0.577)	-0.641 (0.649)	-0.179 (0.490)	-1.005 (0.890)	-1.435*** (0.474)	0.902 (1.877)
Rain x Market	0.00109 (0.00132)	0.00169 (0.00132)	-0.000455 (0.00110)	0.00116 (0.00206)	-0.00136 (0.00111)	0.00285 (0.00357)
F-test: Rain x Distance=0 Prob>F	11.63 0.000718					
Observations	1081	1073	934	1049	1049	554
R-squared	0.196	-0.328	0.215	0.224	0.115	0.024

Notes: Robust standard errors in parentheses (** p<0.01, * p<0.05, * p<0.1). Specifications used in this table are identical to those reported in the main results, except for the inclusion of interaction of contemporaneous rainfall with all covariates listed in Table IV (as well as the main effects of all controls). Standard errors are clustered at the sampling cluster level. All specifications include age, region, wealth, education, and month of survey group effects. Other controls include temperature, historical means and standard deviations of both rainfall and temperature, altitude, household size, number of living children, number of children under 5, gender, and a dummy for whether the household is located in a rural or urban area. Sample sizes are reduced by some observations in these specifications due to missing values in the outcomes. Results from linear probability model estimations shown.

Table A4
Instrument Checks

	Selection on Sick	Reduced-form falsification	Falsification with Future Rain	Falsification with Past Rain
	Fever in last 2 weeks	Malaria (if no fever in last 2 weeks)	Formal Healthcare	Formal Healthcare
Future or Past Rain x Dist			-0.00563 (0.00506)	-0.000504 (0.00652)
Future or Past Rain			0.116** (0.0519)	-0.0428 (0.0859)
Future or Past Rain x Market			0.000694 (0.00102)	-5.87e-05 (0.00146)
Rain x Distance	0.000988 (0.00185)	0.00151 (0.00206)		
Distance	-0.000503 (0.00173)	0.000226 (0.00183)	-0.00382 (0.00693)	-0.00943 (0.00598)
Market	-1.72e-05 (0.000493)	-0.000149 (0.000517)	-0.00169 (0.00139)	-0.000770 (0.00123)
Rain	-0.0162 (0.0271)	-0.0409 (0.0307)		
Rain x Market	0.000299 (0.000409)	0.000826* (0.000482)		
F-test: Future or Past Rain x Distance=0 Prob>F			1.24 0.267	0.01 0.938
F-test: Rain x Distance=0 Prob>F				
Observations	6267	4177	1130	1130
R-squared	0.048	0.157	0.167	0.162

Notes: Robust standard errors in parentheses (** p<0.01, * p<0.05, * p<0.1). Standard errors are clustered at the sampling cluster level. All specifications include age, region, wealth, education, and month of survey group effects. Other controls include temperature, historical means and standard deviations of both rainfall and temperature, altitude, household size, number of living children, number of children under 5, gender, mother's age at marriage, year in which mother was married, and a dummy for whether the household is located in a rural or urban area. For the sake of parsimony, all coefficients are not reported here, but are available upon request. Results from linear probability model estimations shown.

Table A5
Robustness to Future and Past Rain Interaction Controls

	First Stage	Health Outcomes		Medications		
	Formal Healthcare	Fever	Malaria	No. of Meds	Adherence	Days Delayed Before Medicating
Formal Healthcare		-0.731** (0.291)	-0.505* (0.293)	0.652 (0.515)	0.112 (0.288)	-0.931 (0.798)
Rain x Distance	-0.0225*** (0.00689)					
Distance	0.000585 (0.00697)	-0.00680 (0.00734)	-0.00393 (0.00522)	-0.0131 (0.0120)	0.0107 (0.00771)	-0.0144 (0.0151)
Market	-0.00224 (0.00188)	-0.00179 (0.00182)	0.000525 (0.00167)	0.00184 (0.00371)	0.000913 (0.00197)	-0.00556 (0.00537)
Rain	-0.0863 (0.0821)	-0.0189 (0.110)	0.0751 (0.0830)	-0.0133 (0.161)	-0.252*** (0.0907)	0.0573 (0.252)
Rain x Market	0.000673 (0.00115)	0.000405 (0.00110)	-0.000415 (0.00114)	0.000747 (0.00197)	-0.00106 (0.00107)	-0.00317 (0.00271)
Future Rain x Dist	0.00263 (0.00535)	-0.00499 (0.00599)	-0.00544 (0.00404)	0.0142* (0.00842)	-0.00434 (0.00454)	0.0145 (0.0131)
Future Rain	0.0421 (0.0627)	0.119* (0.0620)	0.133** (0.0599)	-0.139 (0.102)	-0.0540 (0.0617)	-0.179 (0.185)
Future Rain x Market	0.000652 (0.00117)	-0.00138 (0.00107)	-0.000797 (0.000918)	-0.000729 (0.00200)	-0.000771 (0.00101)	0.00107 (0.00321)
Past Rain x Dist	0.00465 (0.00680)	0.00834 (0.00594)	0.0109** (0.00526)	-0.00539 (0.0111)	-0.00991 (0.00642)	-0.00464 (0.0219)
Past Rain	-0.107 (0.0869)	-0.202** (0.0834)	-0.0298 (0.0757)	0.151 (0.120)	0.0111 (0.0765)	-0.485** (0.203)
Past Rain x Market	5.22e-05 (0.00130)	0.00260** (0.00118)	0.000267 (0.00120)	-0.00356* (0.00194)	0.000911 (0.00136)	0.00789** (0.00382)
F-test: Rain x Distance=0 Prob>F	10.65 0.00120					
Observations	1130	1122	973	1098	1098	582
R-squared	0.179	-0.274	0.111	0.205	0.150	0.116

Notes: Robust standard errors in parentheses (** p<0.01, * p<0.05, * p<0.1). Specifications used in this table are identical to those reported in the main results, except for the inclusion of rainfall in the month directly prior to and following the month of sickness and their interactions with distance to nearest health facility and distance to nearest market. Standard errors are clustered at the sampling cluster level. All specifications include age, region, wealth, education, and month of survey group effects. Other controls include temperature, historical means and standard deviations of both rainfall and temperature, altitude, household size, number of living children, number of children under 5, gender, and a dummy for whether the household is located in a rural or urban area. Sample sizes are reduced by some observations in these specifications due to missing values in the outcomes. Results from linear probability model estimations shown.

Table A6
Robustness to Nonlinear Distance Terms

	First Stage	Health Outcomes		Medications		
	Formal Healthcare	Fever	Malaria	No. of Meds	Adherence	Days Delayed Before Medicating
Formal Healthcare		-0.584** (0.291)	-0.362 (0.254)	0.551 (0.456)	0.642** (0.289)	-1.206** (0.568)
Rain x Distance	-0.0187*** (0.00502)					
Distance	0.00870 (0.0551)	-0.143** (0.0641)	-0.108* (0.0591)	0.106 (0.126)	0.155** (0.0786)	-0.105 (0.256)
Distance^2	0.000948 (0.00217)	0.00594** (0.00236)	0.00407* (0.00219)	-0.00424 (0.00564)	-0.00711** (0.00362)	0.00532 (0.0116)
Distance^3	-1.83e-05 (2.55e-05)	-7.40e-05*** (2.64e-05)	-4.54e-05* (2.43e-05)	5.49e-05 (7.70e-05)	9.52e-05* (5.19e-05)	-8.69e-05 (0.000161)
2nd Distance Decile	0.0181 (0.0724)	0.116 (0.0785)	0.126* (0.0686)	-0.266* (0.152)	-0.207** (0.0926)	0.000781 (0.294)
4th Distance Decile	0.0395 (0.116)	0.273** (0.129)	0.192* (0.116)	-0.290 (0.251)	-0.288* (0.154)	0.376 (0.501)
6th Distance Decile	-0.0236 (0.161)	0.365* (0.188)	0.307* (0.172)	-0.386 (0.360)	-0.400* (0.217)	0.370 (0.678)
7th Distance Decile	0.0103 (0.209)	0.577** (0.240)	0.452** (0.209)	-0.612 (0.448)	-0.639** (0.274)	0.499 (0.886)
8th Distance Decile	-0.120 (0.253)	0.481 (0.304)	0.506* (0.272)	-0.459 (0.571)	-0.596* (0.338)	0.409 (1.090)
9th Distance Decile	-0.171 (0.340)	0.780* (0.409)	0.675* (0.355)	-0.671 (0.751)	-0.710 (0.447)	0.489 (1.483)
10th Distance Decile	-0.307 (0.452)	0.951* (0.551)	0.827* (0.481)	-0.975 (0.922)	-0.939* (0.557)	0.709 (1.795)
Market	-0.00166 (0.00131)	-0.00199 (0.00131)	0.000662 (0.00105)	-0.00245 (0.00240)	0.000955 (0.00141)	-0.00430 (0.00412)
Rain	-0.123* (0.0708)	-0.0252 (0.104)	0.0126 (0.0700)	0.0835 (0.133)	-0.0563 (0.0949)	0.0208 (0.239)
Rain x Market	0.000857 (0.00118)	0.000729 (0.00104)	-0.000849 (0.000907)	0.000722 (0.00178)	-0.000961 (0.00122)	0.000754 (0.00318)
F-test: Rain x Distance=0 Prob>F	13.91 0.0002					
Observations	1081	1073	934	1049	1049	554
R-squared	0.189	-0.120	0.219	0.213	0.030	0.043

Notes: Robust standard errors in parentheses (** p<0.05, * p<0.1). Specifications used in this table are identical to those reported in the main results, except for the inclusion of 2nd and 3rd degree polynomials in distance to nearest health facility, and a vector of dummies representing the deciles of the distance distribution. Standard errors are clustered at the sampling cluster level. All specifications include age, region, wealth, education, and month of survey group effects. Other controls include temperature, historical means and standard deviations of both rainfall and temperature, altitude, household size, number of living children, number of children under 5, gender, and a dummy for whether the household is located in a rural or urban area. Sample sizes are reduced by some observations in these specifications due to missing values in the outcomes. Results from linear probability model estimations shown.

Table A7
Robustness to Adding Measures of Severity and Their Interaction with Rainfall as Controls

First Stage		Health Outcomes		Medications		
Formal Healthcare		Fever	Malaria	No. of Meds	Adherence	Days Delayed Before Medicating
Formal Healthcare		-0.776** (0.340)	-0.390 (0.255)	0.379 (0.518)	0.460 (0.314)	-1.550** (0.636)
Rain x Distance	-0.0173*** (0.00613)					
Distance	0.00360 (0.00583)	-0.00570 (0.00450)	0.000112 (0.00319)	-0.00219 (0.00726)	0.000675 (0.00482)	-0.00998 (0.0122)
Market	-0.00106 (0.00139)	-0.00271* (0.00143)	0.000611 (0.00115)	-0.00221 (0.00247)	0.000494 (0.00143)	-0.00566 (0.00436)
Rain	0.353 (0.606)	-0.910 (0.630)	-0.290 (0.482)	-1.133 (0.906)	-1.076** (0.487)	2.771 (1.974)
Rain x Market	0.000658 (0.00135)	0.00194 (0.00129)	-0.000376 (0.00107)	0.00116 (0.00203)	-0.000451 (0.00119)	0.00104 (0.00364)
F-test: Rain x Distance=0	8.00					
Prob>F	0.00					
Observations	941	935	934	914	914	492
R-squared	0.210	-0.265	0.235	0.228	0.163	0.018

Notes: Robust standard errors in parentheses (***) p<0.01, ** p<0.05, * p<0.1). Specifications used in this table are identical to those reported in the main results, except for the inclusion of interaction of contemporaneous rainfall with all covariates listed in Table IV (as well as the main effects of all controls). Standard errors are clustered at the sampling cluster level. All specifications include age, region, wealth, education, and month of survey group effects. Other controls include temperature, historical means and standard deviations of both rainfall and temperature, altitude, household size, number of living children, number of children under 5, gender, and a dummy for whether the household is located in a rural or urban area. Sample sizes are reduced by some observations in these specifications due to missing values in the outcomes. Results from linear probability model estimations shown.

Table A8
Comparison of Self-Selection Bias in Estimates

			Adhvaryu and Nyshadham (2012)	Gowrisankaran and Town (1999)	Doyle (2012)
Data/Location	DHS Tanzania (2007-08)		KHDS Kagera, Tanzania (1991-1994)	United States	United States
Dependent Variable	Fever	Malaria	Fever	Mortality	Mortality
<i>Independent Variable of Interest</i>	<i>Formal Healthcare</i>		<i>Formal Healthcare</i>	<i>Not-for-profit Hospitals (vs. For-profit)</i>	<i>Area-level Healthcare Spending</i>
Adjusted Estimate	IV -0.619** (0.266)	IV -0.398* (0.236)	IV -0.857** (0.431)	IV -0.0055* (0.003)	OLS (Florida Visitors) -0.028*** (0.0082)
Biased Estimate	OLS -0.0945*** (0.0315)	OLS -0.0961*** (0.0270)	OLS 0.0167 (0.0286)	OLS -0.00016 (0.00047)	OLS (Florida Locals) -0.003 (0.0039)
Observations	1123	973	1953	844	37185 (Visitors), 749762 (Locals)

Notes: Columns 1-2: see notes in table 3; column 3: see Adhvaryu and Nyshadham (2012) table II; column 4: see Gowrisankaran and Town (1999) table 4; column 5: See Doyle (2012) table 2.