

APPENDIX

Table A1a. Distribution of Health response

	Period 1	Period 2	Period 3	Period 4
Poor	1.41	0.58	0.38	0.35
Not good	3.88	1.58	1.57	1.65
Fair	18.69	11.51	17.65	17.01
Good	31.59	30.8	31.85	32.24
Excellent	44.43	55.53	48.55	48.75

Table A1b. Summary Statistics on Care-Giver Education Strata (Sample Weighted; Rural)

Variable	Sample	N	Mean	Std. Deviation
FULL SAMPLE				
Highest Attainment: 1 Year	Treated	8536	0.841	0.013
	Control	3076	0.798	0.028
Highest Attainment: 2 Years	Treated	8536	0.838	0.013
	Control	3076	0.786	0.028
Highest Attainment: 3 Years	Treated	8536	0.825	0.013
	Control	3076	0.762	0.029
Highest Attainment: 4 Years	Treated	8536	0.786	0.016
	Control	3076	0.720	0.030
Highest Attainment: 5 Years	Treated	8536	0.745	0.017
	Control	3076	0.655	0.034
Highest Attainment: 6 Years	Treated	8536	0.712	0.018
	Control	3076	0.609	0.034
Highest Attainment: 7 Years	Treated	8536	0.656	0.018
	Control	3076	0.544	0.038
Highest Attainment: 8 Years	Treated	8536	0.571	0.021
	Control	3076	0.478	0.04
Highest Attainment: 9 Years	Treated	8536	0.504	0.022
	Control	3076	0.407	0.042
Highest Attainment: 10 Years	Treated	8536	0.415	0.018
	Control	3076	0.346	0.037
Highest Attainment: 11 Years	Treated	8536	0.332	0.017
	Control	3076	0.268	0.028
Highest Attainment: 12 Years	Treated	8536	0.210	0.015
	Control	3076	0.171	0.024

Table A1c. GHS Summary Statistics on Household, District and Regional Characteristics (Panel Weighted; Rural)

Variable	Sample	N	Mean	Std. Error
FULL SAMPLE				
Weekly Municipal Refuse Removal	Treated	82984	0.071	0.0067
	Control	32853	0.015	0.0028
Cooking with Electricity	Treated	82984	0.571	0.0095
	Control	32853	0.364	0.0134
Presence of Toilet	Treated	82848	0.116	0.0078
	Control	32808	0.064	0.0059
Real Monthly Household Income	Treated	82984	136355	10330.06
	Control	32853	99174.9	11517.13
Real Monthly District Income	Treated	82984	132857	9680.7
	Control	32853	3318.92	208.2355
Real Monthly Region Income	Treated	82984	218824	4586.676
	Control	32853	224463	6284.86
Average Household Education (Adults)	Treated	51731	8.704	0.0559
	Control	19524	8.111	0.0769
Average Education of District	Treated	82984	6.227	0.0433
	Control	32853	5.587	0.0555
Average. Education of Region	Treated	82984	7.057	0.0176
	Control	32853	7.041	0.0197

Note: Metro variable alternatively defined in GHS and excluded

Table A2 : Marginal Probabilities for Health Outcomes: Ordinal Probit Estimation (Model II)

	Poor	Not good	Fair	Good	Excellent
<i>Pipe</i>	-0.003***	-0.009***	-0.039***	-0.024***	0.076***
<i>Adult Education</i>	2.91E-05	7.37E-05	0.000314	0.0002	-0.0006
<i>Adult Education square</i>	4.74E-06	0.000012	5.12E-05	0.00003	-0.0001
<i>Caregiver is Parent</i>	-0.002**	-0.005**	-0.021**	-0.013**	0.0403**
<i>Household with Toilet</i>	-0.003*	-0.007*	-0.029*	-0.018*	0.057*
<i>Metro</i>	0.005	0.013467	0.057427	0.035	-0.11213
<i>Age</i>	6.29E-06	1.59E-05	0.000068	4.25E-05	-0.00013
<i>Age²</i>	-1.94E-06	-4.91E-06	-2.1E-05	-1.3E-05	4.09E-05
<i>Children Per Caregiver</i>	-0.0002	-0.00042	-0.00179	-0.001	0.00349
<i>Refuse Removal</i>	-0.002	-0.00581	-0.02479	-0.015	0.048406
<i>Cooking with Electricity</i>	-0.002*	-0.004*	-0.018*	-0.011*	0.036*
<i>Mean Region Education</i>	-0.00011	-0.00028	-0.00118	-0.0007	0.002312
<i>Mean Region Income</i>	0.000106	0.000268	0.001144	0.0007	-0.00223
<i>Mean District Income</i>	0.000311	0.000787	0.003358	0.0021	-0.00656
<i>Mean District Education</i>	0.00069	0.001749	0.007458	0.004665	-0.01456
<i>Mean Household Education</i>	-0.0003*	-0.0007**	-0.003**	-0.002**	0.006**
<i>Mean Household Income</i>	-7.9E-05	-0.0002	-0.00086	-0.0005	0.001673
<i>P2</i>	-0.007***	-0.017***	-0.075***	-0.047***	0.146***
<i>P3</i>	-0.003**	-0.007**	-0.030**	-0.018**	0.059**
<i>P4</i>	-0.006***	-0.014***	-0.060***	-0.038***	0.118***

***Significant at the 1% level. ** Significant at the 5% level. *Significant at the 10% level.

Table A3. Parallel Lines Assumption Testing Results: 0.05
Level of Significance

Variable	P-Value
QUASI-EXPERIMENTAL SAMPLE	
<i>Access to Tap</i>	0.257
<i>Weekly Municipal Refuse Removal</i>	0.902
<i>Cooking with Electricity</i>	0.943
<i>Presence of Toilet</i>	0.692
<i>Real Monthly HH Income</i>	0.544
<i>Real Monthly District Income</i>	0.901
<i>Real Monthly Region Income</i>	0.023
<i>Avg. HH Education of Adults</i>	0.274
<i>Avg. Education of Cluster</i>	0.008
<i>Avg. Education of Region</i>	0.939
<i>Metro</i>	0.001
<i>No. of Children per Caregiver</i>	0.758
<i>Primary Caregiver is Parent</i>	0.317
<i>Age (Child)</i>	0.197
<i>Age² (Child)</i>	0.747
<i>Care-Giver Education</i>	0.369
<i>Care-Giver Education2</i>	0.334
<i>Period 2</i>	0.214
<i>Period 3</i>	0.277
<i>Period 4</i>	0.238
Wald Test Prob > Chi2	0.172

Table A4a Non-linear Difference in Difference Estimation

VARIABLES	Logit	Ordinal Probit3	Ordinal Probit5
<i>Treat</i>	0.469 (0.426)	0.528 (0.416)	0.594** (0.109)
<i>Post</i>	-0.226 (0.393)	-0.164 (0.376)	0.00509 (0.260)
<i>Treat*Post</i>	0.444 (0.774)	0.333 (0.771)	-0.0305 (0.553)
<i>Presence of Toilet</i>	-1.052 (1.015)	-0.979 (0.968)	-0.256 (1.110)
<i>Parent is Caregiver</i>	-0.0775 (0.224)	-0.0525 (0.217)	-0.0399 (0.131)
<i>Age</i>	-0.199 (0.164)	-0.159 (0.162)	-0.0146 (0.103)
<i>Age²</i>	0.0118 (0.00893)	0.00974 (0.00895)	0.00195 (0.00559)
<i>Children Per Caregiver</i>	0.201** (0.0958)	0.182** (0.0913)	0.172*** (0.0613)
<i>Refuse Removal</i>	-0.0848 (1.311)	-0.0461 (1.245)	0.738 (1.278)
<i>Cooking with Electricity</i>	-0.162 (0.408)	-0.0805 (0.395)	0.221 (0.317)
<i>Mean Regional Education</i>	-0.578 (0.533)	-0.507 (0.543)	-0.106 (0.323)
<i>Mean Regional Income</i>	0.379 (0.363)	0.321 (0.374)	0.0784 (0.220)
<i>Mean District Income</i>	-0.466*** (0.150)	-0.428*** (0.154)	-0.276*** (0.0903)
<i>Mean District Education</i>	0.363* (0.191)	0.313 (0.192)	0.140 (0.152)
<i>Mean Household Education</i>	-0.00356 (0.0465)	-0.00461 (0.0458)	-0.0105 (0.0322)
<i>Mean Household Income</i>	0.103*** (0.0370)	0.0991*** (0.0347)	0.0789*** (0.0239)
Constant cut1		-4.934** (2.148)	-5.019*** (1.445)
Constant cut2		-2.431 (1.941)	-3.359** (1.385)
Constant cut3			-0.888 (1.188)
Constant cut4			0.760 (1.238)
Constant	2.641 (1.884)		
Observations	1,009	1,009	1,009

Notes: ***Significant at the 1% level. ** Significant at the 5% level. *Significant at the 10% level.

Table A4b. Nonlinear DiD Treatment effects

	Logit	Ordinal Probit3	Ordinal Probit5
<i>Treat*Post</i> coefficient	0.443 [0.774]	0.333 [0.771]	-0.03 [0.555]
Treatment Effect estimation per Health outcome	0.059 [0.106]	-0.006 [0.012]	0 [0.002]
		-0.038 [0.089]	0 [0.007]
		0.044 [0.102]	0.004 [0.064]
			0.003 [0.059]
			-0.007 [0.133]

Table A5 Forward Stepwise Logit Outputs

Variable	Coefficient	Std. Error	z	P> z
QUASI-EXPERIMENTAL SAMPLE: PRE-TREATMENT				
<i>Age</i>	0.742	0.253	2.93	0.003
<i>Age</i> ²	-0.0401	0.0157	-2.55	0.011
<i>Children Per Care-Giver</i>	-0.253	0.156	-1.62	0.105
<i>Mean Regional Education</i>	1.807	0.806	2.24	0.025
<i>Cook with Electricity</i>	-0.894	0.618	-1.45	0.148
Sample Size	293			
Pseudo R ²	0.1627			

Table A6. PS-Matching T-Test Results - Logit

Variable	Sample	Mean		% Bias	% Bias Reduction	t-test	
		Treated	Control			t	p> t
QUASI-EXPERIMENTAL SAMPLE							
Age	Unmatched	9.1386	8.1124	29.9		2.55	0.011
	Matched	9.1087	8.5978	14.9	50.2	1.02	0.309
Age ²	Unmatched	93.673	79.03	25.1		3.72	0.00
	Matched	93.457	86.228	12.4	50.6	2.18	0.03
Children Per Care-Giver	Unmatched	2.2277	3.1124	-62.7		-5.38	0.00
	Matched	2.2826	2.2935	-0.8	98.8	-0.06	0.955
Cook with Electricity	Unmatched	0.15842	0.2426	-21.1		-1.79	0.075
	Matched	0.16304	0.13043	8.2	61.3	0.62	0.535
Mean Regional Education	Unmatched	5.5983	5.3545	48		4.65	0.00
	Matched	5.493	5.5232	-5.9	87.6	-0.46	0.643
Mean Bias	Unmatched	37.4					
	Matched	8.4					

Table A7. PS-Matching T-Test Results – Kernel

Variable	Sample	Mean		% Bias	% Bias Reduction	t-test	
		Treated	Control			t	p> t
QUASI-EXPERIMENTAL SAMPLE							
Age	Unmatched	9.1386	8.1124	29.9		2.55	0.01
	Matched	9.1087	9.1193	-0.3	99	-0.02	0.98
Age ²	Unmatched	93.673	79.03	25.1		2.18	0.03
	Matched	93.457	93.983	-0.9	96.4	-0.06	0.95
Children Per Care-Giver	Unmatched	2.2277	3.1124	-62.7		-5.38	0.00
	Matched	2.2826	2.3222	-2.8	95.5	-0.21	0.836
Cook with Electricity	Unmatched	0.1572	0.2426	-21.1		-1.79	0.075
	Matched	0.16304	0.15243	2.7	87.4	0.20	0.845
Mean Regional Education	Unmatched	5.5983	5.3545	48		4.65	0.00
	Matched	5.493	5.4888	0.8	98.3	0.06	0.949
Mean Bias	Unmatched	37.4					
	Matched	1.5					

Table A8. Child Health Model Interaction Outputs – Logit DiD estimation

	Model IV	Model IV-I	Model IV-II
SPECIFICATIONS 2 - 13			
<i>Piped Water Access</i>	0.131 [0.166]	0.046 [0.169]	0.078 [0.1491]
<i>Pipe*EducationalAttainment1</i>	0.319 [0.285]	0.255 [0.279]	0.294 [0.2256]
<i>Pipe*EducationalAttainment2</i>	0.293 [0.263]	0.267 [0.273]	0.312 [0.2190]
<i>Pipe*EducationalAttainment3</i>	0.277 [0.261]	0.276 [0.2702]	0.287 [0.2148]
<i>Pipe*EducationalAttainment4</i>	0.286 [0.2609]	0.279 [0.2700]	0.291 [0.2142]
<i>Pipe*EducationalAttainment5</i>	0.372 [0.298]	0.333 [0.304]	0.311 [0.3024]
<i>Pipe*EducationalAttainment6</i>	0.323 [0.316]	0.337 [0.3166]	0.303 [0.3061]
<i>Pipe*EducationalAttainment7</i>	0.327 [0.319]	0.339 [0.3282]	0.323 [0.3253]
<i>Pipe*EducationalAttainment8</i>	0.299 [0.356]	0.312 [0.3607]	0.315 [0.3413]
<i>Pipe*EducationalAttainment9</i>	0.505** [0.245]	0.604** [0.2491]	0.561** [0.2534]
<i>Pipe*EducationalAttainment10</i>	0.469** [0.185]	0.621*** [0.1881]	0.581*** [0.1794]
<i>Pipe*EducationalAttainment11</i>	0.479** [0.186]	0.629*** [0.1914]	0.586*** [0.1836]
<i>Pipe*EducationalAttainment12</i>	-0.083 [0.255]	0.403** [0.2024]	0.419** [0.242]

Note: ***Significant at the 1% level. ** Significant at the 5% level. *Significant at the 10% level.
All standard errors are heteroskedasticity-consistent, White standard errors and are clustered at the PSU level.
Model IV-I refers to nearest neighbor PSM and IV-II Kernel Density PSM.

Figure A1: Relative Coefficient Weight in Determining Water Safety: Clarity of Water

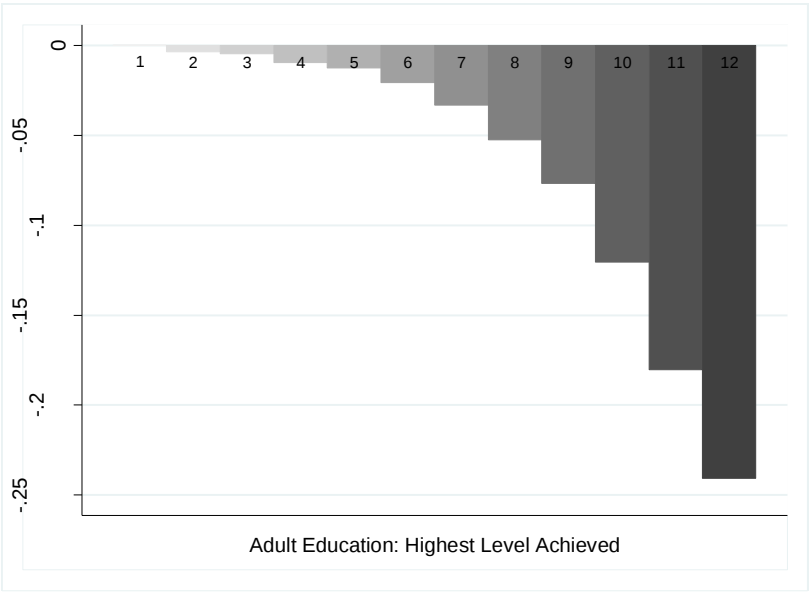


Figure A2: Relative Coefficient Weight in Determining Water Safety: Odor of Water

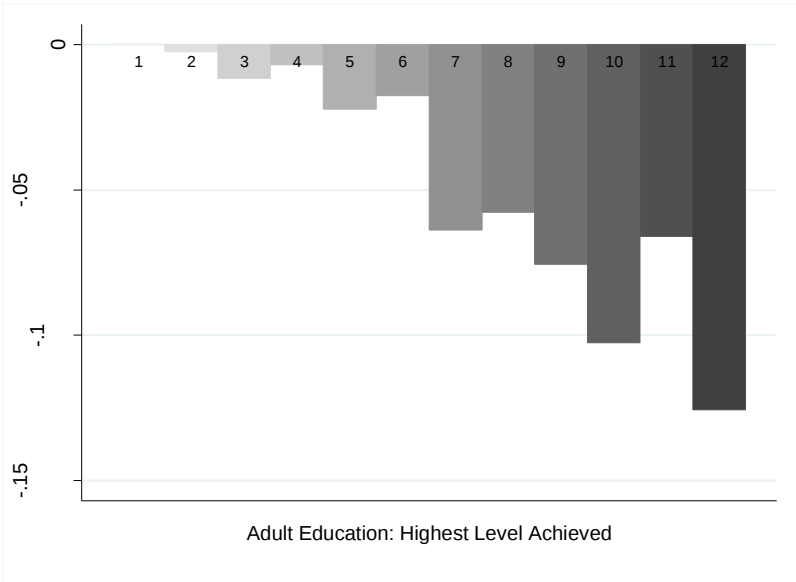


Figure A3: Relative Coefficient Weight in Determining Water Safety: Taste of Water

