Online Appendix

This online appendix provides supplementary information on the empirical results presented in the article "Citizens' preferences and the portfolio of public goods: Evidence from Nigeria." Please note that references to Tables and Figures in the article are represented by Arabic numerals whereas references to Tables and Figures in this appendix are denoted by capitalized letters.

Contents

1 Tables

The article omitted some tables due to space considerations. These tables are presented here.

	(1) Total Expenditure	(2) Recurrent Expenditure	(3) Capital Expenditure
Baseline Education	0.289*	0.170	-0.078
	(0.146)	(0.195)	(0.210)
Demand for Education	5.755*	7.386*	4.882*
	(0.077)	(0.106)	(0.105)
Education × Demand for Education	0.228	0.333	0.519
	(0.309)	(0.425)	(0.420)
Baseline Health	1.105*	1.347*	0.484*
	(0.111)	(0.125)	(0.164)
Demand for Health	-4.047*	-0.724*	-4.553*
	(0.074)	(0.085)	(0.111)
Health × Demand for Health	0.134	-0.016	1.048*
	(0.296)	(0.340)	(0.444)
Baseline Infrastructure	1.475*	0.685*	2.220*
	(0.103)	(0.094)	(0.159)
Demand for Infrastructure	-6.684*	-5.157*	-13.368*
	(0.075)	(0.082)	(0.121)
Infrastructure × Demand for Infrastructure	0.338	0.126	1.211*
	(0.300)	(0.327)	(0.485)
Baseline Agriculture	0.000	0.000	0.000
	(.)	(.)	(.)
Demand for Agriculture	-16.410*	-18.374*	-13.608*
	(0.102)	(0.100)	(0.156)
Agriculture × Demand for Agriculture	0.419	0.298	0.715
	(0.410)	(0.400)	(0.625)
Constant	1.869*	-0.833*	2.185*
	(0.068)	(0.074)	(0.104)
District Fixed Effects	yes	yes	yes
R-squared	0.664	0.534	0.615
N	1824	1872	1836

Table A: Total expenditure model (see Model 1) as well as models split by type of spending (Recurrent expenditure, see Model 2; Capital expenditure, see Model 3). The baseline variables are dummies for respective public good type. Figure 1 is based on Model 1; Figure 2 is based on Models 2 and 3. * $p<0.05$.

	(1) Elected Politicians	(2) Appointed Politicians
Baseline Education	0.306	0.444
	(0.168)	(0.304)
Demand for Education	5.762*	-6.875*
	(0.086)	(0.179)
Education × Demand for Education	0.200	-0.113
	(0.345)	(0.717)
Baseline Health	1.014*	1.508*
	(0.125)	(0.231)
Demand for Health	-4.055*	6.470*
	(0.082)	(0.172)
Health × Demand for Health	0.164	-0.111
	(0.327)	(0.689)
Baseline Infrastructure	1.400*	2.116*
	(0.108)	(0.301)
Demand for Infrastructure	-6.608*	17.409*
	(0.081)	(0.207)
Infrastructure × Demand for Infrastructure	0.038	0.121
	(0.324)	(0.827)
Baseline Agriculture	0.000	0.000
	(.)	(.)
Demand for Agriculture	-16.472*	22.394*
	(0.129)	(0.170)
Agriculture × Demand for Agriculture	0.665	0.232
	(0.517)	(0.681)
Constant	1.907*	-8.951*
	(0.077)	(0.153)
District Fixed Effects	yes	yes
R-squared	0.661	0.681
N	1412	412

Table B: Estimating the model for all districts with elected politicians (Model 1) versus appointed politicians (Model 2). Figure 3 is based on these results. * $p<0.05$.

	(1) HH Preferences	(2) HH Characteristics
Baseline Education	0.289*	0.883*
	(0.146)	(0.151)
Demand for Education	5.755*	
	(0.077)	
Education × Demand for Education	0.228	
	(0.309)	
Average Education Level		2.181*
		(0.019)
Education × Average Education Level		-0.205*
		(0.074)
Baseline Health	1.105*	1.365*
	(0.111)	(0.207)
Demand for Health	-4.047*	
	(0.074)	
Health × Demand for Health	0.134	
	(0.296)	
No Access to Hospital		-2.153*
		(0.065)
No Hospital × No Access to Hospital		-0.069
		(0.261)
Baseline Infrastructure	1.475*	1.988*
	(0.103)	(0.303)
Demand for Infrastructure	-6.684*	
	(0.075)	
Infrastructure × Demand for Infrastructure	0.338	
	(0.300)	
Dependence on Infrastructure		-16.673*
		(0.119)
Dependence Infrastructure × Dependence on Infrastructure		-0.399
		(0.476)
Baseline Agriculture	0.000	0.000
	(.)	(.)
Demand for Agriculture	-16.410*	
	(0.102)	
Agriculture × Demand for Agriculture	0.419	
	(0.410)	
Average Landownership		0.258*
		(0.001)
Education × Average Landownership		0.009*
		(0.002)
Constant	1.869*	1.775*
	(0.068)	(0.102)
District Fixed Effects	yes	yes
R-squared	0.664	0.672
N	1824	1824

Table C: Re-estimating the model using household characteristics as a proxy for household demands. Figure 4 is based on these results. * $p<0.05$.

2 Sensitivity Analysis

This section presents the results of a sensitivity analysis to test whether the numerical value with which ln(0) is replaced when constructing the dependent variable changes the substantive interpretation of the results. The findings indicate that the relative magnitude of the coefficients does not change. For this reason, we conclude the the replacement value does not affect the interpretation of the findings.

	(1) Replaced: 0.0000000001	(2) Replaced: 1	(3) Replaced: 1000	(4) Replaced: 1st percentile	(5) Replaced: 5th percentile	(6) Replaced: 10th percentile
Baseline Education	-0.531	-0.014	0.141	0.289*	0.318*	0.333*
	(0.961)	(0.416)	(0.262)	(0.146)	(0.134)	(0.130)
Demand for Education	5.984*	5.840*	5.796*	5.755*	5.747*	5.743*
	(0.521)	(0.224)	(0.140)	(0.077)	(0.071)	(0.069)
Education × Demand for Education	-0.687	-0.110	0.064	0.228	0.260	0.278
	(2.084)	(0.897)	(0.561)	(0.309)	(0.283)	(0.275)
Baseline Health	1.799*	1.361*	1.230*	1.105*	1.081*	1.068*
	(0.477)	(0.208)	(0.143)	(0.111)	(0.111)	(0.112)
Demand for Health	-3.733*	-3.931*	-3.991*	-4.047*	-4.058*	-4.065*
	(0.338)	(0.150)	(0.102)	(0.074)	(0.072)	(0.072)
Health × Demand for Health	-1.122	-0.329	-0.091	0.134	0.179	0.203
	(1.351)	(0.602)	(0.410)	(0.296)	(0.289)	(0.289)
Baseline Infrastructure	2.477*	1.845*	1.655*	1.475*	1.440*	1.420*
	(0.520)	(0.221)	(0.144)	(0.103)	(0.102)	(0.103)
Demand for Infrastructure	-6.522*	-6.624*	-6.655*	-6.684*	-6.689*	-6.692*
	(0.424)	(0.182)	(0.117)	(0.075)	(0.072)	(0.072)
Infrastructure × Demand for Infrastructure	-0.308	0.099	0.222	0.338	0.360	0.373
	(1.695)	(0.730)	(0.469)	(0.300)	(0.289)	(0.288)
Baseline Agriculture	0.000	0.000	0.000	0.000	0.000	0.000
	(.)	(.)	(.)	(.)	(.)	(.)
Demand for Agriculture	-16.481*	-16.436*	-16.423*	-16.410*	-16.408*	-16.407*
	(0.654)	(0.284)	(0.180)	(0.102)	(0.094)	(0.092)
Agriculture × Demand for Agriculture	0.701	0.523	0.470	0.419	0.410	0.404
	(2.615)	(1.135)	(0.719)	(0.410)	(0.378)	(0.368)
Constant	1.650*	1.788*	1.830*	1.869*	1.877*	1.881*
	(0.348)	(0.151)	(0.099)	(0.068)	(0.066)	(0.066)
District Fixed Effects	yes	yes	yes	yes	yes	yes
R-squared	0.253	0.384	0.509	0.664	0.677	0.678
N	1824	1824	1824	1824	1824	1824

Table D: Re-estimating the model using different replacement values for ln(0) when constructing the dependent variable. Figure A is based on these results. * $p<0.05$.

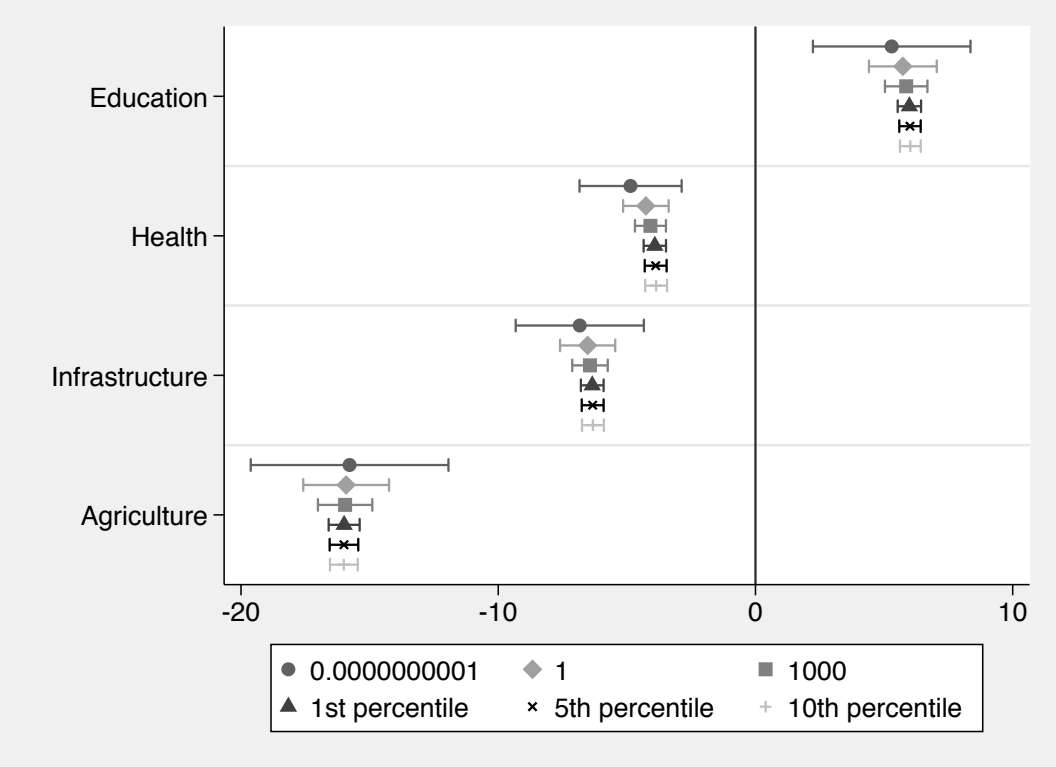

Figure A: Marginal effects conditional on the replacement value of ln(0) while constructing the dependent variable. This analysis shows that the substantive interpretation of the findings is not affected by the specific replacement value. 95% confidence intervals shown. This figure is based on Table D.

3 Patterns of Missing Data

District level revenue and spending data are notoriously difficult to obtain. After considerable effort, we were able to obtain revenue and spending data for 500 of 774 Nigerian districts. Nevertheless, this implies that no data was available for 274 of the 774 districts. Considering this lack of data, we were required to drop these districts from the analysis.

Obviously, we are concerned about the possibility that listwise deletion introduces bias. This would be the case if the missing observations were systematically — not randomly — missing. For example, we would be concerned if only small states were missing. Similarly, we would be worried if all missing districts were clustered in a particular region, while other regions had no missing observations at all.

However, this does not appear to be the case. There are missing observations in 35 of 36 Nigerian states, suggesting that the pattern is not systematic. In addition, Figure B indicates that there are no outliers with particularly high missing data. More importantly, Figure C provides a map highlighting the districts with missing data. The map indicates that not only small (or large) states are missing. Also, it suggests that the geographical distribution of missing districts is random. However, there is one exception, which is Nigeria's North-East. This is the area in which the socio-economic and religious dynamics were in the process of producing the terror group Boko Haram. This might explain why data on spending by local governments is missing. Furthermore, there might be good reasons to exclude these districts from the analysis anyway: As the Nigerian government lacks authority in these districts, it is likely that decentralization efforts have been replaced by a hierarchical extra-state organization. Furthermore, it is highly questionable whether Boko Haram is concerned with the preferences of the local population.

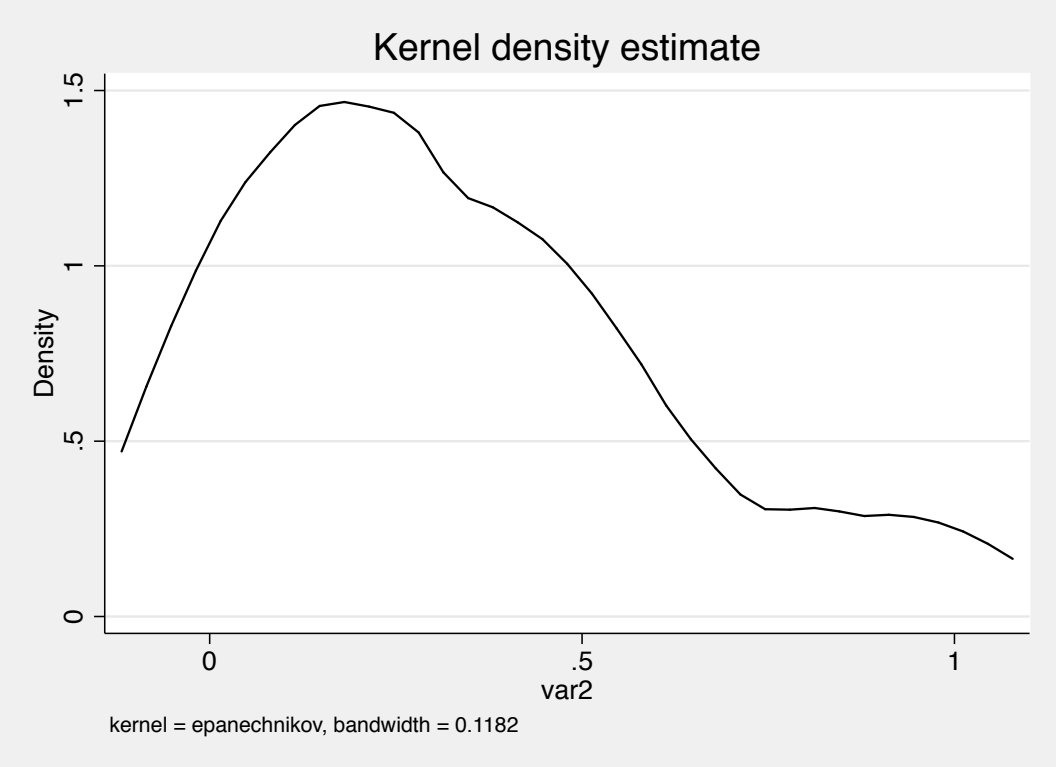

Figure B: Distribution of missing districts by state. The graph indicates that there are no outliers with particularly high missing data.

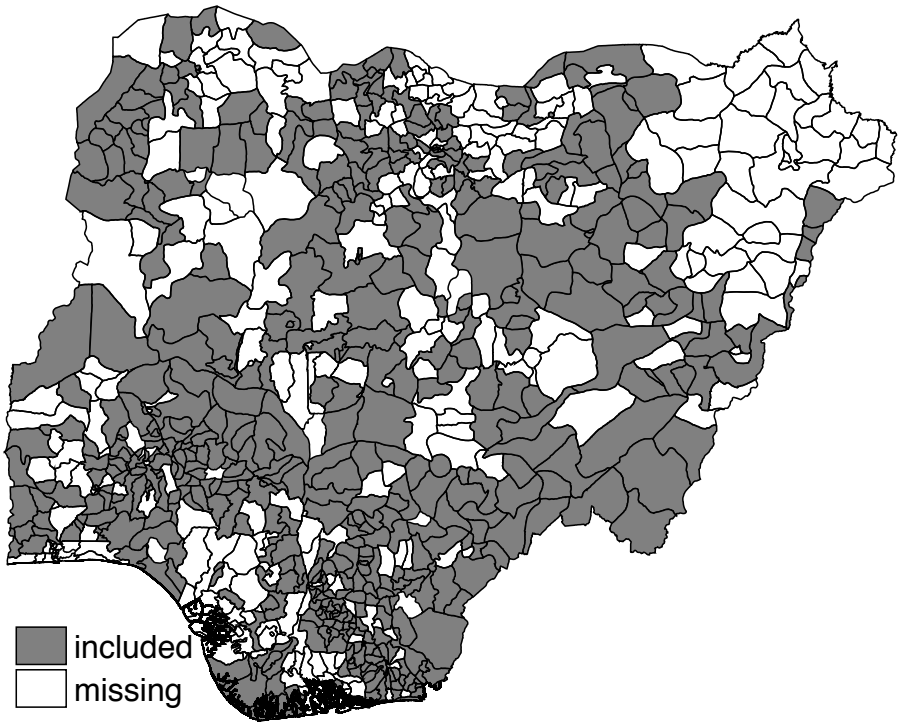

Figure C: Geographical distribution of missing districts. It suggests that the geographical distribution of missing districts is random. See text for notes on the north-eastern part of Nigeria.