Appendix E

Further Details, Chapter 6

E.1 ESTIMATION

To test my hypotheses, I estimate how Aid Information change the odds a politician allocates to a school with certain traits.

Formally, let $P(Y_{nsi} = 1)$ indicate the probability politician n chooses school i in map s. In the absence of any information treatment, I expect that this probability will vary depending on the levels of *School Need Index*, *Aid Project Count*, *Aid Good Types*, and *Percent Votes*. Let these characteristics of each school equal z_{is}. Let X_{is} be a vector of school-specific controls.

To estimate aid information treatment effects, I evaluate how the effects of z_{is} vary with treatment assignment. Let $t_s \in [0, 1]$ be the randomly assigned treatments of information at the map level. The treatment equals one if map s has been assigned to a treatment group and zero if it is in a control group. To estimate the effects of treatment, I interact t_s with z_{is} as in equation E.1.

$$P(Y_{nsi} = 1) = \phi(\beta_1 z_i + \beta_2 t_s z_i + \gamma X_{is} + e_{nsi}). \tag{E.1}$$

I estimate ϕ using a conditional logit model (conditioned on map s). The conditional logit is an extension of the logit model for discrete choice experiments in which individuals make decisions between more than two outcomes.[1] The estimates from a conditional logit estimator are generally less biased than alternative estimators in this setting.[2] I also see

[1] McFadden 1973.

[2] For discussion of trade-offs in the estimation of discrete choice experiments, see Clark et al. (2014) and McFadden (1973).

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consistent estimates using a linear probability model with fixed effects for each s. The conditional logit model averages the odds of a school being selected for allocation within each choice map, so variables that do not vary within s drop out of the estimating equation (such as t_s). Since politicians each make more than one choice, I cluster our errors at the politician level. Conservatively, I use two-tailed hypothesis tests throughout.

I am also interested in estimating how the aid information treatment effects varies across politicians who were assigned the donor transparency treatment. I estimate these conditional average treatment effects using a triple interaction term. That is, for each conditioning variable w_i, I estimate the following equation and then analytically calculate the treatment effect and standard error conditional on w_i.

$$P(Y_{nsi} = 1) = \phi(\beta_1 z_i + \beta_2 w_i + \beta_3 t_s z_i + \beta_4 t_s w_i + \beta_5 z_i w_i + \beta_6 t_s z_i w_i + \gamma X_{is} + e_{nsi}). \quad \text{(E.2)}$$

I include estimates with and without control variables. The prespecified controls include *Log Permanent Classrooms, Log Temporary Classrooms, Log Teacher Houses Permanent, Log Teacher Houses Temporary, Opposition Percent Votes (for MP and LC), Log Enrollment, Number of Aid Projects, Family Attends School, Incumbent Percent at Polling Station*, and *School Need Index*.

I normalize continuous variables in the analysis: so coefficients can be interpreted as the effects of a standard deviation change in a continuous variable (or a one-unit change in a count variable) on the odds or log odds of a school being selected for allocation by the politician. We also discuss within-sample predictions on a probability scale.

E.2 ATTRITION STATISTICS

E.2.1 Sample Attrition

In order to participate in the experiment, politicians had to be active in office and accurate data had to be available on all information treatments. By these criteria, 353 LCs and 187 MPs were eligible for participation in the experiment. Of these, we were able to contact 335 LCs and 125 MPs. Subjects were excluded primarily because they were out of town at the time of the study. Since the information treatments were blocked on respondent, attrition is unrelated to treatment by design.

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However, attrition also raises concerns about generalizability. In Tables A.1 and A.2, I show that there is little systematic difference between included and excluded subjects. Additionally in Table E.1, below, I conduct a regression of available covariates on attrition. An F-test easily fails to reject the null that these variables help explain patterns of attrition. We conclude that our subject pool is not biased to any large extent by attrition.

TABLE E.1 *The effect of covariates on survey attrition*

Variable Name	MP Survey (1)	Councilor Survey (2)
Aid Good Types	−0.423*	−0.059
	(0.246)	(0.082)
Aid Project Count	0.570	0.074
	(0.357)	(0.115)
Councilor Party AFORD	2.172	−0.101
	(1.550)	(0.263)
Councilor Party DPP	0.129	−0.061
	(0.156)	(0.045)
Councilor Party Independent	0.501**	−0.036
	(0.222)	(0.062)
Councilor Party MCP	−0.007	−0.012
	(0.157)	(0.047)
Councilor Party Other	0.823*	−0.093
	(0.471)	(0.171)
Councilor Party PP	0.113	−0.064
	(0.196)	(0.055)
Councilor Party UDF	–	–
Frequency of Donor Interaction	0.003	0.017
	(0.039)	(0.013)
Incumbent Percent at Poll Station	−1.693	0.106
	(2.310)	(0.237)
Incumbent Percent Votes in Ward	0.020	0.468
	(1.149)	(0.401)
Incumbent Votes at Poll Station	0.0002	−0.0001
	(0.0004)	(0.0001)
Log Area	−0.003	0.032
	(0.099)	(0.027)
Log Enrollment	−0.111	−0.070**
	(0.119)	(0.033)
Log Permanent Classrooms	0.097	0.101
	(0.282)	(0.086)

(continued)

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TABLE E.1 *(continued)*

Variable Name	MP Survey (1)	Councilor Survey (2)
Log Permanent Houses	−0.100	0.016
	(0.153)	(0.044)
Log Population	0.035	0.011
	(0.165)	(0.049)
Log School Count	−0.101	−0.067
	(0.154)	(0.046)
Log Teachers	0.030	−0.078
	(0.214)	(0.065)
Log Temporary Classrooms	−0.018	−0.008
	(0.203)	(0.059)
Log Temporary Houses	0.211	−0.038
	(0.146)	(0.047)
Log Votes at Poll. Station	−0.046	0.159**
	(0.263)	(0.063)
MP Party AFORD	−0.411	−0.045
	(0.499)	(0.137)
MP Party DPP	−0.093	0.046
	(0.144)	(0.045)
MP Party Independent	−0.019	0.045
	(0.117)	(0.039)
MP Party MCP	−0.011	0.013
	(0.140)	(0.048)
MP Party Other	−0.154	−0.013
	(0.179)	(0.061)
MP Party PP	−0.001	−0.002
	(0.130)	(0.042)
MP Party PPM	−0.039	−0.018
	(0.213)	(0.070)
MP Party UDF	–	–
Opposition Percent at Poll Station (LC)	−0.440	−0.362
	(0.771)	(0.271)
Percent Votes at Poll Station (MP)	2.033	0.240
	(2.326)	(0.183)
Percent Votes in Constituency	−0.023	0.014
	(0.261)	(0.090)
Pop Density	–	–
Pop Density at School	0.0001	−0.002
	(0.004)	(0.001)

(continued)

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TABLE E.1 *(continued)*

Variable Name	MP Survey (1)	Councilor Survey (2)
School Need Index	−0.205	−0.059
	(0.197)	(0.041)
School Need Index (constituency)	–	0.015
	–	(0.025)
School Need Index (ward)	0.251	–
	(0.196)	–
Victory Margin at Poll Station (MP)	1.772	0.135
	(2.255)	(0.096)
Victory Margin in Constituency	0.078	0.004
	(0.243)	(0.077)
Victory Margin in Ward	−0.106	−0.588**
	(0.925)	(0.298)
School Need Index (ward)	0.897	−0.951*
	(2.073)	(0.497)
Observations	187	353
R^2	0.212	0.096
F-statistic	1.050 (df = 38; 148)	0.879 (df = 38; 314)

Note: *p<0.1; **p<0.05; ***p<0.01

E.2.2 Post-treatment Attrition

No politicians refused to participate in the study or answer questions about schools; however, we excluded some maps from the final analysis for technical reasons. The main reason for this is that politicians sometimes contested whether one or more schools were actually in their constituency.

Since politicians never select schools which they believe (rightly or not) to be outside their constituency, we exclude these contested maps from our analysis. We also excluded one map that was not correctly displayed on an RA tablet. These issues affect 83 out of 1,169 maps, and we exclude these 83 maps from our analysis.

To test whether this post-treatment attrition is related to treatment assignment, in Table E.2, we estimate whether attrited maps are more likely to be in one or more treatment groups. We do not find evidence that this is the case.

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TABLE E.2 *Effect of treatment on attrition due to politician contesting a school location*

Variable Name	(1)	(2)	(3)	(4)
Need Treatment	−0.014	–	–	−0.013
	(0.013)	–	–	(0.013)
Aid Treatment	–	−0.010	–	−0.010
	–	(0.013)	–	(0.013)
Voting Treatment	–	–	−0.018	−0.017
	–	–	(0.013)	(0.013)
N Maps	1252	1252	1252	1252
Pseudo-R^2	0.001	0.0004	0.001	0.002

Note: *p<0.1; **p<0.05; ***p<0.01
This table shows the results of a linear regression. The outcome variable is one if a map is attritted due to politicians contesting map boundaries and zero if the map remains in the analysis sample. Estimates are clustered on respondent.

E.3 FOREIGN AID DATA

To collect information on foreign aid used for the aid information treatment, we focused the data collection on the main foreign donors active in the primary education sector in Malawi, and the projects these donors had carried out in individual primary schools in the past five years (since 2011). Following consultations with local stakeholders and practitioners active within the aid sector in Malawi, we identified the main donors whose project activities included the primary education sector. When approaching each of these donors, we asked them to provide detailed data on their project activities since 2011, including the type of intervention and the name and location of the recipient school. Donors were also asked to cross-validate our list of active donors in the sector and to suggest organizations that were not on the list.[3] As we discuss further,

[3] The organizations from which data on aid projects were obtained include Department for International Development (DFID), Deutche Gesellschaft fur Internationale Zusammenarbeit (GIZ), German Development Cooperation (KFW), Norwegian Embassy, Save the Children, United States Agency for International Development (USAID), United Nations Children's Fund (UNICEF), United Nations Development Programme (UNDP), Volunteer Service Overseas (VSO), World Food Programme (WFP), and the World Bank. Organizations that were identified as active in the education sector, but that failed to respond to our queries, include the Japan International Cooperation Agency (JICA), OXFAM, United Nations Population Fund (UNFPA), and World Vision.

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the politicians in our experiment had little or no knowledge about most of these foreign aid projects and were not involved in their allocation. Like most of the Malawian aid portfolio for these donors, these education projects were almost entirely off-budget and implemented by donors or nongovernmental implementing partners. Government ministries were consulted on some projects. However, we could find no evidence that council authorities or parliamentary representatives in benefiting constituencies had influence or insight into the process of allocating these projects.

In total, 3,151 primary schools received 4,566 foreign aid projects from this set of donors between 2011 and 2016. This constitutes 57 percent of the 5,438 primary schools in Malawi for which we had location data. The number of foreign aid projects in each school varied from 0 to 4. Figure 6.2 displays the total sample of primary schools in Malawi with no projects supported by donors (in gray) versus those with at least one project.

The total number of primary schools included in the school maps presented to the 125 sampled MPs was 1,109. Of these, 683 (62.03 percent) contained at least one foreign aid project. The average number of projects per school was 0.95, ranging from 0 to 4. For the 335 sampled LCs, the total number of primary schools presented in the maps was 2,646, of which 1,545 (58.39 percent) contained at least one foreign aid project. The average number of projects was 0.88, again ranging from 0 to 4.

E.4 EXAMPLE DONOR OVERSIGHT TREATMENT REPORT

The following Figure E.1 is an example of the oversight report shared with politicians during the experiment described in Chapter 6.

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tearfund

DONOR REPORT

PRIMARY SCHOOL DEVELOPMENT MATERIALS PROJECT

Prepared for:

USAID, DFID, GIZ, World Food Program, UNICEF, Save the Children, World Vision

June 2017

In the first half of 2017, Tearfund NGO initiated a project to provide development materials to primary schools across Malawi. The first phase of this project involved meeting with elected officials to give them the opportunity to select schools in their areas to receive materials. The schools recommended by these officials will be entered into a public lottery to determine which schools will receive materials. This report provides information about the decisions of the officials and the characteristics of the schools they selected that you may find helpful as you plan projects in the future.

Member of Parliament ***John Banda***, representing ***Nyasa Constituency***, selected the following schools to receive materials:



Mkuku Primary School
Location of School: Mbeta Village, Chizwe Ward
Number of Students: 872
Number of Classrooms: 7
Number of Teachers: 12
Number of Donor Projects: 1
% Votes MP Received in Community: 35 percent

Selected to Receive Teacher Kits



Mpenga Primary School
Location of School: Mwai Village, Chipeza Ward
Number of Students: 963
Number of Classrooms: 5
Number of Teachers: 10
Number of Donor Projects: 0
% Votes MP Received in Community: 16 percent

Selected to Receive Dictionaries



Nkhande Primary School
Location of School: Mapeto Village, Nkhozwe Ward
Number of Students: 450
Number of Classrooms: 8
Number of Teachers: 15
Number of Donor Projects: 2
% Votes MP Received in Community: 68 percent

Selected to Receive Solar Lamps

Please note that, because of our project guidelines, not all schools in the constituency were eligible for selection.

FIGURE E.1 Example donor oversight report

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