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Political Instability and Perceptions of Land Tenure and Governance in Zambia

Ben Ewing
The Cloudburst Group
ben.ewing@cloudburst.com

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Abstract

On August 11th, 2016, the incumbent president of Zambia, Edgar Lungu, was re-elected amid allegations of electoral fraud from his primary opponent Hakainde Hichilema. Rising tensions in Zambia and a series of events (including a motorcade confrontation and market fire) led to Hichilema's arrest and later President Lungu's invocation of emergency powers on July 3rd, 2017. This paper explores the effects of the political instability on perceptions of land tenure security and governance in Zambia. Specifically, this paper asks if individuals holding geographically contrarian political views exhibit lower tenure security than their peers. This is accomplished by analyzing a large-N household survey collected for the impact evaluation of U.S. Agency for International Development's Tenure and Global Climate Change Zambia program in combination with by polling-station level election results published by the Electoral Commission of Zambia

Key Words: elections; land governance; tenure security; Zambia;

1 Introduction

There is substantial research indicating that political instability leads to adverse economic outcomes. Notably, Acemoglu et al. (2003) showed that weak institutions and political instability can explain economic volatility. However, there is relatively little microeconomic work exploring the mechanisms that connect political instability with perceptions of tenure security and land governance. Goldstein and Udry (2008) provide evidence that politically and socially well-connected individuals have much more secure land rights. Specifically, they find that individuals with more political power have less to fear when leaving land fallow. Is it possible that similar effects are present when looking, not at local politics, but at political affiliation with national parties? More specifically, do individuals holding contrarian national political views have different perceptions of tenure security as compared to their neighbors?

To address these questions, this paper will examine events surrounding the 2016 Zambian Presidential Election. While Zambia has had a relatively strong multi-party democratic system since 1991, recent elections have been contentious, perhaps due to Zambia's movement towards a two-party system. Currently, the two major parties are the United Party for National Development (UPND), popular in the south-east of the country, and the Patriotic Front (PF), prominent in the north-west.

This study uses a panel dataset collected for the U.S. Agency for International Development (USAID) Tenure and Global Climate Change Zambia (TGCC) project in Zambia's Eastern province. Notably, this data contains a number of tenure security, land governance, land investment indicators, as well as some geospatial information. This data is combined with polling station-level election results from the 2016 election, provided by the Electoral Commission of Zambia. The combination of these datasets allows for an analysis of tenure security in the context of the political mood of a given region.

The remainder of this paper will be organized as follows. Section 2 will describe the voting processes put in place for the 2016 Zambian Presidential Election, outline events surrounding the election, and give a brief overview of the Tenure and Global Climate Change program. Section 3 will describe the data, data sources, and data acquisition methods used for this study. Section 4 will describe the methods of analysis and results, and section 5 will discuss findings and outline areas for future study.

2 Context

2.1 Elections in Zambia

In October 2014 then-president of Zambia Michael Sata passed away. As required by the Constitution of Zambia, an election to replace Sata was held within 90 days of his death on 2015-01-20. There are several aspects of the 2015 by-election which set the stage for the 2016 election. First, due to the rushed nature of the 2015 by-election, voter rolls from the 2011 election were used, and no new voters were allowed to register, this likely led to the 32% voter turnout. Next, this election saw the effective collapse of the Movement for Multi-Party Democracy

(MMD), leading to the dominance of the PF in the north-west and the UPND in the south-east. Lastly, the winner of the 2015 by-election would only close out Sata's term; the winner of the 2016 election would serve for a longer 5-year term.

During both the 2015 and 2016 presidential elections, the PF was headed by Edgar Lungu, and the UPND led by Hakainde Hichilema. With a voter-turnout of only 32%, Lungu won the 2015 election with 48% of the vote, to Hichilema's 47%. Hichilema levied accusations of fraud against the PF (Cowell 2015).

The run-up to the 2016 election featured a large voter registration effort. To register to vote in the 2016 election, citizens of Zambia were required to (I) be 18 years of age by 2016-07-31 (Electoral Commission of Zambia 2016b), and (II) hold a National Registration Card (Electoral Commission of Zambia 2016a). Voters were able to register between 2015-09-11 and 2016-03-31 at civic centres throughout the country. The first five weeks of voter registration also featured mobile voter registration, where registration teams moved throughout every district in the country and to register voters (Chulu 2015). Individuals registered for past elections remained registered. Voters registered to vote at specific polling stations, and were only allowed to vote at those stations unless they otherwise changed their registration status. The actual voting process relies on a secret ballot. While the 2015 by-election required the winning candidate to receive a plurality of votes, the 2016 election required a simple majority of votes, with subsequent rounds of voting should no candidate reach this mark.

At the end of the voter registration process, the Electoral Commission Zambia reported a total of 6,669,242 voters registered (Electoral Commission of Zambia, n.d.).

The 2016 Presidential election was held on 2016-08-11. Per the Electoral Commission of Zambia, Edgar Lungu won with 49.19% (N=1,852,302) of the vote, with Hichilema Hakainde trailing with 46.57% (N=1,753,346). In all, 3,765,348 votes were cast, of which 85,433, were rejected, yielding a voter turnout of 55.18%. Figure 2.1 shows the proportion of votes for Edgar Lungu by constituency; the Eastern Province is outlined in black.

Following the election, Hichilema again accused Lungu and the PF of fraud. On 2017-04-19 a confrontation between Lungu and Hichilema's motorcades led to Hichilema's home being raided, and Hichilema himself being arrested on charges of treason (BBC 2017). Tensions continued to mount until a fire destroyed the largest marketplace in Zambia (Reuters 2017), and prompted President Lungu to declare emergency powers shortly after on 2017-07-5, with the premise that the fire was a response to Hichilema's arrest (Mushinge 2017).

2.2 The Eastern Province and the Tenure and Global Climate Change (TGCC) Project

The impact evaluation of USAID's Tenure and Global Climate Change program (TGCC) in Zambia uses a randomized control trial design in combination with four treatments to investigate the relationship between tenure security and agroforestry investment. To this end, villages were randomly assigned to a control group, a land tenure treatment, an agroforestry treatment, and a combined agroforestry and land tenure treatment. A fifth non-randomized group was selected to only receive the agroforestry treatment. The land tenure treatment a village-level intervention which focused on participatory land mapping and the issuing of land certificates signed by customary authorities. The agroforestry treatment established tree nurseries and encouraged the adoption of

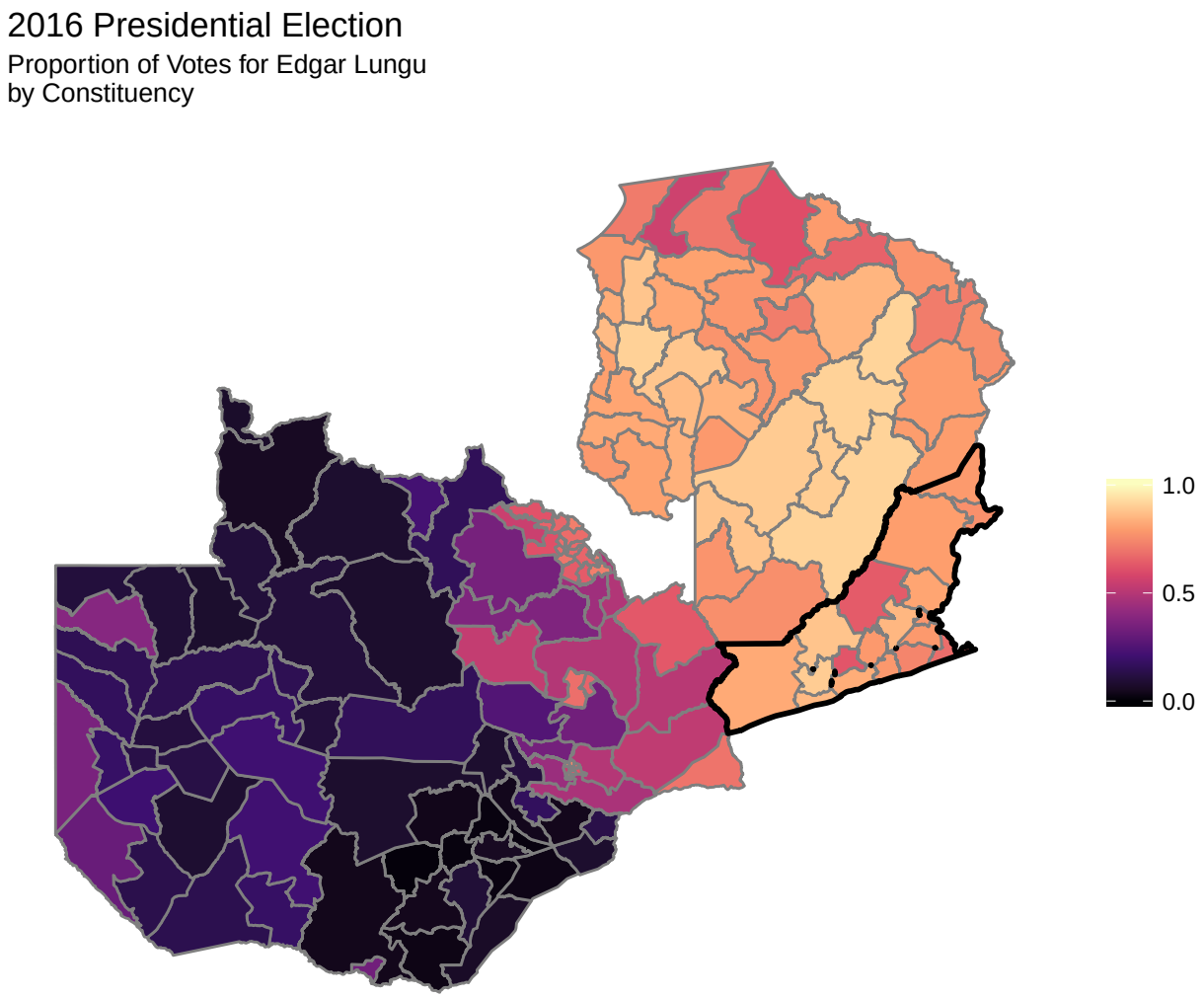

Figure 2.1: 2016 Presidential Election by Constituency

agroforestry trees.

Data was collected (in 2014 and again in 2017) from farmers in 11 wards in Zambia's Eastern Province. While Zambia is a sparsely populated country, areas around Chipata are widely considered to be land constrained. Edgar Lungu is largely popular in the Eastern Province, and this holds true for TGCC wards as well. In the 2016 election, Lungu garnered 76.11% (N=31,695) of the vote to Hakainde's 17.36% (N=7,231), across 93 polling stations.

3 Data

This study draws on a number of disparate data sources, primarily including the TGCC Zambia Household Survey and Electoral Commission of Zambia. Supplemental geospatial data is provided by the National Intelligence Survey Gazetter for Zambia, Open Street Maps. and the Stanford Earthworks library. A considerable amount of time was spent transforming this data into a uniform set of datasets.

3.1 Geospatial Data

To create a comprehensive geospatial dataset, location names and coordinates from the Gazetter for Zambia, Open Street Maps, and Stanford Earthworks library were appended, yielding a dataset with 84,848 locations in Zambia.

3.2 Electoral Commission of Zambia

The Electoral Commission of Zambia provides polling station-level data including the number of votes received by each candidate, the number of voters registered, and the number of votes rejected. In total, data was collected for 7664 polling stations, however data for 14 additional polling stations throughout Zambia is missing. There are 93 polling stations in the 11 wards containing TGCC respondents. These polling stations represent 83,774 registered voters, of whom 40,338 casted valid votes (76.11% Lungu, 17.36% Hichilema). A total of 1,307 votes were rejected.

Unfortunately, little information is provided about the polling station location beyond the polling district, constituency, district, and province. An additional document from the ECZ was used to add the ward in which each polling district resided, the name of the polling station building, and the dates that mobile voter registration was planned for the polling district.

Where possible, polling stations were linked to a specific location in the geospatial dataset. This was done by matching polling station name, polling districts, and ward to the geospatial dataset. Satellite images were then used to verify that the location could be a feasible polling station location, as opposed to the middle of a river, for example. Of the 94 polling stations in wards containing TGCC respondents, a total of 41 have been located. More work will be done in the future to identify and verify the exact locations of polling stations.

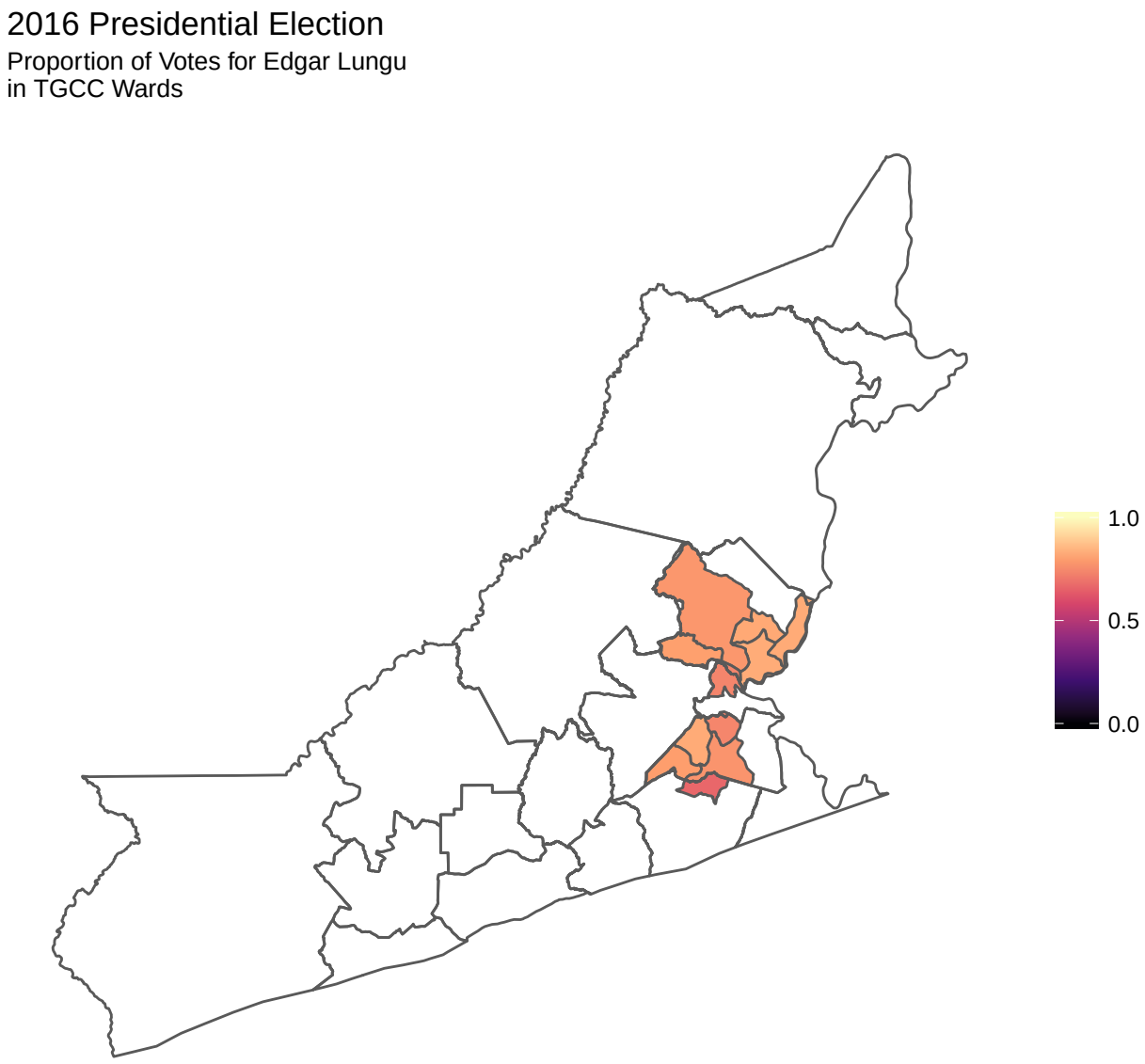

Figure 3.1: 2016 Presidential Election in TGCC Wards

There do appear to be systematic differences between located and unlocated polls. Table 3.1 presents the average characteristics of located and unlocated polls to help gauge balance. Notably, located polls have, on average, more registered voters. This is likely due to the methods used to locate polls; it is reasonable to assume that areas that appear in the geospatial dataset are larger and more well known. Located polls also exhibit a larger percentage of rejected votes, and lean towards the PF over the UPND, on average.

Table 3.1: Balance of Located and Unlocated Polls - Average

	# Voters Registered	% Voter Turnout	% Votes Rejected	% Votes for PF	% Votes for UPND
Unlocated	807.73	55.16	2.97	78.36	18.09
Located	1044.34	49.01	3.54	79.16	17.33

However, average within-ward differences between located and unlocated polls do indicate some significant variation in the percentage of votes rejected, votes for the PF, and votes for the UPND within each ward.

Table 3.2: Mean Within-Ward Difference Between Located and Unlocated Polls

# Voters Registered	% Voter Turnout	% Votes Rejected	% Votes for PF	% Votes for UPND
213.32	-4.75	0.13	-0.45	1.06

3.3 Tenure and Global Climate Change (TGCC)

The TGCC data consists of a baseline sample of 3467 households across 290 villages and five chiefdoms, collected from June 2014 through August 2014, and an endline sample of 3338 households collected in the same villages from June through August 2017. However this study will focus exclusively on panel respondents in four of the five chiefdoms; villages in the fifth chiefdom were not randomly selected. This yields a total of 2931 panel households to be examined in this study. Notably, endline data was collected during the events that led to President Lungu's invocation of emergency powers, with approximately 64% of respondents being interviewed after the event.

Key to this study is the TGCC Household Survey, specifically, the comprehensive set of land governance and field-level tenure security indicators. The land governance questions provide rankings of land leaders with respect to their trustworthiness, fair allocation of land, and ability to protect community land from encroachment. The tenure security indicators primarily cover perceived encroachment risk (on a likert scale) from various actors (neighboring households, investors, etc.) in both the present and three years in the future, as well as current fallowing activity.

The primary tenure security indicators include: whether or not a household fears encroachment on any field from any source now or three years in the future, and whether or not the household is currently engaged in any fallowing activity. The land governance indicators are collapsed from a likert scale to binary agree or disagree categories. To provide a more nuanced analysis this study will also examine the presence of perceived encroachment risk

by actors who are internal (the village headman, households within the village, and family) and external (elites, neighboring villages, the chief) to the village, as secondary indicators. Table 3.3 provides a brief summary of all indicators in both 2014 and 2017.

Table 3.3: Primary Indicators at Baseline and Endline - Mean (SD)

Indicator	Baseline - 2014	Endline - 2017
Engaged in Fallowing	0.1 (0.3)	0.13 (0.33)
Leaders Allocate Land Fairly	0.83 (0.38)	0.89 (0.31)
Leaders Protect Community Land	0.9 (0.29)	0.93 (0.25)
Leaders are Transparent	0.83 (0.37)	0.89 (0.31)
Fear of Encroachment from Any Source	0.47 (0.5)	0.18 (0.38)

There is a notable increase in tenure security between 2014 and 2017. Some of this is likely due to the TGCC treatment, however the pattern holds when looking at control respondents only. For example, in the control group 47.33% of respondents report a fear of encroachment from any source in 2014, but only 21.57% report the same in 2017. Other than tenure security, there is little apparent change from 2014 to 2017.

When possible, the longitude and latitude locations of each interview were also collected. Respondents missing this geospatial information were assigned to their village centre (this is effectively mean-imputation). This data is used to place each respondent in a ward, and to calculate the distance to the nearest located polling station, effectively connecting each respondent to a polling station. The possibility exists that for a given respondent, a closer unlocated polling station exists, however, given the average proximity of respondents to polling stations, I believe this approach ought to capture voting patterns in the respondent's surroundings.

Of the 41 located polling stations, TGCC respondents are nearest to 28 stations. On average, respondents are 5.32km from the nearest polling station. The minimum distance from respondent to polling station is 0km (a number of TGCC villages hosted polling stations), and the maximum distance is 20.1km.

TGCC was designed to be balanced across each treatment group, within each chiefdom, with no regards to wards. With few exceptions, it appears that TGCC baseline data is somewhat balanced across wards and polling stations. However, there is large variation in the size of wards and polling stations, and a Mange and Msanga, in particular, appear to be significantly different than average.

Table 3.4: Baseline HH Descriptives by Ward

Variable	Chikando	Kasenga	Khova	Makangila	Manje	Msandile	Msanga	Nthope	Rukuzye	Sisinje
Age of Head	45.60	43.54	42.02	43.15	39.59	42.73	36.88	40.84	42.13	38.64
Engaged in Fallowing	0.00	0.13	0.07	0.09	0.02	0.11	0.24	0.10	0.09	0.05
Gender of Head	0.27	0.31	0.28	0.32	0.27	0.29	0.18	0.19	0.30	0.27
Leaders Allocate Land Fairly	0.67	0.85	0.84	0.89	0.90	0.83	0.82	0.81	0.83	0.73
Leaders Protect Community Land	0.80	0.89	0.92	0.91	0.94	0.90	0.94	0.91	0.91	0.82
Leaders are Transparent	0.93	0.85	0.85	0.83	0.86	0.84	0.82	0.81	0.85	0.75
Ward Size	15.00	54.00	369.00	111.00	51.00	820.00	17.00	498.00	392.00	84.00
Number of Fields Farmed	2.87	3.13	2.69	2.51	2.67	2.36	2.71	2.64	2.53	2.23
Fear of Encroachment from Any Source	0.60	0.47	0.46	0.46	0.33	0.47	0.71	0.45	0.52	0.41

4 Methods and Results

This section examines the questions posed in the introduction: do individuals holding contrarian national political views have different perceptions of tenure security as compared to their neighbors? This is accomplished by evaluating a model of tenure security post-election as a function of pre-election tenure security, the TGCC treatment, and the political bent of the respondents ward or nearest polling station.

To attempt to assess the impact of holding contrarian views during the 2016 election, I use a simple model, as follows:

$$y_{2017} = \beta_0 + \beta_1 y_{2014} + \beta_2 tgcc_a + \beta_3 tgcc_{lt} + \beta_4 tgcc_{alt} + \beta_5 tgcc_{ac} + \beta_6 vote\_upnd$$

Where:

- y_{2017} is the outcome in 2017.
- y_{2014} is the outcome in 2014.
- $tgcc_a, tgcc_{lt}, tgcc_{alt}, tgcc_{ac}$ denote inclusion in each of the TGCC treatment groups.
- $vote\_upnd$ indicates whether or not the respondent voted for the UPND, the primary opposition party in the Eastern Province.

The TGCC treatments were intended to target some of the same outcomes as this study, thus the treatment indicators are included to control for any changes over time due specifically to TGCC. In an ideal scenario, it would be possible to use each respondents actual voting behavior: $vote\_upnd$. To approximate this I use the proportion of voters who voted for the UPND in the respondent's ward or nearest polling station. Separate models were estimated using election results at both the ward and polling station levels.

To account for the uncertainty resulting from the relatively small number of polling stations, and even smaller number of wards, I will use bootstrapped regression models. This is a process whereby a random sample of wards or polling stations is drawn from the overall sample, with replacement, and then used to fit a regression model. This process is repeated a number of times (10,000 for good measure in this case) to produce regression estimates and standard errors that account for uncertainty in the data.

4.0.1 Results

The polling station-level and ward-level models are generally in agreement about the presence of significant effects (though there is variation in the size of the effect). However, given that the polling station-level models are able to exploit a greater amount of variation (there are more polling stations than wards), I will focus this discussion on the polling station results. Polling station-level models are presented in Table XXX, and ward-level models are presented in Table XXX. For the purposes of this study, a p-value less than 0.05 will be considered significant.

Table 4.1: Polling Station Model Results

term	field_fallow_bin	leader_fair_bin	leader_protect_bin	leader_transparent_bin	tensec_bin_index	tensec_external_bin_index	tensec_internal_bin_index
(Intercept)	0.17** (0.04)	0.81** (0.02)	0.83** (0.03)	0.8** (0.03)	0.12** (0.03)	0.08* (0.03)	0.09** (0.03)
Agroforestry	-0.01 (0.02)	-0.03 (0.02)	-0.02 (0.01)	0.01 (0.02)	0.02 (0.03)	0 (0.03)	0.02 (0.02)
Agroforestry + Land Tenure	0.01 (0.02)	0.02 (0.03)	-0.01 (0.02)	0.03 (0.03)	-0.09** (0.03)	-0.07* (0.03)	-0.07** (0.02)
Lagged	0.07** (0.02)	0.12** (0.02)	0.12** (0.02)	0.09** (0.02)	0.08** (0.01)	0.06** (0.01)	0.07** (0.01)
Land Tenure	-0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.03. (0.02)	-0.08** (0.03)	-0.06* (0.03)	-0.06* (0.03)
poll_prop_upnd	-0.22 (0.29)	-0.08 (0.08)	0.01 (0.07)	0.01 (0.13)	0.29* (0.14)	0.22 (0.14)	0.27* (0.11)

There is a statistically significant and positive relationship between the proportion of votes for the UPND, and the perceived risk of encroachment from any source on any of their fields. Likewise, fear of encroachment from internal sources is significant and positive, however fear of encroachment from external sources is not statistically significant in the polling-station level models (though it is at the ward-level). Neither fallowing activity, nor any land governance indicators are significant.

Table 4.2: Ward Model Results

term	field_fallow_bin	leader_fair_bin	leader_protect_bin	leader_transparent_bin	tensec_bin_index	tensec_external_bin_index	tensec_internal_bin_index
(Intercept)	0.23** (0.07)	0.8** (0.07)	0.83** (0.05)	0.77** (0.05)	0.07 (0.05)	0.03 (0.05)	0.05 (0.04)
Agroforestry	-0.01 (0.01)	-0.03 (0.03)	-0.02 (0.02)	0.01 (0.02)	0.02 (0.03)	0.01 (0.03)	0.03 (0.02)
Agroforestry + Land Tenure	0 (0.02)	0.01 (0.03)	-0.01 (0.02)	0.03 (0.03)	-0.08** (0.02)	-0.06* (0.02)	-0.06** (0.02)
Lagged	0.08** (0.02)	0.12** (0.02)	0.12** (0.02)	0.09** (0.02)	0.08** (0.01)	0.06** (0.01)	0.07** (0.01)
Land Tenure	-0.02 (0.02)	0.01 (0.02)	0.01 (0.01)	0.03* (0.02)	-0.07** (0.02)	-0.05* (0.02)	-0.05** (0.02)
ward_prop_upnd	-0.61. (0.36)	-0.05 (0.3)	0 (0.17)	0.17 (0.24)	0.65* (0.28)	0.54* (0.27)	0.6* (0.25)

5 Discussion and Conclusion

5.1 Areas for Further Study

A more nuanced study could be carried out by locating the remaining polling stations. Additionally, a small scale survey may shed more light on the links between tenure security and A potentially interesting extension to this study that could be accomplished with existing data would involve the examination of voting patterns, tenure security, and relationships to local leaders. Additionally, adding a more in-depth field investment analysis, and a review of access to credit and land rental markets could prove interesting. It may also be fruitful to add additional sources of household data, as can be found in the Rural Agricultural Life Survey, or in the Central Statistical Office of Zambia census.

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