Could Regression Discontinuity estimates of incumbency effects help monitor parliamentary elections? Evidence from Malawi.

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Abstract

We propose that regression discontinuity (RD) estimates of incumbency effects on the probability of re-running and winning be used in pre-election and real-time election monitoring. We illustrate this proposal with a case study of Malawi, which has two rare features for a Sub-Saharan African country: i) publicly available electoral data from democratization in 1994 to 2019 and ii) an election that came under close scrutiny from the media and from the Malawi High Court in 2019. We further contribute by being the first to estimate both the individual and party incumbency advantage in an African country using multiple electoral cycles. We find no evidence of an incumbency advantage or disadvantage.

1 Introduction

Electoral monitoring has been a concern for most countries in Africa since independence (Anglin (1998)). Kelley (2012) and Bush and Prather (2017) suggest the need for measures of electoral quality that are independent of the biases and shortcomings

of reports produced by electoral monitors. Dodsworth (2019), for example, shows that Western observers of African elections seem to apply a double-standard and are less likely to allege that significant fraud has occurred in an election in Sub-Saharan Africa than an election of the same quality elsewhere.

Estimates of incumbency advantage using regression discontinuity (RD), considered standard practice in political science (Cattaneo et al. (2020)), provide us with a practical data-driven tool for pre-election and real-time electoral monitoring. The method suggested here may help Western electoral monitors assess whether or not they may be biased by comparing their field observations with data-driven evidence from a well understood empirical exercise.

The most recent presidential elections in Bolivia and in the United States demonstrate how allegations which appear to be based on statistically rigorous analysis may be used to claim electoral fraud. Political scientists are well placed to analyse such claims and either falsify, qualify, or support them, whether these claims are made by an incumbent President as in the US 2020, (Eggers et al. (2021)) or by an international organization monitoring the 2019 election in Bolivia (Idrobo et al. (2020)). The method proposed here is a complement to these methods and previous efforts (Alvarez et al. (2009)). The main contribution of our method is that it can start to be deployed before an election is run, i.e., as soon as the candidate list is certified.

RD estimates of incumbency effects and related balance tests are an important contribution to the tools used to monitor elections precisely because of their focus on close races. Any form of subtle electoral manipulation would be most consequential in close races, i.e, races in which small changes in the vote count would reverse the result. The focus on marginal races may even help prevent post-electoral violence as Crost et al. (2020) find that perceived electoral fraud is more likely to incite violence when races are close.

The 2019 election in Malawi is an ideal case study as a dry run for the method for two reasons. First, Malawi is almost unique in Sub-Saharan Africa in having uninterrupted regularly scheduled elections since democratization in 1994, for which data is publicly available. Our contribution was to create a panel linking individuals

across electoral years. Such a data set is unique in the Sub-Saharan African context.[1]

Second, the 2019 election was thoroughly examined by the media and the High Court due to widespread allegations of fraud.[2] The country's High Court mandated a re-run of the presidential race. The re-run was held in 2020 and led to the incumbent President leaving office. This contested but successful transition of power led think-tanks such as Freedom House to upgrade Malawi's score and the popular press to praise Malawi's democratic resilience. The magazine The Economist, for example, chose Malawi as country of the year in its 2020 Christmas edition. The lack of any confirmed evidence of fraud regarding the 2019 parliamentary election provides a clear benchmark against which we can judge the use of RD estimates of incumbency effects as indicators of electoral manipulation.

Our proposed method follows standard RD practice for the estimation of incumbency effects on re-running and on winning the following election. We use two distinct RD designs. In the first design we estimate party effects as described in Lee (2008). We compare constituencies where the incumbent President's party was the bare winner in period t with constituencies where the the incumbent President's party was the bare loser in t. We look at two different outcomes in $t+1$: re-running and winning. In the second design we estimate individual effects as described in De Magalhães (2015). We compare individual winners with runners-up in t in a given constituency (independent of party)[3] on whether they re-run and/or win in $t+1$. To monitor the 2019 election we compare the 2014-2019 cycle (t =2014 and $t+1$ =2019) with previous electoral cycles. Unexplained changes may be indication of fraud or manipulation.

The main concern when implementing the method suggested here is of producing a false positive, i.e., of suggesting fraud or manipulation when there was none.[4] Imbalances or changes in incumbency effects are not proof of electoral manipulation,

[1] Panels for Ghana (Miguel and Zaidi (2003)) and Zambia (Macdonald (2014)) do not follow individuals over time.

[2] The election became know in the media as the 'Tippex election'.

[3] Parties may be weak and party switching may be rife (Klašnja and Titiunik (2017)).

[4] A false negative is less of a concern as it would imply that any fraud or manipulation would have had little influence on marginal races when compared to previous elections.

let alone fraud. Caughey and Sekhon (2011) look in detail into close elections in the US and find no sign of fraud as re-counts rarely reverse results even when there is sorting around the winning threshold. If our method suggests fraud or manipulation, this should be seen as a sign that more rigorous checks should be performed after the election. For example, electoral forensic methods suggested by Hicken and Mebane Jr (2017) should be used.

Since our method is based on estimates of incumbency effects, it should be deployed to help monitor elections in which the overriding concern is that incumbents (either the incumbent President's party or incumbent members of parliament) may use their political offices to retain power by irregular means.[5] Therefore, under the assumption that previous elections were free, the following results should be seen as signs suggesting the current election is also free: i) lack of change in incumbency effects; ii) a reduction in the incumbency advantage of incumbents or of the incumbent President's party, and iii) an increase in the incumbency advantage of main opposition parties.[6] Cause for concern would come from: a) an unexplained increase in the incumbency advantage of the incumbent President's party; b) an increase in the individual incumbency advantage of members of Parliament; or c) an unexplained decrease in the incumbency advantage of opposition parties.

The closest papers to ours are Aksoy (2016) and Brollo and Nannicini (2012). Aksoy (2016) uses RD standard methods to reveal sorting around the winning cutoff in the 2004 Turkish mayoral elections in a debate on whether close elections are indeed valid settings for RD designs (Caughey and Sekhon (2011) and Eggers et al. (2015)). Aksoy (2016), however, interprets this statistical result not simply as an indication of the lack of validity for an RD design, but instead, as indication that electoral manipulation took place. We go further by suggesting other balance tests and estimates of incumbency advantage that may be indications of manipulation. Brollo and Nannicini (2012) use RD to reveal that sitting mayors who had previ-

[5]Taylor et al. (2017) have shown how violence is more likely in SSA when an incumbent President seeks reelection.

[6]Such evidence should be used as credible information towards a monitoring report that supports a high quality election, which may be important to discourage 'sore losers' protests (Hyde and Marinov (2014)).

ously won close elections against mayors of the national ruling party, receive less in transfers from the central government during their term. Such an analysis would be complementary to the steps proposed here, i.e., to explain variations in incumbency advantage over time.

Finally, our paper is the first to estimate both the party incumbency advantage (Lee (2008)) and individual incumbency advantage (De Magalhães (2015)) using regression discontinuity design for multiple electoral cycles in an African country. Macdonald (2014) and Miguel and Zaidi (2003) estimate party (but not individual) incumbency advantage in parliamentary elections in Zambia and Ghana respectively. Their results of no advantage or disadvantage are consistent with ours.[7] Ochieng'Opalo (2019) estimates a personal incumbency advantage in both Kenya and Zambia by comparing incumbent and challengers instead of winners and runners-up as described in De Magalhães (2015).

2 Data

Malawi has had a stable government since independence from British rule in 1964 but was governed until 1993 by the Malawian Congress Party (MCP) under one party rule. Since 1994 the country has held multi-party presidential and parliamentary elections every five years. The presidential and parliamentary elections take place at the same time. Election for parliament is by a first-past-the-post system similar to the British model. However, in contrast to the British model, the head of the executive power is elected directly in a country-wide first-past-the-post system without a run-off. In 2020 a run-off was introduced. There is a two-term limit for the President, but not for members of Parliament.[8]

Results from the six parliamentary elections in Malawi that occurred from 1994 up until 2019 were obtained from the Malawian Electoral Commission (MEC).[9] Each

[7]Macdonald (2014) finds evidence of an incumbency disadvantage in local, but not national elections.

[8]Dulani (2011) discusses how Malawi was able to maintain its two term limited for President despite political pressure from incumbents.

[9]Available at: https://mec.org.mw/.

election year dataset comprises of candidate information for each constituency, including name, vote count, vote share, and party membership. There were 177 electoral districts in the 1994 election and 192 in the following elections.

In Table 1, we summarize all elections since 1994. In the second column we present the party affiliation of the winning President of that year's election. In columns 3-7 we report the number of seats by each party.

Table 1: Malawi elections - 1994-2019 - Summary

Year	Presidential winner	Parliamentary constituencies won by: MCP	UDF	DPP	PP	Independents/other
1994	UDF	56	85	-	-	36
1999	UDF	66	93	-	-	33
2004	UDF/DPP	57	50	-	-	80
2009	DPP	27	17	113	-	35
2014	DPP	48	14	50	26	54
2019	DPP/MCP	55	10	62	5	60

Notes: In 2004 B. Mutharika won running for the UDF but governed under a newly created DPP. In 2019 P. Mutharika claimed victory and remained in power until the High Court forced a re-run in 2020. The re-run was won by the MCP candidate L. Chakwera.

Despite not winning a single presidential election between 1994 and 2014, the MCP established itself as the main opposition party in Parliament. The UDF (the United Democratic Front) was the main governing party in Malawi from 1994 until it was replaced by the DPP (Democratic Progressive Party) in 2004, when B. Mutharika won the presidency running for the UDF but then proceeded to govern under the newly created DPP. This led to the DPP effectively replacing the UDF as the country's main party. We code all original UDF members of Parliament in 2004 as belonging to the president's party for the purpose of the RD in the 2004-2009 cycle.

B. Mutharika was re-elected running for the DPP in 2009 but died while in office in 2012. The Vice President, J. Banda, herself expelled from the DPP, took office and ran in 2014 under the PP (Popular Party). J. Banda lost the 2014 presidential election to the DPP under P. Mutharika (B. Mutharika's younger brother). Since the majority of the term in office was held by the DPP and since the PP failed to

become a major parliamentary party, we code the President's party as the DPP for the 2009-2014 electoral cycle.

In order to study the individual incumbency advantage, we merged the electoral data sets so that candidates can be tracked over time. This process involved carefully linking names across different years using research assistants from Malawi so that spelling mistakes could be corrected.

3 Monitoring Elections in Six Steps

Our method involves six steps for monitoring elections.

Steps 1 and 2 consist, respectively, of comparing party and individual incumbency effects on re-running between the 2014-2019 electoral cycle and previous cycles. Steps 1 and 2 require electoral data for two previous elections and the candidate list for the election being monitored. They can be performed as soon as the candidate list is made available and before the election being monitored is run. Unexplained changes in the effect of incumbency on re-running may indicate electoral manipulation occurring at the stage at which parties select and assign candidates to constituencies.

Steps 3 and 4 consist, respectively, of comparing party and individual incumbency advantage between the 2014-2019 electoral cycle and previous cycles. Steps 3 and 4 require electoral data for at least two previous elections and a list of winners for the election being monitored (2019). They can be run as soon as the winner in each constituency is identified and before finalized vote-share data by constituency or voting precinct is made available.

Step 5 is a test for a discontinuity at the winning threshold in the density of constituencies ordered by their vote share of the incumbent President's party. Sorting around the threshold could be an indication of fraud occurring during the voting and/or vote-counting stage (Aksoy (2016)).

Step 6 consists of the usual RD balance test for variables that are observable at the constituency level. Any imbalance may indicate a need to further investigate for potential manipulation/fraud. For example, balance in income should be tested as vote buying is more of a concern among the poorest (e.g., Birch (2011), Jensen and

Justesen (2014), and Vicente and Wantchekon (2009)).

Steps 5 and 6 require finalized constituency level vote-share data for the election being monitored. They will be the last to be implemented in practice. Note, however, that steps 5 and 6 can be implemented even if data for previous elections are unavailable.

Since Malawi is a multi-party system, we must compute party effects for the main opposition party as well. For the entire period covered in our data, the MCP has played that role. In the appendix we present the equivalent results for the MCP that we present for the incumbent President's party in the main text.

In the tables below we present a comparison between winners and losers for all sample, close races, and RD estimates. We use the standard RD method of a local-linear regression with a triangular kernel, optimal bandwidth, and robust bias-corrected standard errors as suggested in Calonico et al. (2014).

Step 1 - Comparison with previous estimates of the party incumbency effect on re-running.

Electoral manipulation could occur before the voting or counting stage. The incumbent President's party could potentially use their ruling party status to make it harder for the opposition to field candidates or easier for themselves to re-run in a constituency. Step 1 investigates these concerns using RD estimates of the effect of party incumbency effects on re-running.

In Table 2 - step 1 - the RD design compares the outcome in election period $t+1$ across constituencies where the marginal winners or losers were from the incumbent President's party in period t. The outcome of interest is the re-running rate, i.e. whether or not the incumbent President's party fielded a candidate in that constituency in period $t+1$.[10]

In row 1, columns 1 and 2 we can see that there were 50 constituencies won by the DPP in 2014 and 139 where the DPP ran but lost. The DPP fielded a candidate in all constituencies where it had won (row 2) and in all but four where it had lost. The DPP fielded a candidate in every close race (colums 3 and 4). The RD can not be estimated with local linear methods for lack of variation. This high re-running rate in the 2014-2019 cycle is similar to that of the incumbent President's party in previous cycles (rows 3 and 4). In Table A1 in the appendix we can see that there is also no change in the party incumbency effects on re-running rates for the main opposition party (MCP). Re-running rates are also at high levels, 79% and greater, for close races.

Therefore, step 1 suggests that neither party faced a restriction or a boost in fielding candidates for the 2019 election compared to previous elections.

Step 2 - Comparison with previous estimates of the individual incumbency effect on re-running.

[10]The balance tests for the validity of this design are available in Table A5 in the appendix.

Table 2: Party and Individual effects of Incumbency on re-running: Malawi 2014-2019 vs. 1994-2014

Step 1: President's Party won in t vs lost in t. Outcome: run in $t+1$

	All races		Close (5%)		RD
	won	lost	won	lost	won-lost
2014-2019 – DPP					
Number obs. in 2014	50	139	11	9	189
Run in 2019	1	0.98	1	1	-
		(0.40)		-	-
1994-2014 – UDF then DPP					
Number obs. in t	341	377	28	22	718
Run in $t+1$	0.74	0.80	0.91	0.96	0.00
		(0.04)		(0.42)	(0.89)

Step 2: Winner candidate in t vs. runner-up in t. Outcome: runs in $t+1$

	All races		Close (5%)		RD
	winner	runner-up	winner	runner-up	winner − runner-up
2014-2019					
Number obs. in 2014	192	192	39	39	384
Runs in 2019	0.78	0.57	0.75	0.67	0.06
		(0.00)		(0.21)	(0.64)
1994-2014					
Number obs. in t	748	748	67	67	1496
Runs in $t+1$	0.59	0.34	0.55	0.51	0.01
		(0.00)		(0.61)	(0.99)

Note In columns 1 vs. 2 and 3 vs. 4 we test whether the means are different. We use a two-sample t-test with the p-value in parenthesis. In column 5, RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.

Incumbent members of parliament could potentially use their office to make it harder for their local rivals to re-run or easier for themselves to do so independent of party affiliation. Step 2 investigates these concerns using RD estimates of individual incumbency effects on re-running.

In Table 2 - step 2 - the RD design compares how individual winners in period t in a given constituency fare in period $t+1$, compared to how runners-up in period t in that same constituency fare in period $t+1$. The outcome of interest is the individual re-running rate.

In row 6, columns 1 and 2 we can see that 78% of all winners in 2014 re-ran in 2019. Whereas only 57% of runners-up in 2014 reran in 2019. Once we look at the sample of close races (columns 3 and 5) and the RD estimates (column 5) we can see there is no individual incumbency effect on being the winner vs. being the runner-up in 2014 on re-running rates in 2019. This is also true for previous electoral cycles (row 8).[11]

The lack of change in the magnitude of the individual incumbency effect on re-running in the 2014-2019 cycle in relation to previous cycles, suggests that incumbent members of Parliament were unable to differentially influence who ran in the 2019 election.

Step 3 - Comparison with previous estimates of the party incumbency advantage.

Electoral fraud or manipulation could be used by an incumbent President's party to increase their odds of winning races or to reduce the odds of the opposition winning a race. We can compare estimates of party incumbency advantage as in Lee (2008) over time to check whether these estimates have changed. An unexplained increase in

[11] In Table A6 in the appendix we show the balance test for RD comparing winners and runners-up. These compare the party affiliation of candidates and whether they were the previous incumbent. RD designs as suggested by De Magalhães (2015) are by construction balanced in any district level characteristics and in density. Only the 2004 election shows unbalance. Results for the pooled RD estimate excluding 2004 are similar to those in Table 2 - step 2 - row 8, column 5: point estimate -0.01, p-value: 0.89.

the party incumbency advantage of the incumbent President's party (or a decrease in the party incumbency advantage of the opposition party) may be cause for concern if there are no valid explanations for such changes. A lack of change in the incumbency advantage for the ruling and opposition party would provide supporting evidence of a free and fair election - relative to previous ones.

In Table 3 - step 3 - we compare the party incumbency advantage for the DPP in the 2014-2019 electoral cycle with estimates of past cycles for the incumbent President's party (UDF then DPP). The RD design compares the electoral success in $t + 1$ across constituencies where the marginal winners or losers were from the incumbent President's party in period t.[12]

In row 1 and 2, column 1 and 2, we can see that the DPP performed better in 2019 in districts it had won in 2014. However, when we look at close races, this difference disappears (row 2, colums 3 and 4). Among the constituencies with close races in which the DPP won in 2014, the DPP won 27% of these again in 2019. Among the constituencies in which the DPP lost in 2014, the DPP won 56% of these anew. Due to the small number of observations the difference is not statistically significant. In column 5 we show a similar result using the standard RD method and find no evidence a party incumbency advantage in the 2014-2019 electoral cycle.

The lack of a party incumbency advantage for the incumbent President's party is also found in previous electoral cycles (rows 3 and 4, columns 3, 4, and 5). Thus, step 3 finds nothing to suggest the 2019 results may have been manipulated in favour of the incumbent President's party.[13] Moreover, in the appendix Table A1, we estimate the party incumbency advantage with the MCP - the main opposition - as the reference party. We find no evidence of a party incumbency advantage or disadvantage for the MCP and the estimates are consistent across electoral cycle. Step 3 also provides nothing to suggest that the 2019 results may have been manipulated to impede the electoral success of the main opposition party (Brollo and Nannicini (2012)).

[12]For the Balance tests see Table A5 in the appendix.

[13]The same conclusion can be draw comparing separate estimates for each electoral cycle. See Table A3 in the appendix.

Table 3: Party and Individual effects of Incumbency on Winning: Malawi 2014-2019 vs. 1994-2014

Step 3. President's Party won in t vs lost in t. Outcome: win in $t+1$

	All races		Close (5%)		RD
	won	lost	won	lost	won-lost
2014-2019 – DPP					
Number obs. in 2014	50	139	11	9	189
Win in 2019	0.42	0.29	0.27	0.56	-0.29
		(0.09)		(0.22)	(0.40)
1994-2014 – UDF then DPP					
Number obs. in t	341	377	28	22	718
Win in $t+1$	0.28	0.07	0.18	0.18	-0.15
		(0.00)		(0.98)	(0.20)

Step 4. Winner candidate in t vs. runner-up in t. Outcome: elected in $t+1$

	All races		Close (5%)		RD
	winner	runner-up	winner	runner-up	winner − runner-up
2014-2019					
Number obs. in 2014	192	192	39	39	384
Elected in 2019	0.25	0.21	0.23	0.28	-0.19
		(0.28)		(0.61)	(0.21)
1994-2014					
Number obs. in t	748	748	67	67	1496
Elected in $t+1$	0.23	0.01	0.15	0.13	-0.01
		(0.00)		(0.81)	(0.82)

Note In columns 1 vs. 2 and 3 vs. 4 we test whether the means are different. We use a two-sample t-test with the p-value in parenthesis. In column 5, RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.

Step 4 - Comparison with previous estimates of the individual incumbency advantage.

Finally, in Table 3 - step 4 - we estimate the individual and unconditional incumbency advantage as described in De Magalhães (2015). Again, we find no difference in our estimates of individual incumbency advantage comparing the 2014-2019 electoral cycle with the pooled estimate for the previous cycles.[14] Thus suggesting no evidence of fraud or manipulation in the 2014-2019 cycle relative to previous ones. There is also no indication that winning a seat as a member of Parliament gives any advantage (or disadvantage) to an average individual candidate in a marginal seat.[15]

Step 5 - Check for a discontinuity in the density of constituencies won by the incumbent's President party around the winning threshold.

Step 5 and 6 require detailed electoral returns at the constituency level. This information will be the last to be made public. Once available it can be used to check for statistical anomalies as in Aksoy (2016).

A key statistic to check is the density of constituencies ordered by their vote-share to the incumbent President's party. We normalize the winning threshold to zero such that positive numbers indicate that the incumbent President's party has won the seat in that constituency, whilst negative numbers mean that it has lost. A statistical anomaly would be for sorting to occur around the winning threshold.

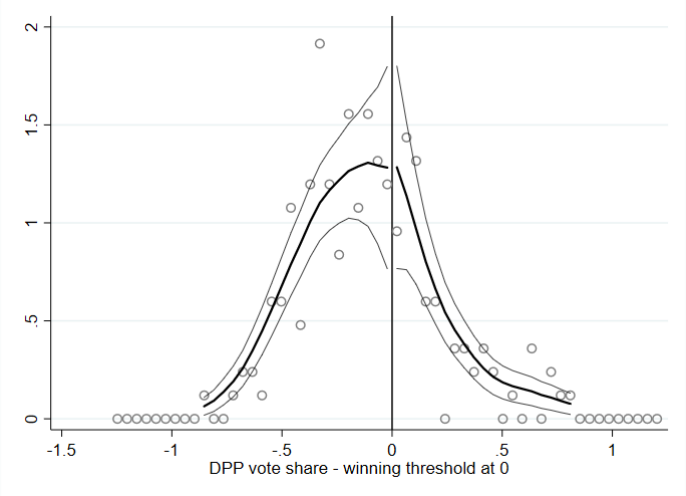
The key anomaly to test for is whether there were more constituencies in which the DPP (the incumbent President's party in 2019) was the marginal winner compared to the number of constituencies in which the DPP was the marginal loser, as one would expect a similar number of constituencies on both sides in a valid RD design.

In Figure 1 we present the discontinuity test for densities proposed by McCrary

[14]The same conclusions can be draw comparing separate estimates for each electoral cycle. See Table A4 in the appendix.

[15]In Table A6 in the appendix we show the balance test for RD comparing winners and runners-up. Only the 2004 election shows unbalance. Results for the pooled RD estimate excluding 2004 are similar to those in Table 3 - step 4 - row 8, column 5: point estimate 0.00, p-value: 0.87.

Figure 1: McCrary test for discontinuity in the density of the DPP vote share in 2019



Note: The DPP vote share in each district has been normalized to the distance to the winning threshold.

(2008). The figure shows no discontinuity. In Table 4, row 1, columns 3 and 4, we can see that in marginal districts there are more districts where the DPP was the loser (12) than the winner (9). There is no bunching on the right of the threshold, i.e., too many marginal DPP victories compared to defeats. This results suggests that that no manipulation or fraud occurred at the voting or vote-counting stage in marginal seats.

Step 6 - Balance test of marginal districts' characteristics.

In Table 4 we implement RD balance tests for observable district characteristics. District level variables on schooling, land ownership, and food security were obtained in the 2016 Integrated Household Survey for Malawi.[16] Suggestive evidence of fraud

[16]Available here: https://microdata.worldbank.org/index.php/catalog/2936. The information is at the district level. There are 28 districts in Malawi and 192 constituencies. Potentially, the same district could be on both sides of the cutoff and bias the result. Among the 12 and 9 constituencies with close races on each side of the cutoff in 2019 only three districts are present on both sides; 12

or manipulation would appear if the districts in which the DPP was the marginal winner had on average a less educated, less land-wealthy, and less food-secure population, than districts in which the DPP was the marginal loser. Such results could indicate that the incumbent party may have used deprivation and/or lack of education to manipulate elections through unobserved means.[17] The empirical evidence shows no imbalance in these variables (Table 4 rows 2, 3, and 4).

Table 4: Malawi's 2019 Parliamentary Election - Balance Tests for DPP

A. President's Party (DPP)

	All races		Close (5%)		RD
	won	lost	won	lost	Win-lost
Number obs.	62	129	9	12	191
Average household acres	1.13	1.49	1.36	1.36	0.15
	(0.00)		(0.98)		(0.46)
Average schooling years	5.68	5.73	5.41	5.47	-0.12
	(0.77)		(0.89)		(0.98)
Percent food secure	0.75	0.74	0.77	0.76	0.02
	(0.63)		(0.86)		(0.75)
DPP $t-1$	0.27	0.19	0.22	0.25	-0.18
	(0.21)		(0.89)		(0.38)
Southern Malawi	0.77	0.29	0.67	0.58	-0.06
	(0.00)		(0.71)		(0.73)

Note In columns 1 vs. 2 and 3 vs. 4 we test whether the means are different. We use a two-sample t-test with the p-value in parenthesis. In column 5, RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.

In row 5 of Table 4, we can see that districts where the DPP was the marginal winner are no more likely to have been previously held by the DPP than districts where the DPP was the marginal loser. In row 6 we see a clear geographical support

districts are unique to their side of the cut-off.

[17]See Boone (2011) for the role of land ownership in electoral manipulation.

for the DPP in Southern Malawi (columns 1 and 2), but races where the DPP was the marginal winner are as likely to be in the South as races where the DPP was the marginal loser (colums 3 and 4). In Table A2 in the appendix we run the same balance tests using the MCP as the reference party. We also find no imbalance in the observed district characteristics.

4 Discussion

Our RD balance tests and estimates of incumbency advantage find no suggestion of fraud or manipulation in the 2019 parliamentary election in Malawi. This is in keeping with the lack of media reporting of fraud and manipulation in the parliamentary election, and also reflects the ruling made by the Malawi High Court to re-run the presidential election but not to re-run the parliamentary election.

As the 2020 US election has shown, allegations of fraud or manipulation which appear to be based on statistically rigorous analysis can be used by to influence the certification of an election (Eggers et al. (2021)). The increase availability of data and computing power would suggest that such discussions will become part of the immediate post-electoral debate. Political scientists are well equipped to prepare for this with impartial and statistically rigorous pre-election and real-time analysis of electoral data. The methods described here should be seen as an addition to the arsenal available.

Our study is also a contribution to the understanding of Malawi's political structures. Malawi is of particular interest as it is the world's poorest functioning democracy. For a descriptive analysis of its economy, see De Magalhães and Santaeulàlia-Llopis (2018). For a recent study on its voting behavior, see Dulani et al. (2021).

We find that holding a seat in the Malawian Parliament that was won by a small margin gives no advantage (or disadvantage) either to the individual or the party holding that seat when attempting re-election. This is true despite it having been shown that policy matters for presidential politics. For example, Dionne and Horowitz (2016) have found that the incumbent President's party increases its support among receivers of Malawi's largest and most widespread redistribution pro-

gram; fertilizer subsidies (Chirwa and Dorward (2013)). Reconciling their results with ours suggests that any increase in support for the incumbent President's party may have no impact in the prospects of its members of Parliament being reelected. Such a result opens an important research question on whether being a member of the Malawian Parliament provides any tool (e.g., control over funding, policy, or alignment with the President) that allows an elected official to improve their reelection prospectus.

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A Appendix - A

Table A1: Party Incumbency Advantage in Malawi 2014-2019 vs. 1994-2014 - Main Opposition party MCP

MCP won in t vs lost in t. Outcome: run/win in $t+1$					
	All races		Close (5%)		RD
	won	lost	won	lost	won-lost
2014-2019 – MCP					
Number obs. in 2014	48	112	5	3	160
Run in 2019 - step 1	1	0.97	1	1	-
	(0.25)		-		-
Wins in 2019 - step 3	0.62	0.20	1	1	0.19
	(0.00)		-		(0.29)
1994-2014 – MCP					
Number obs. in t	206	454	14	19	660
Run in $t+1$ - step 1	0.84	0.64	0.93	0.79	-0.01
	(0.00)		(0.28)		(0.96)
Win in $t+1$ - step 3	0.59	0.08	0.43	0.32	0.07
	(0.00)		(0.52)		(0.64)

Note In columns 1 vs. 2 and 3 vs. 4 we test whether the means are different. We use a two-sample t-test with the p-value in parenthesis. In column 5, RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.

Table A2: Malawi's 2019 Parliamentary Election - Balance Tests for main opposition party MCP

	All races		Close (5%)		RD
	won	lost	won	lost	Win-lost
Number obs.	55	133	10	4	187
Average household acres	1.65	1.24	1.43	1.56	-0.34
	(0.00)		(0.59)		(0.34)
Average schooling years	5.70	5.80	5.69	5.77	-0.39
	(0.64)		(0.91)		(0.50)
Percent food secure	0.74	0.74	0.73	0.74	-0.03
	(0.96)		(0.91)		(0.68)
MCP $t-1$	0.4	0.10	0.2	0.5	-0.30
	(0.00)		(0.30)		(0.40)
Southern Malawi	0.04	0.62	0.1	0.25	-0.23
	(0.00)		(0.50)		(0.43)

Note In columns 1 vs. 2 and 3 vs. 4 we test whether the means are different. We use a two-sample t-test with the p-value in parenthesis. In column 5, RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.

Table A3: Party Incumbency Advantage in Malawi per electoral cycle 1994-2014

A. President's Party won in t vs lost in t. Outcome: won in $t+1$

Electoral Cycle	All races		Close (5%)		RD
	won	lost	won	lost	Win-lost
N. obs. 2009 (DPP)	113	79	13	8	192
Elected 2014	0.35	0.11	0.12	0.15	-0.17
	(0.00)		(0.86)		(0.48)
N. obs. 2004 (UDF/DPP)	50	109	10	5	159
Elected 2009	0.14	0.09	0.2	0.1	-0.08
	(0.36)		(0.62)		(0.67)
N. obs. 1999 (UDF)	93	97	6	2	190
Elected 2004	0.48	0.04	0.33	0	0.17
	(0.00)		(0.42)		(0.51)
N. obs. 1994 (UDF)	85	92	3	3	177
Elected 1999	0.03	0.05	0	0.66	-0.94
	(0.54)		(0.12)		(0.02)

B. Main Opposition Party won in t vs lost in t. Outcome: won in $t+1$

Electoral Cycle	All races		Close (5%)		RD
	won	lost	won	lost	Win-lost
N. obs. 2009	27	106	6	4	133
Elected 2014	0.81	0.24	0.50	0.75	-0.19
	(0.00)		(0.49)		(0.60)
N. obs. 2004	57	107	3	3	164
Elected 2009	0.44	0.01	0.33	0	0.15
	(.00)		(0.37)		(0.91)
N. obs. 1999	66	120	3	7	186
Elected 2004	0.76	0.05	0.66	0.29	0.67
	(0.00)		(0.31)		(0.07)
N. obs 1994	56	121	2	5	177
Elected 1999	0.45	0.05	0.00	0.20	-0.37
	(0.00)		(0.58)		(0.39)

Note In columns 1 vs. 2 and 3 vs. 4 we test whether the means are different. We use a two-sample t-test with the p-value in parenthesis. In column 5, RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.

Table A4: Individual Incumbency Advantage in Malawi per electoral cycle 1994-2014

Winner in t_1 vs. runner-up in t_1. Outcome: elected in t_{+1}

Electoral Cycle	All races		Close (5%)		RD
	winner	runner-up	winner	runner-up	winner − runner-up
N. obs. 2009	192	192	25	25	384
Elected 2014	0.26	0.18	0.20	0.16	0.08
		(0.05)		0.72	(0.38)
N. obs.2004	187	187	24	24	374
Elected 2009	0.25	0.09	0.21	0.12	0.05
		(0.00)		(0.45)	(0.72)
N. obs. 1999	192	192	11	11	384
Elected 2004	0.22	0.04	0	0	0.05
		(0.00)		-	(0.30)
N. obs. 1994	177	177	7	7	354
Elected 1999	0.20	0.03	0	0.29	-0.41
		(0.00)		(0.15)	(0.14)

Note In columns 1 vs. 2 and 3 vs. 4 we test whether the means are different. We use a two-sample t-test with the p-value in parenthesis. In column 5, RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.

Table A5: RD Balance Tests for Results in Tables 2, 3, and A1

Party	DPP	UDF/DPP	MCP	MCP
	2014	1994-2009	2014	1994-2009
Average household acres	-0.13	0.19	0.53	-0.13
	(0.58)	(0.16)	(0.52)	(0.49)
Average schooling years	0.66	-0.07	-3.1	0.37
	(0.45)	(0.84)	(0.01)	(0.47)
Percent food secure	-0.67	0.05	0.21	-0.02
	(0.52)	(0.14)	(0.04)	(0.66)
Party $t-1$	-0.25	-0.19	0.18	-0.09
	(0.41)	(0.15)	(0.52)	(0.65)
Southern Malawi	0.08	- 0.03	-	-0.09
	(0.68)	(0.83)	-	(0.38)

Note RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.

Table A6: RD Balance Tests for Results in Table 2, 3 and A4

	2014	2009	2004	1999	1994
Incumbent in $t-1$	0.12	-0.20	-0.38	0.02	-
	(0.33)	(0.19)	(0.02)	(0.96)	-
DPP	0.17	-0.10	-	-	-
	(0.25)	(0.63)	-	-	-
UDF	-0.09	-0.03	-0.23	0.18	-0.24
	(0.38)	(0.77)	(0.16)	(0.35)	(0.32)
MCP	-0.03	0.06	0.01	0.27	-0.20
	(0.83)	(0.73)	(0.85)	(0.40)	(0.47)

Note RD estimates use local linear methods and bandwidth tests as suggested in Calonico et al. (2014); CER optimal bias corrected inference with the p-value in parenthesis.