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GOVT-496-005, Intro to Programming for Applied Political Data Science

Professor Moore

Ethnicity and Party Fragmentation in Zambia

Introduction:

Party Fragmentation, what determines the number of political parties in an electoral system, has been the subject of significant scholarly work. This is for good reason as knowing what determines party fragmentation gives insights into electoral system and institutional design for states as well as providing a better understanding of how electoral systems function and change. The idea of measuring effective number of parties (ENoP) was to determine the number of competitive hypothetical parties an electoral system could have. Finding ENoP is much more effective than setting subjective thresholds, for example, when a party receives > 5% of national votes, to determine the parties that actually play a role in electoral politics. Laakso, M., & Taagepera in "The "Effective" Number of Parties: "A Measure with Application to West Europe" laid out and popularized the statistical methods for solving for ENoP, and while there has been other methods (Golosov), Laakso and Taagepera's methodology is still used in similar cross-national analyses.

Ethnic diversity and its effect upon electoral systems and democracy in general is also a topic of scholarly interest. Political parties can mobilize effectively along ethnic lines, especially in inchoate democracies. So, analyzing the relationship between ethnic heterogeneity and ENoP is important for understanding party systems in ethnically heterogenous polities. In the context of Africa, ethnic heterogeneity and democratic instability are often brought up[1]. The impact of ethnic diversity or lack thereof on party fragmentation may add to this conversation. Using the case study of Zambia, a democratic, stabile, ethnically diverse, polity in Southern Africa I seek to determine if there is a relationship between ethnic heterogeneity and effective number of parties.

Background on Zambia:

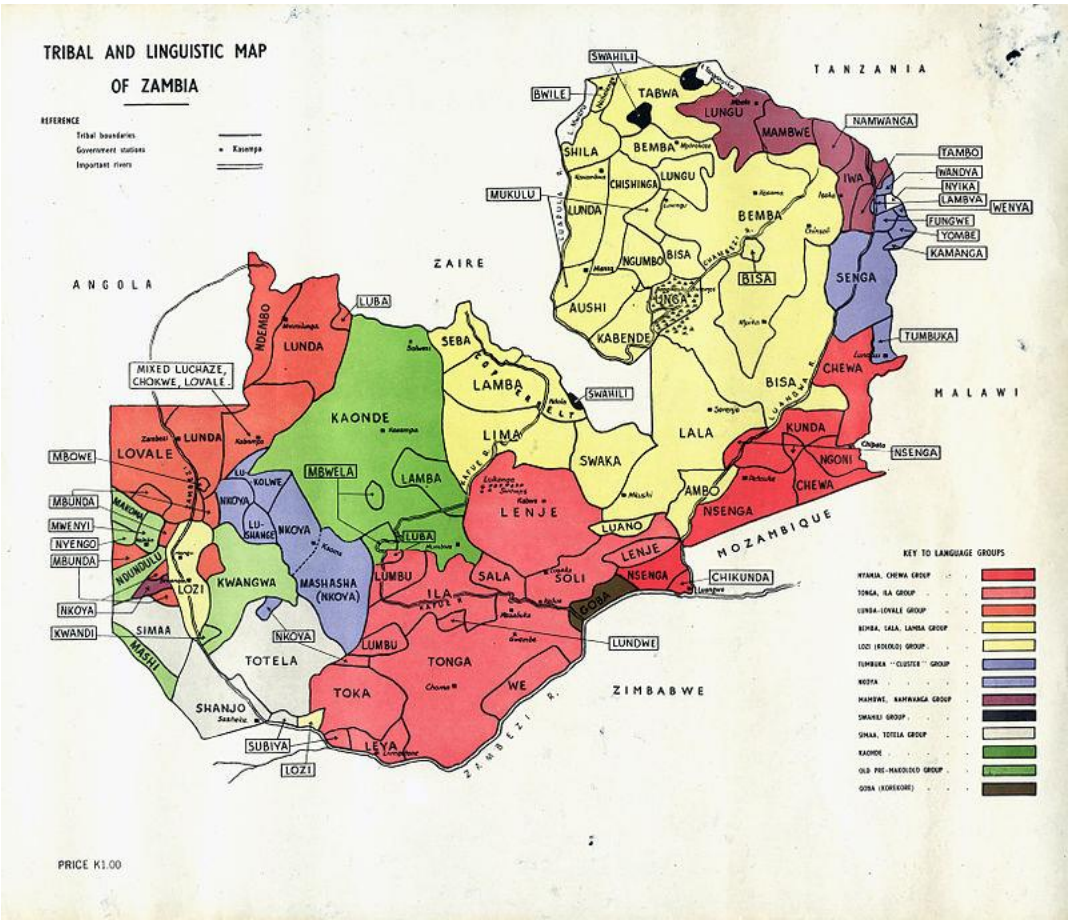
Zambia is a large, somewhat sparsely populated, ~12.7 million people, nation in Southern Africa. Zambia's economy is centered around mining, especially copper, which has, in turn, lead to historically volatile economic conditions. The country is very ethnically diverse with 73 recognized ethnic groups, none of which have a majority in the population overall. Zambia is divided up into ten provinces for administration. Provinces are ununiform in terms of constituencies, size, and population. The legislature is called the National Assembly, which has 164 seats, 156 are voted via single member constituency via first past the post voting. The extremely powerful office of president is the head of state and government and is elected simultaneously with the National Assembly every 5 years.

[1] Mozaffar, Shaheen, James R. Scarritt, and Glen Galaich. "Electoral Institutions, Ethnopolitical Cleavages, and Party Systems in Africa's Emerging Democracies." *The American Political Science Review* 97.

The region experienced colonial rule under the United Kingdom from the late 19th century until independence in 1964. Unlike neighboring Zimbabwe and Namibia, there was never a significant settler population established in Zambia during the colonial period. The United National Independence Party, UNIP, ruled the country following independence. The 1968 and 1972 elections of the First Republic were considered competitive and democratic[2] with the UNIP winning over the opposition headed by the African National Congress, ANC. However, in 1972 Kenneth Kaunda of the UNIP instituted a one-party state, the Second Republic, that halted democratization in Zambia until the pressures of the Third Wave of Democratization forced Kaunda to reinstitute multiparty democracy and usher in the Third Republic in 1990. The Movement for Multiparty Democracy, MMC, defeated Kaunda and the UNIP in the 1991 elections and proceeded to dominate electoral politics under President Frederick Chiluba until the 2011 elections. During this period, the MMC was criticized for slowing the democraticization process because of their use of state resources to outcompete and repress opposition parties. Burnell in "The Party System and Party Politics in Zambia: Continuities Past, Present and Future" argues this is an unfortunate reality of the Zambian electoral system that tends to produce a single very powerful dominant party because of a winner takes all mentality that dissuades fragmentation[3]. Despite this, in 2011 the Patriotic Front (PF), originally a split offparty from the MMC, won, becoming the first peaceful transition of power from elected party to elected party in Zambia: often considered a positive sign for democratization. The PF also won the 2016 election with 89 of 166 seats. Edgar Lungu of the PF is the current president.

Zambia is ethnically diverse and has a somewhat established and stabile democratic tradition with little to no instances of ethnicity-based conflict. This makes the case of Zambia particularly interesting as it goes against the conception that ethnic heterogeneity has a negative relationship with democracy. Additionally, there is a small amount of large, nationally-competitive parties competing to dominate political systems as opposed to coalitions of small, provincial parties that one might expect in this case.

[2] Burnell, Peter. "The Party System and Party Politics in Zambia: Continuities Past, Present and Future", *African Affairs*, Volume 100, Issue 399, 1 April 2001
[3] Ibid.



Literature Review:

Geys in "District Magnitude, Social Heterogeneity and Local Party System Fragmentation." as well as Grofman and Selb in "Turnout and the (Effective) Number of Parties at the National and District Levels: A Puzzle-Solving Approach." recognize the increase in accuracy and meaningfulness when calculating number of effective parties at the subnational level. And while both noticed interesting trends with district magnitude and party fragmentation, that is because their countries of analysis have multimember districts: Belgium (Geys) and Spain and Switzerland (Grofman and Selb). This can potentially lead to higher party fragmentation as parties that could not win a single member district or do not represent a majority of the constituency can still compete for seats. Despite single member districts in the case of Zambia, the increased meaningfulness of taking a constituency-based approach to calculating effective number of parties is clear. Ultimately, this is where my research is unique, as there has been no effort to calculate ENoP for Zambia at the constituency level to my knowledge.

Potter in "Demographic Diversity and District-Level Party Systems." also advocates for a constituency level approach but is concerned with the limitations of viewing constituencies as completely independent from one another. Potter argues cross-district diversity should be considered because party platforms are often little, if at all, modified for individual constituencies. Instead we see party platforms seeking support for demographic

groups across constituencies. For example, there might be a constituency that is very ethnically diverse relative to the rest of the country, but because across constituencies only a few ethnic groups are significantly large enough to support a party, we may see parties only pandering to those few groups and, therefore, party fragmentation would be low. In a way, I might be showing this in my results because I use ethnic data on the provincial level, but I would need to obtain constituency level ethnic data to attempt something similar to Potter.

Lubin in "Electoral Systems, Ethnic Heterogeneity and Party System Fragmentation" looks at the effect of ethnic diversity on ENoP at the national level. Lublin uses the same inverse Sampson Index that is used to calculate ENoP to calculate effective number of ethnic groups, ENEG. I will use this same approach to calculate ethnic heterogeneity. Lublin considered distance between legislative and presidential as a control. In the case of Zambia this will not be an issue because presidential elections happen at same date as the National Assembly elections. Lublin also considers electoral permissiveness in determining ENoP, but ultimately doesn't find a strong relationship. Most importantly, Lublin's analysis finds a relationship between ethnicity diversity and party proliferation. Mozzafar et al. in "Electoral Institutions, Ethnopolitical Cleavages, and Party Systems in Africa's Emerging Democracies" uses a different methodology from Lublin but observes a significant correlation between ethnic heterogeneity and ENoP for a selection of African states as well. Mozzafar et al. also challenge the notion that heterogeneity negatively effects democratization, observing the opposite in many cases. Both these analyses influenced my hypothesis as I feel Zambia will not be an outlier in the relationship observed between ENoP and ethnic heterogeneity.

When we consider the high ethnic diversity of Zambia, the initial impression would be that there is a high level of party fragmentation. This theory is further supported by there not being a single majority ethnic group. While one sees many ethnic groups likely too small to play a role in the political landscape, groups like the Bemba, Tonga, Chewa, Lozi, and Nsenga all have large enough populations to be influential on the national level. And that is not to say that some of the smaller ethnic groups could not contest specific or multiple seats. This is because geographic distribution plays a huge role in ethnically-based, political mobilization, for example the Ushi make up over 17% of the Launda district, while being less than 2% of the national population. When one considers how that could be magnified on the constituency level, especially in rural, ethnically homogenous regions, it is clear how even very small ethnic groups can play a role in electoral politics and, therefore, party fragmentation. However, as mentioned before, due to Zambia's single member district system which does not use a proportional representation system, small local parties will have trouble seriously contesting seats in the National Assembly. Lublin also points out that single member districts tend to lead to two party systems. Aspects of Zambia's democracy such as first past the polls voting, a powerful presidency, needing to recontest one's seat if they change parties (discourages conglomeration and defection[4]) should be considered and controlled for when possible. These factors might prove ultimately more influential on ENoP than ethnic heterogeneity.

[4] Burnell, Peter. "The Party System and Party Politics in Zambia: Continuities Past, Present and Future", *African Affairs*, Volume 100, Issue 399, 1 April 2001

Hypotheses:

H_1 There is a relationship between ethnicity and effective number of parties at the district level in Zambia

H_2 Despite a very ethnically diverse population, I expect ENoP to be relatively low, generally between 2 – 3 parties, due to institutional aspects of Zambian electoral systems.

Data:

The data used for calculating effective number of parties came from Constituency Level Electoral Archive (CLEA), the data set being the Lower Chamber Election Archive which has constituency level electoral data for 163 countries. CLEA obtained the data specifically for Zambia from the Electoral Commission of Zambia. I initially used the following elections: 1991, 1996, 2001, 2006, 2011, 2016. However, constituency level vote counts were only available for 2006 and 20011. There are 150 seats that are up for election in 2011, this was expanded to 156 in 2016. The president nominates the remaining eight seats. While there are 44 parties listed in the CLEA codebook, generally five or less parties per election that have legitimately competed for seats in the National Assembly since 1991.

Zambian census data is available through 1980 from the National Statistic Office: However, ethnicity by province was not tallied until the 2010 census. I will discuss how this impacted my results later on. The 2010 census lists the proportion of certain ethnic identities to the total population of the province for all ten provinces. The 2010 census measured 26 specific ethnic identities with categories for "Other" and "Major Racial Groups" which constitutes mainly the small European and Asian population in the country. I choose to not include those two categories, because "Other" and "Major Racial Group" are not specific. Both groups are very small parts of the general population, especially "Major Racial Groups "(>2%). Of the 26 ethnic groups the Lunda are divided into Luapula and Northwestern. From my understanding these two regions that the groups are categorized by are geographically separated by a large salient that belongs to the DRC, in which there are many Lunda, but likely due to geographical separation the National Statistic Office felt they warranted separate categories.

Model:

$$\boldsymbol{ENoP} = \frac{\mathbf{1}}{\sum \mathbf{pi}^2}$$

$$\boldsymbol{ENEG} = \frac{\mathbf{1}}{\sum \mathbf{pi}^2}$$

I used Laakso and Taagepera's model for effective number of parties, in which pi is the proportion of total votes a party that won the seat, received in a constituency. There are alternaitves to this, but I believe Laakso and Taagepera's model is appropriate for constituency level analysis. Lublin applied this to calculate effective number of ethnic groups. In the case of EREG, pi is proportion of ethnic identity to province population. I will then run a linear regression to determine if there is a statistically significant relationship between ethnic heterogeneity and effective number of parties at the constituency level.

One of the main flaws with my using of constituency data is the generalization that the ethnic diversity of a constituency will match that of the province it is in. While this is somewhat better than matching constituencies to national ethnic diversity, it is still a significant generalization. Many constituencies could be easily 90% or more of a specific ethnic group, whereas that would never be the case for an entire province. And I think in the electoral data that may explain the success of independent candidates. While impossible to measure in this case, I predict that independents mobilize political support along ethnic lines more than established parties. Additionally, I could only use the 2010 census of population and housing because it is the only census to date that collected ethnic identity by province. This becomes very problematic when we apply this data to elections in 1991, 1996, and to an extent 2001. However, that is not a problem in this case as only the 2006 and 2011 elections have constituency level vote count data, which is also problematic. Having only two elections with 150, and 156 observations respectively is a very small number of observations. The limited amount of observations in my ENoP data makes my regression analysis somewhat flawed.

Lublin in his national level analysis found certain cases were outliers because of socio-political developments. South Africa and Namibia significant skewed his measurement of number of parties because of the high amounts of legitimacy the ANC and SWAPO received by overthrowing Apartheid. As a result, there were less parties observed than one would expect. While Zambia does not have such a politically impactful decolonization struggle, the first multiparty elections since 1968 in 1991 were, as explained before, much different than later elections due to the consolidation of opposition parties in the MMC. We later see the fragmentation of the PF out the MMC as support for my argument that the 1991 election was rather unique in comparison to later elections. Therefore I would not include the 1991 and the First Republic elections included if there was constituency-level data collect for them.

Results:

EREG:

EREG	**Region**
12.101556	Zambia
9.087026	Central
6.570561	Copperbelt
4.031608	Eastern

4.216456	Luapula
11.258726	Lusaka
5.998476	Muchinga
3.102642	North
4.510722	Northwestern
1.786196	Southern
3.555151	Western

Zambia EREG(Lublin): 3.46

Constituency Average of Effective Number of Parties:

2011: 3.71

2016: 2.85

Over both elections: 3.28

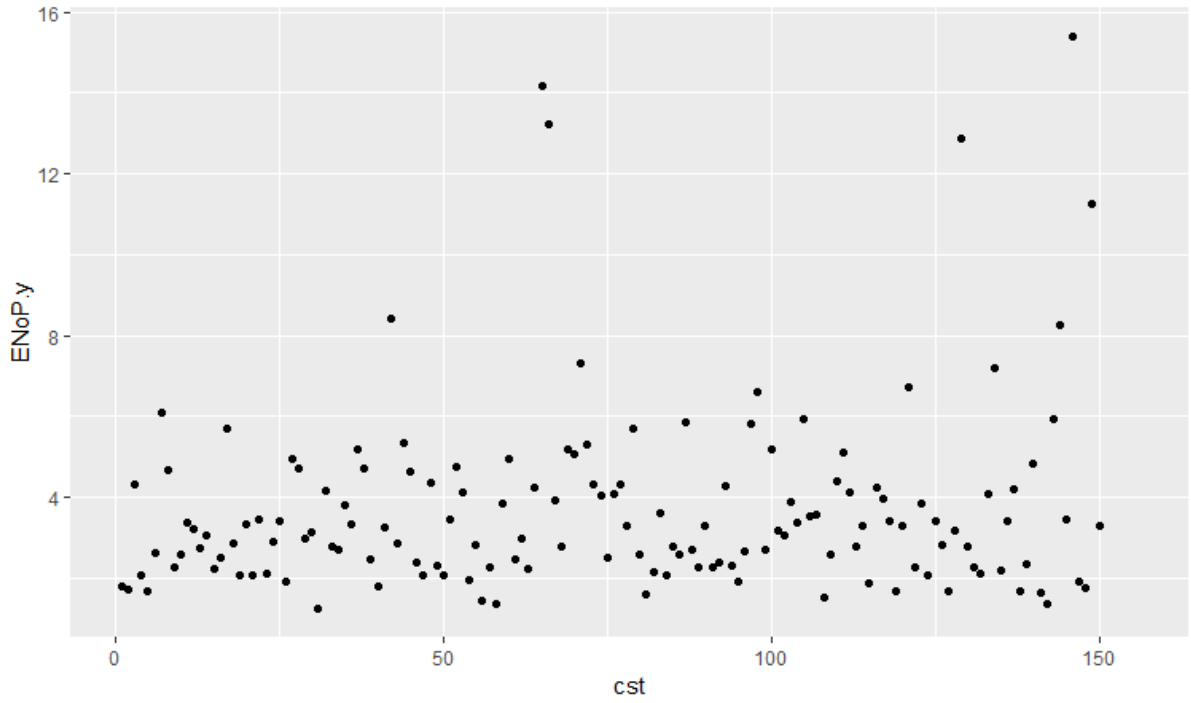
Standard Deviation:

2011: 2.31

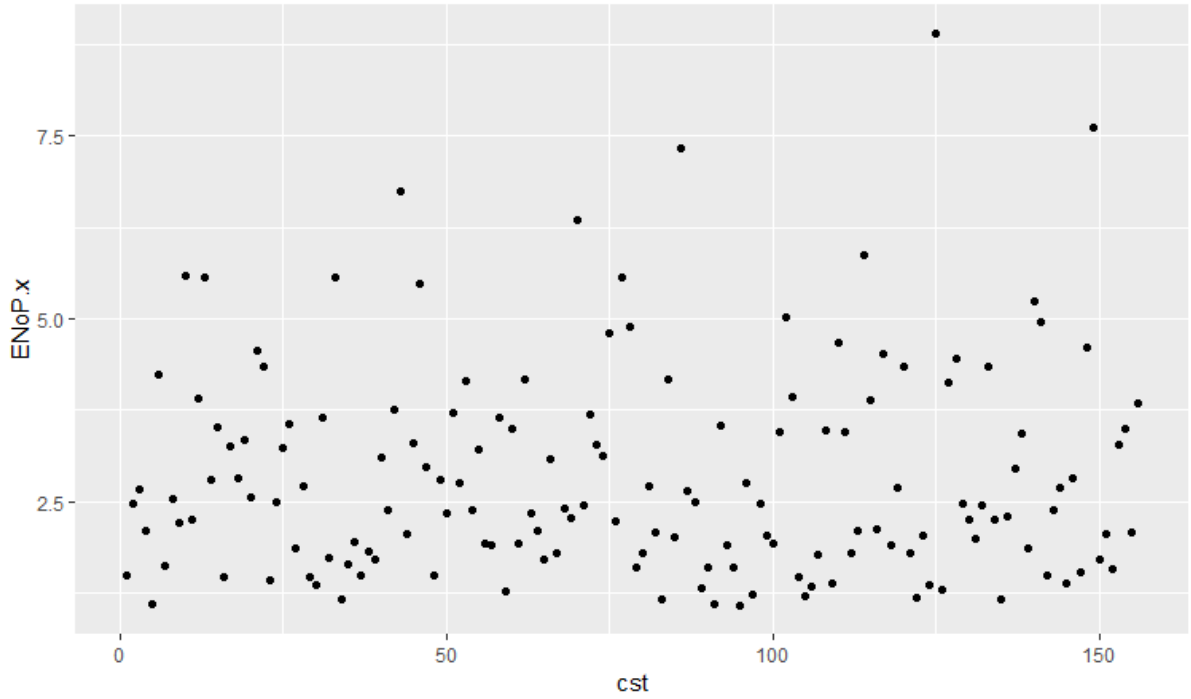
2016: 1.41

The effective number of parties is between 2-4 parties, which is slightly higher than my hypothesis.

2011:



2016:



*cst is constituency number

Results by Constituency:

sub	cst_n	cst	ENoP.x	ENoP.y
LUAPULA	BAHATI	1	1.496400	1.793549
LUAPULA	BANGWEULU	2	2.469315	1.709221
CENTRAL	BWACHA	3	2.668083	4.323011
COPPERBELT	BWANA MKUBWA	4	2.102485	2.081707
SOUTHERN	BWEENGWA	5	1.090534	1.685772
EASTERN	CHADIZA	6	4.237034	2.631081
MUCHINGA	CHAMA NORTH	7	1.612706	6.087607
MUCHINGA	CHAMA SOUTH	8	2.539077	4.657570
EASTERN	CHASEFU	9	2.211553	2.278042
NORTH-WESTERN	CHAVUMA	10	5.583106	2.592592
LUSAKA	CHAWAMA	11	2.256476	3.385331
LUAPULA	CHEMBE	12	3.905685	3.207972
LUAPULA	CHIENGE	13	5.560049	2.719931
COPPERBELT	CHIFUBU	14	2.800282	3.041860
LUAPULA	CHIFUNABULI	15	3.525744	2.218198
SOUTHERN	CHIKANKATA	16	1.471642	2.508182
LUSAKA	CHILANGA	17	3.249199	5.678862
COPPERBELT	CHILILABOMBWE	18	2.822647	2.859804
NORTHERN	CHILUBI	19	3.345364	2.081408
NORTHERN	CHIMBAMILONGA	20	2.556110	3.310563
COPPERBELT	CHIMWEMWE	21	4.571652	2.059011
COPPERBELT	CHINGOLA	22	4.345532	3.452961
MUCHINGA	CHINSALI	23	1.434694	2.099967
EASTERN	CHIPANGALI	24	2.484415	2.883625
EASTERN	CHIPATA CENTRAL	25	3.242449	3.418052
LUAPULA	CHIPILI	26	3.563129	1.924565
LUSAKA	CHIRUNDU	27	1.873047	4.926746
CENTRAL	CHISAMBA	28	2.715011	4.712154

CENTRAL	CHITAMBO	29	1.462173	2.988759
SOUTHERN	CHOMA CENTRAL	30	1.356674	3.112830
LUSAKA	CHONGWE	31	3.641545	1.236913
SOUTHERN	DUNDUMWEZI	32	1.739458	4.160899
LUSAKA	FEIRA	33	5.561815	2.790969
SOUTHERN	GWEMBE	34	1.171314	2.684110
NORTH-WESTERN	IKELENG'I	35	1.635791	3.812233
MUCHINGA	ISOKA	36	1.954344	3.307869
CENTRAL	ITEZHITEZHI	37	1.492936	5.193804
NORTH-WESTERN	KABOMPO	38	1.812807	4.715808
COPPERBELT	KABUSHI	39	1.711162	2.461847
LUSAKA	KABWATA	40	3.102256	1.798804
CENTRAL	KABWE CENTRAL	41	2.393742	3.267340
LUSAKA	KAFUE	42	3.767895	8.433739
COPPERBELT	KAFULAFUTA	43	6.732610	2.866780
WESTERN	KALABO CENTRAL	44	2.052700	5.319844
SOUTHERN	KALOMO CENTRAL	45	3.299574	4.625334
COPPERBELT	KALULUSHI	46	5.485293	2.388035
COPPERBELT	KAMFINSA	47	2.981667	2.076143
MUCHINGA	KANCHIBIYA	48	1.492351	4.334325
COPPERBELT	KANKOYO	49	2.800095	2.297428
COPPERBELT	KANTANSHI	50	2.349287	2.052484
LUSAKA	KANYAMA	51	3.704843	3.433370
WESTERN	KAOMA CENTRAL	52	2.746588	4.742910
CENTRAL	KAPIRI MPOSHI	53	4.145484	4.117165
EASTERN	KAPOCHE	54	2.383892	1.964880
NORTHERN	KAPUTA	55	3.215442	2.808638
NORTHERN	KASAMA CENTRAL	56	1.932370	1.436670
NORTH-WESTERN	KASEMPA	57	1.909271	2.266564
EASTERN	KASENENGWA	58	3.644573	1.352575
SOUTHERN	KATOMBOLA	59	1.273880	3.851544
CENTRAL	KATUBA	60	3.490576	4.928692
EASTERN	KAUMBWE	61	1.921554	2.473946
LUAPULA	KAWAMBWA	62	4.160679	2.971185
CENTRAL	KEEMBE	63	2.350377	2.221313
COPPERBELT	KWACHA	64	2.112241	4.251415
WESTERN	LIUWA	65	1.700482	14.170892
SOUTHERN	LIVINGSTONE	66	3.079843	13.236408
WESTERN	LUAMPA	67	1.797807	3.933911
EASTERN	LUANGENI	68	2.398736	2.776962
COPPERBELT	LUANSHYA	69	2.280214	5.170248
LUAPULA	LUAPULA	70	6.358492	5.068459
NORTHERN	LUBANSENSHI	71	2.455133	7.306121
WESTERN	LUENA	72	3.682434	5.294991
CENTRAL	LUFUBU	73	3.286059	4.326230
COPPERBELT	LUFWANYAMA	74	3.123972	4.035459
NORTHERN	LUKASHYA	75	4.798573	2.483430
WESTERN	LUKULU EAST	76	2.235284	4.083052
EASTERN	LUMEZI	77	5.568784	4.320632
EASTERN	LUNDAZI	78	4.898575	3.280076
NORTHERN	LUNTE	79	1.607420	5.711315
NORTHERN	LUPOSOSHI	80	1.793992	2.571323
LUSAKA	LUSAKA CENTRAL	81	2.703133	1.605479
MUCHINGA	MAFINGA	82	2.089893	2.152243
SOUTHERN	MAGOYE	83	1.166943	3.597391
EASTERN	MALAMBO	84	4.173985	2.060402
NORTHERN	MALOLE	85	2.011246	2.765194
LUAPULA	MAMBILIMA	86	7.323701	2.560204
LUSAKA	MANDEVU	87	2.651101	5.848501
WESTERN	MANGANGO	88	2.490914	2.696767
LUAPULA	MANSA CENTRAL	89	1.324238	2.247863
NORTH-WESTERN	MANYINGA	90	1.593617	3.291590
SOUTHERN	MAPATIZYA	91	1.091702	2.256907
COPPERBELT	MASAITI	92	3.529243	2.381822
LUSAKA	MATERO	93	1.912239	4.261280
SOUTHERN	MAZABUKA CENTRAL	94	1.608061	2.301793
SOUTHERN	MBABALA	95	1.078498	1.896233
NORTHERN	MBALA	96	2.749929	2.658054
MUCHINGA	MFUWE	97	1.230916	5.814235

EASTERN	MILANZI	98	2.461904	6.588235
LUAPULA	MILENGE	99	2.045212	2.715805
WESTERN	MITETE	100	1.925444	5.172459
EASTERN	MKAIKA	101	3.461606	3.152045
CENTRAL	MKUSHI NORTH	102	5.020697	3.040623
CENTRAL	MKUSHI SOUTH	103	3.932255	3.860568
WESTERN	MONGU CENTRAL	104	1.467283	3.366801
SOUTHERN	MONZE CENTRAL	105	1.208767	5.942425
SOUTHERN	MOOMBA	106	1.343916	3.520791
MUCHINGA	MPIKA	107	1.766259	3.581564
COPPERBELT	MPONGWE	108	3.465963	1.496850
NORTHERN	MPOROKOSO	109	1.389218	2.580565
NORTHERN	MPULUNGU	110	4.677085	4.393285
EASTERN	MSANZALA	111	3.462798	5.098468
CENTRAL	MUCHINGA	112	1.796723	4.134591
COPPERBELT	MUFULIRA	113	2.113090	2.773189
NORTH-WESTERN	MUFUMBWE	114	5.873303	3.289403
WESTERN	MULOBEZI	115	3.879060	1.859535
CENTRAL	MUMBWA	116	2.114000	4.236594
LUSAKA	MUNALI	117	4.528532	3.947489
WESTERN	MWANDI	118	1.897229	3.400333
LUAPULA	MWANSABOMBWE	119	2.683581	1.669974
LUSAKA	MWEMBEZHI	120	4.356047	3.285627
LUAPULA	MWENSE	121	1.805535	6.731744
NORTH-WESTERN	MWINILUNGA	122	1.185560	2.273940
MUCHINGA	NAKONDE	123	2.040408	3.834376
WESTERN	NALIKWANDA	124	1.357626	2.072831
WESTERN	NALOLO	125	8.903029	3.389892
SOUTHERN	NAMWALA	126	1.292709	2.811209
CENTRAL	NANGOMA	127	4.121217	1.678325
COPPERBELT	NCHANGA	128	4.446733	3.168057
LUAPULA	NCHELENGE	129	2.475725	12.888655
COPPERBELT	NDOLA CENTRAL	130	2.255351	2.783589
COPPERBELT	NKANA	131	1.983926	2.245573
WESTERN	NKEYEMA	132	2.459704	2.107930
EASTERN	NYIMBA	133	4.341069	4.093089
LUAPULA	PAMBASHE	134	2.247595	7.176766
SOUTHERN	PEMBA	135	1.171444	2.199074
EASTERN	PETAUKE	136	2.297454	3.416522
COPPERBELT	ROAN	137	2.959656	4.209378
LUSAKA	RUFUNSA	138	3.423375	1.663146
WESTERN	SENANGA	139	1.870689	2.331361
NORTHERN	SENGA HILL	140	5.232474	4.836638
CENTRAL	SERENJE	141	4.948104	1.631383
WESTERN	SESHEKE	142	1.500527	1.363137
WESTERN	SHANGOMBO	143	2.385268	5.913359
MUCHINGA	SHIWAN'GANDU	144	2.700561	8.250784
SOUTHERN	SIAVONGA	145	1.377612	3.430297
WESTERN	SIKONGO	146	2.820143	15.404865
SOUTHERN	SINAZONGWE	147	1.532897	1.900286
EASTERN	SINDA	148	4.610582	1.732987
WESTERN	SIOMA	149	7.622905	11.240870
NORTH-WESTERN	SOLWEZI CENTRAL	150	1.718590	3.296770
NORTH-WESTERN	SOLWEZI EAST	151	2.069385	NA
NORTH-WESTERN	SOLWEZI WEST	152	1.570376	NA
EASTERN	VUBWI	153	3.267723	NA
COPPERBELT	WUSAKILE	154	3.505965	NA
NORTH-WESTERN	ZAMBEZI EAST	155	2.070803	NA
NORTH-WESTERN	ZAMBEZI WEST	156	3.850574	NA

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>
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Regression:

P-value = .03788

Because the p-value is less than .05, there may be a statistical relationship between ethnic heterogeneity and effective number of parties. Therefore, we can say that there are statistical grounds which support H_1.

```
> summary(reg)

Call:
lm(formula = sum ~ ENoP.y + ENoP.x, data = regression)

Residuals:
    Min      1Q  Median      3Q     Max
-4.4403 -1.9470 -0.7816  1.2537  6.1930

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  4.66590    0.63103   7.394 1.39e-11 ***
ENoP.y      -0.07136    0.10013  -0.713   0.4772
ENoP.x       0.40116    0.16029   2.503   0.0135 *
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 2.761 on 134 degrees of freedom
  (21 observations deleted due to missingness)
Multiple R-squared:  0.04768,  Adjusted R-squared:  0.03347
F-statistic: 3.355 on 2 and 134 DF,  p-value: 0.03788
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Interpretation:

The effective number of parties was slightly higher than I predicted, but essentially in line with my hypothesis. It is interesting that 2011 had a significantly higher ENoP. Potentially due to a weak showing by the MMC, more parties thought they could contest the election (PF victory), but it is difficult to say what ultimately caused this, and I think the limited number of elections may play a role here as mentioned before. There were some constituencies with very high ENoP and a significant variation between elections, which is somewhat concerning. And while some constituencies' ENoP changes dramatically between election years the mean overall shows a relatively small decrease in ENoP overall. Here are some outstanding outliers, with very high ENoP values and differences between elections:

Province	District	Number	2011	2016	Difference
Luapala	Nchelenge	129	12.9	2.48	10.42
Lusaka	Kafue	42	8.43	3.77	3.76
Western	Liuwa	65	14.2	1.7	12.5
Western	Nalolo	125	3.39	8.9	5.51

The two outliers Liuwa and Nalolo are somewhat bizarre as the Western state has one of the lowest levels of ethnic diversity with ENEG = 3.555151. Kafue is potentially understandable due to very diverse population of Lusaka overall and the relatively lower difference between elections. I would consider throwing out some constituencies like Kafue because of the huge difference between elections and high ENoP in 2011; however, I believe some redistricting occurred between the two elections to account for 6 new constituencies. Consequently, I am

not too concerned about the difference between election years for individual constituencies, especially when one sees that the difference between the average of all constituencies was relatively small between elections. More parties could contest the 2011 election, which means we may be seeing a consolidation to a two-party system as literature suggests for single member district systems or we might see a continuity of around three viable large parties competing for control of the legislature and presidency. The average of 3.28 supports why parliamentary coalitions have not traditionally played a major role in Zambian politics. It seems many small parties do not play a meaningful role in the political process in Zambia.

In regard to ethnic diversity, it not surprising that a high level of EREG was observed. From the data it was clear Zambia had a variety and plurality of ethnic groups. The values were much larger than Lublin's EREG measurement for Zambia. Lublin's ethnic demographic data came from a variety of sources, some gathered specifically for the study. I view the difference as likely due to different data collection methods and my focus on the provincial level. From a provincial approach, we can see that ethnic heterogeneity is much higher than previously believed for Zambia. I would somewhat discount the national statistic for the same reason I feel a constituency-based approach is more effective, geographic concentration of ethnic groups is unmeasured and so EREG at the national level isn't a very accurate measurement in very ethnically heterogonous states. While the values for EREG were much higher than I predicted, they are not that surprising. Lusaka is the capitol territory and, the city itself is the largest urban center in Zambia. One would expect to find a very diverse population not particularly weighted towards a single ethnic identity, and, therefore, EREG would be much higher. The Copperbelt and Central provinces are where much of the mining industry takes place; therefore, one might expect a more diverse ethnic distribution due to labor migrations. Southern Provence is relatively homogenous, 74.4% Tonga, which explains its very low EREG.

While I did find a potential relationship between ethnic diversity and party fragmentation in Zambia, as stated before, one might expect significantly more parties to play role in electoral politics because of Zambia's high ethnic diversity. Almost all literature supported my hypothesis, and there is nothing odd about Zambia that would make it an exception. I think the institutional and electoral design of the third Republic may play a greater role than ethnicity in determining number of parties in the case of Zambia. Additionally, one has to consider the differences between Western and African democracy. For many, politics in Africa is a way to obtain resources from the state for one's self and support group. Consequently, being in a party with no chance to contest the presidency and the National Assembly is contrary to one's interest. And while this is a whole other issue of how patronage and clientelism effects electoral systems, I think the winner takes all mentality plays a role in party fragmentation in Zambia, as Burnell suggested. In a strange way, this low level of effective parties may be beneficial because it is much more difficult to parties to pander to one or a few specific demographic/ethnic cleavages. That is, parties in Zambia, in order to be competitive, must have national platforms that entice a wide and diverse support group. I believe this plays a factor in why Zambia has experienced a very low level of ethnic conflict and political instability. Naturally, there are issues with this system. Many of the smaller ethnic and demographic groups may feel politically marginalized or even exluded. But one can't help and look at the bigger picture, where Zambia is one of the exceptions in terms of democratization and political stability in Africa.

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