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Ethnicity and Party Fragmentation in Zambia

Introduction:

Party Fragmentation, that is what determines the number of political parties in an electoral system, has been a very popular topic in political science. This is for good reason as knowing what determines party fragmentation gives insights into electoral system and institutional design for states as well as simply 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 as well as democracy in general has been a very popular topic in political science. The belief that ethnic identity is primordial and fixed, and, from that, ethnic conflict is rooted in centuries of animosity has largely become antiquated in academia[1]. A constructivist approach to ethnicity and politics has become more popular[2] of late. The now more widely held belief is that political, social and economic factors influence ethnic identity as opposed to a relatively fixed primordial ethnic identity. However, I believe in a lot of ways, especially outside of certain parts of academia, the primordial belief regarding ethnicity is applied to Africa. This is due to the rather tumultuous history of democracy in Africa and the highly, ethnically diverse states that make it up. The belief that colonial borders and historically antagonistic ethnic groups are the cause of political conflict and failed democratization efforts is quite commonplace. While this is somewhat beyond the scope of my paper, I do think it is important to mention how colonial rule fabricated many of the ethnic identities in Africa today and politicized ethnicity, paving the way for the ethnic chauvinism, patronage democracy, and ethnic marginalization that plague many African states. However, from the constructivist viewpoint it is clear that these politized identities are not fixed. I believe democracy is not fundamentally contrary to African states, as some primordialist or colonial period centric perspectives would suggest. And that is why I think Zambia Is a good case to analysis as it is an ethically heterogenous, stabile, firmly, albeit not perfectly, democratic African state. While it would again be beyond my investigation to give a full answer to why Zambia is relatively successful democratically, finding the relationship of ethnic heterogeneity and effective number of parties certainly adds to this.

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[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

[2] Ibid.

Background on Zambia:

Zambia is a large, somewhat sparsely populated, ~12.7 million people, nation in southern central 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.

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[3] 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[4]. 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.

What I want the reader to take from this background is that 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, we see a small amount of large, nationally competitive parties competing to dominate political systems as opposed to coalitions of small, provincial parties that would might expect in this case.

[3] Burnell, Peter. "The Party System and Party Politics in Zambia: Continuities Past, Present and Future", *African Affairs*, Volume 100, Issue 399, 1 April 2001
[4] 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 could still compete for seats. Despite district magnitude always equaling one in the case of Zambia, we can consider the increased meaningfulness om taking a constituency-based approach to calculating effective number of parties. 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 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. I think if we consider 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[5]), these factors might prove ultimately more influential on ENoP than ethnic heterogeneity.

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.

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

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:

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

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

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

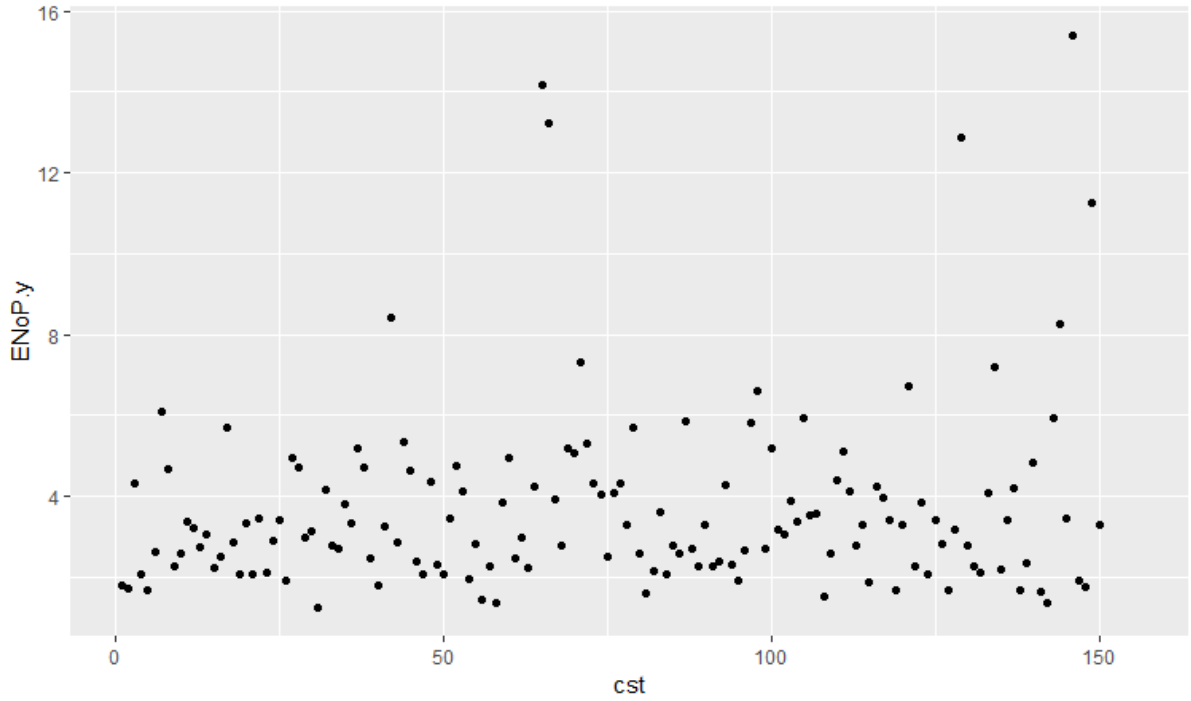
Standard Deviation:

2011: 2.31

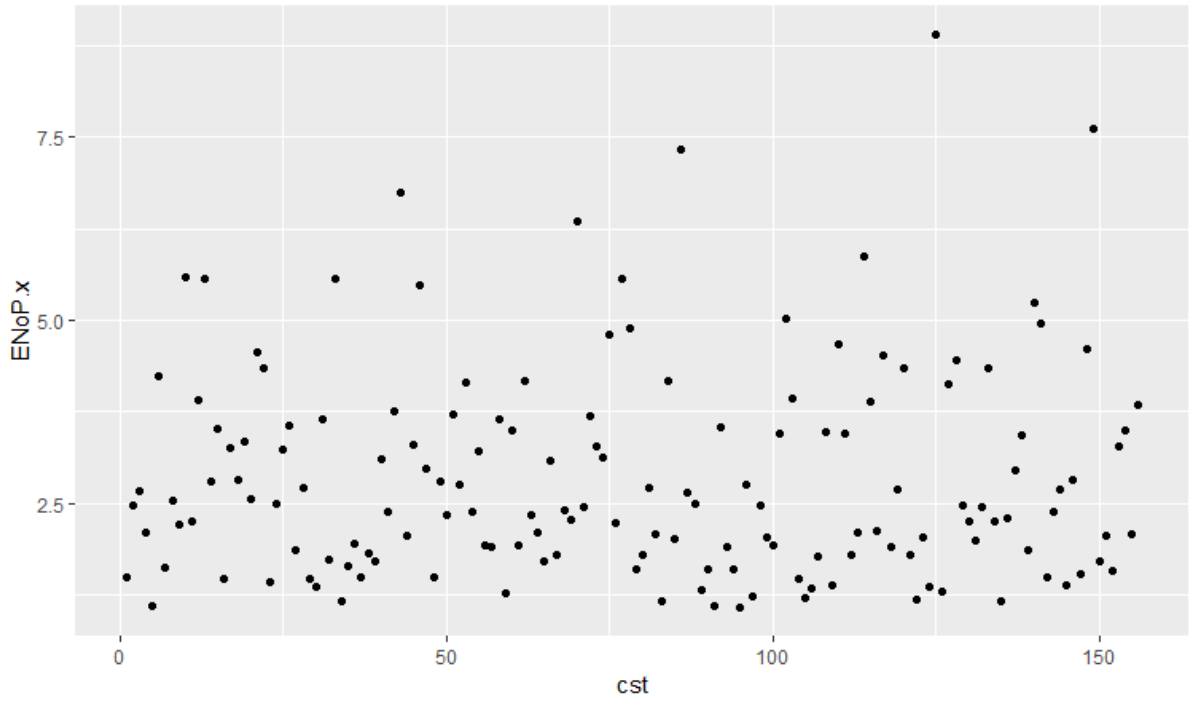
2016: 1.41

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:

```
# A tibble: 156 x 5
    sub            cst_n              cst ENoP.2016 ENoP.2011
    <chr>          <chr>            <dbl>   <dbl>   <dbl>
  1 LUAPULA        BAHATI               1    1.50    1.79
  2 LUAPULA        BANGWEULU            2    2.47    1.71
  3 CENTRAL        BWACHA               3    2.67    4.32
  4 COPPERBELT     BWANA MKUBWA         4    2.10    2.08
  5 SOUTHERN       BWEENGWA             5    1.09    1.69
  6 EASTERN        CHADIZA              6    4.24    2.63
  7 MUCHINGA       CHAMA NORTH          7    1.61    6.09
  8 MUCHINGA       CHAMA SOUTH          8    2.54    4.66
  9 EASTERN        CHASEFU              9    2.21    2.28
 10 NORTH-WESTERN  CHAVUMA              10    5.58    2.59
 11 LUSAKA         CHAWAMA              11    2.26    3.39
 12 LUAPULA        CHEMBE               12    3.91    3.21
 13 LUAPULA        CHIENGE              13    5.56    2.72
 14 COPPERBELT     CHIFUBU              14    2.80    3.04
 15 LUAPULA        CHIFUNABULI          15    3.53    2.22
 16 SOUTHERN       CHIKANKATA           16    1.47    2.51
 17 LUSAKA         CHILANGA             17    3.25    5.68
 18 COPPERBELT     CHILILABOMBWE        18    2.82    2.86
 19 NORTHERN       CHILUBI              19    3.35    2.08
 20 NORTHERN       CHIMBAMILONGA        20    2.56    3.31
 21 COPPERBELT     CHIMWEMWE            21    4.57    2.06
 22 COPPERBELT     CHINGOLA             22    4.35    3.45
 23 MUCHINGA       CHINSALI             23    1.43    2.10
 24 EASTERN        CHIPANGALI           24    2.48    2.88
 25 EASTERN        CHIPATA CENTRAL      25    3.24    3.42
 26 LUAPULA        CHIPILI              26    3.56    1.92
 27 LUSAKA         CHIRUNDU             27    1.87    4.93
 28 CENTRAL        CHISAMBA             28    2.72    4.71
 29 CENTRAL        CHITAMBO             29    1.46    2.99
 30 SOUTHERN       CHOMA CENTRAL        30    1.36    3.11
 31 LUSAKA         CHONGWE              31    3.64    1.24
 32 SOUTHERN       DUNDUMWEZI           32    1.74    4.16
 33 LUSAKA         FEIRA                33    5.56    2.79
 34 SOUTHERN       GWEMBE               34    1.17    2.68
 35 NORTH-WESTERN  IKELENG'I            35    1.64    3.81
 36 MUCHINGA       ISOKA                36    1.95    3.31
 37 CENTRAL        ITEZHITEZHI          37    1.49    5.19
 38 NORTH-WESTERN  KABOMPO              38    1.81    4.72
 39 COPPERBELT     KABUSHI              39    1.71    2.46
 40 LUSAKA         KABWATA              40    3.10    1.80
 41 CENTRAL        KABWE CENTRAL        41    2.39    3.27
 42 LUSAKA         KAFUE                42    3.77    8.43
 43 COPPERBELT     KAFULAFUTA           43    6.73    2.87
 44 WESTERN        KALABO CENTRAL       44    2.05    5.32
 45 SOUTHERN       KALOMO CENTRAL       45    3.30    4.63
 46 COPPERBELT     KALULUSHI            46    5.49    2.39
 47 COPPERBELT     KAMFINSA             47    2.98    2.08
 48 MUCHINGA       KANCHIBIYA           48    1.49    4.33
 49 COPPERBELT     KANKOYO              49    2.80    2.30
 50 COPPERBELT     KANTANSHI            50    2.35    2.05
 51 LUSAKA         KANYAMA              51    3.70    3.43
 52 WESTERN        KAOMA CENTRAL        52    2.75    4.74
 53 CENTRAL        KAPIRI MPOSHI        53    4.15    4.12
 54 EASTERN        KAPOCHE              54    2.38    1.96
 55 NORTHERN       KAPUTA               55    3.22    2.81
 56 NORTHERN       KASAMA CENTRAL       56    1.93    1.44
 57 NORTH-WESTERN  KASEMPA              57    1.91    2.27
 58 EASTERN        KASENENGWA           58    3.64    1.35
 59 SOUTHERN       KATOMBOLA            59    1.27    3.85
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60	CENTRAL	KATUBA	60	3.49	4.93
61	EASTERN	KAUMBWE	61	1.92	2.47
62	LUAPULA	KAWAMBWA	62	4.16	2.97
63	CENTRAL	KEEMBE	63	2.35	2.22
64	COPPERBELT	KWACHA	64	2.11	4.25
65	WESTERN	LIUWA	65	1.70	14.2
66	SOUTHERN	LIVINGSTONE	66	3.08	13.2
67	WESTERN	LUAMPA	67	1.80	3.93
68	EASTERN	LUANGENI	68	2.40	2.78
69	COPPERBELT	LUANSHYA	69	2.28	5.17
70	LUAPULA	LUAPULA	70	6.36	5.07
71	NORTHERN	LUBANSENSHI	71	2.46	7.31
72	WESTERN	LUENA	72	3.68	5.29
73	CENTRAL	LUFUBU	73	3.29	4.33
74	COPPERBELT	LUFWANYAMA	74	3.12	4.04
75	NORTHERN	LUKASHYA	75	4.80	2.48
76	WESTERN	LUKULU EAST	76	2.24	4.08
77	EASTERN	LUMEZI	77	5.57	4.32
78	EASTERN	LUNDAZI	78	4.90	3.28
79	NORTHERN	LUNTE	79	1.61	5.71
80	NORTHERN	LUPOSOSHI	80	1.79	2.57
81	LUSAKA	LUSAKA CENTRAL	81	2.70	1.61
82	MUCHINGA	MAFINGA	82	2.09	2.15
83	SOUTHERN	MAGOYE	83	1.17	3.60
84	EASTERN	MALAMBO	84	4.17	2.06
85	NORTHERN	MALOLE	85	2.01	2.77
86	LUAPULA	MAMBILIMA	86	7.32	2.56
87	LUSAKA	MANDEVU	87	2.65	5.85
88	WESTERN	MANGANGO	88	2.49	2.70
89	LUAPULA	MANSA CENTRAL	89	1.32	2.25
90	NORTH-WESTERN	MANYINGA	90	1.59	3.29
91	SOUTHERN	MAPATIZYA	91	1.09	2.26
92	COPPERBELT	MASAITI	92	3.53	2.38
93	LUSAKA	MATERO	93	1.91	4.26
94	SOUTHERN	MAZABUKA CENTRAL	94	1.61	2.30
95	SOUTHERN	MBABALA	95	1.08	1.90
96	NORTHERN	MBALA	96	2.75	2.66
97	MUCHINGA	MFUWE	97	1.23	5.81
98	EASTERN	MILANZI	98	2.46	6.59
99	LUAPULA	MILENGE	99	2.05	2.72
100	WESTERN	MITETE	100	1.93	5.17
101	EASTERN	MKAIKA	101	3.46	3.15
102	CENTRAL	MKUSHI NORTH	102	5.02	3.04
103	CENTRAL	MKUSHI SOUTH	103	3.93	3.86
104	WESTERN	MONGU CENTRAL	104	1.47	3.37
105	SOUTHERN	MONZE CENTRAL	105	1.21	5.94
106	SOUTHERN	MOOMBA	106	1.34	3.52
107	MUCHINGA	MPIKA	107	1.77	3.58
108	COPPERBELT	MPONGWE	108	3.47	1.50
109	NORTHERN	MPOROKOSO	109	1.39	2.58
110	NORTHERN	MPULUNGU	110	4.68	4.39
111	EASTERN	MSANZALA	111	3.46	5.10
112	CENTRAL	MUCHINGA	112	1.80	4.13
113	COPPERBELT	MUFULIRA	113	2.11	2.77
114	NORTH-WESTERN	MUFUMBWE	114	5.87	3.29
115	WESTERN	MULOBEZI	115	3.88	1.86
116	CENTRAL	MUMBWA	116	2.11	4.24
117	LUSAKA	MUNALI	117	4.53	3.95
118	WESTERN	MWANDI	118	1.90	3.40
119	LUAPULA	MWANSABOMBWE	119	2.68	1.67
120	LUSAKA	MWEMBEZHI	120	4.36	3.29
121	LUAPULA	MWENSE	121	1.81	6.73

122	NORTH-WESTERN	MWINILUNGA	122	1.19	2.27
123	MUCHINGA	NAKONDE	123	2.04	3.83
124	WESTERN	NALIKWANDA	124	1.36	2.07
125	WESTERN	NALOLO	125	8.90	3.39
126	SOUTHERN	NAMWALA	126	1.29	2.81
127	CENTRAL	NANGOMA	127	4.12	1.68
128	COPPERBELT	NCHANGA	128	4.45	3.17
129	LUAPULA	NCHELENGE	129	2.48	12.9
130	COPPERBELT	NDOLA CENTRAL	130	2.26	2.78
131	COPPERBELT	NKANA	131	1.98	2.25
132	WESTERN	NKEYEMA	132	2.46	2.11
133	EASTERN	NYIMBA	133	4.34	4.09
134	LUAPULA	PAMBASHE	134	2.25	7.18
135	SOUTHERN	PEMBA	135	1.17	2.20
136	EASTERN	PETAUKE	136	2.30	3.42
137	COPPERBELT	ROAN	137	2.96	4.21
138	LUSAKA	RUFUNSA	138	3.42	1.66
139	WESTERN	SENANGA	139	1.87	2.33
140	NORTHERN	SENGA HILL	140	5.23	4.84
141	CENTRAL	SERENJE	141	4.95	1.63
142	WESTERN	SESHEKE	142	1.50	1.36
143	WESTERN	SHANGOMBO	143	2.39	5.91
144	MUCHINGA	SHIWAN'GANDU	144	2.70	8.25
145	SOUTHERN	SIAVONGA	145	1.38	3.43
146	WESTERN	SIKONGO	146	2.82	15.4
147	SOUTHERN	SINAZONGWE	147	1.53	1.90
148	EASTERN	SINDA	148	4.61	1.73
149	WESTERN	SIOMA	149	7.62	11.2
150	NORTH-WESTERN	SOLWEZI CENTRAL	150	1.72	3.30
151	NORTH-WESTERN	SOLWEZI EAST	151	2.07	NA
152	NORTH-WESTERN	SOLWEZI WEST	152	1.57	NA
153	EASTERN	VUBWI	153	3.27	NA
154	COPPERBELT	WUSAKILE	154	3.51	NA
155	NORTH-WESTERN	ZAMBEZI EAST	155	2.07	NA
156	NORTH-WESTERN	ZAMBEZI WEST	156	3.85	NA

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 regards 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, we don't know the geographic concentration of ethnic groups 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. To name one, many of the smaller ethnic and demographic groups may feel politically marginalized. 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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