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Party Fragmentation in Democratic Systems

I. Introduction

What accounts for the different levels of party fragmentation in democracies?

Party pluralism is a fundamental part of democracy directly linked to democratic quality (Mair 2006). While a healthy level of pluralism should be expected, the level at which fragmentation becomes problematic is a matter of debate (Scarrow 2002). In some cases, excessive fragmentation may create space for disruptive parties or leadership. In others, it may have unexpected implications for democratic resilience by increasing the necessity of coalitions for governance and reducing the ability of populist parties to seize power unexpectedly. Even if its consequences are still ambiguous, the development of fragmentation is a relevant and timely point of investigation to anticipate political changes.

Various studies have found ethnic diversity to be related to fragmentation, but only in situational contexts where dispersion meets organization (Mozaffar 2003; Birnir and Cott 2007). More broadly applicable is the finding by Anckar (2000) that party fragmentation, measured by the number effective parties, is best explained by polity size. Recognizing that both the causes and consequences of party dispersion are contextually significant, this analysis seeks to better identify specific indicators and/or common sources of fragmentation. Further, it is my aim to investigate fragmentation as a function of civic engagement.

Mair's theory of democratic hollowing suggests that disillusionment with government leads to party weakness and dispersion. Specifically, Mair investigated low voter participation as related to declining party membership to express waning enthusiasm for politics. A case study of Lithuanian politics serves as the primary inspiration for the current analysis. The underlying theory of Mair's model aligned with electoral trends in this country, but the case also suggested that dissatisfaction is observable in a growing number of competitive parties. In addition, pervasive corruption was found to be the dominant factor driving voter choice in this context. Together, these findings informed the creation of two primary hypotheses:

H1: Lower participation in government results in higher levels of party fragmentation.
- **H1(a): Lower *voter turnout* correlates with higher fragmentation.**
- **H1(b): Lower *civic participation* correlates with higher fragmentation.**

H2: Higher perceived corruption increases party fragmentation.

Civic participation, and voter turnout in particular, are expected to be indicators of fragmentation, if not causal factors. Higher participation should correlate with lower fragmentation as more robust parties are able to consolidate support among larger portions of the population. Conversely, distance between voters and mainstream parties is expected to increase fragmentation. Corruption is hypothesized to be an influential causal factor for creating such an environment. As observed in Lithuania, a stronger belief that government is dominated by corrupt politicians will lead voters to increasingly reject larger, dominant parties and increase vote dispersion across more parties.

II. Research Design

The current work approaches party fragmentation in a global context. Cross-sectional time-series data was selected to investigate the possible existence of wider trends that are characteristic of democratic systems. The time-series element was considered necessary to boost the number of observations, which would have otherwise been severely limited in single-year cross-sectional data. The dataset generally ranges from 1960 – 2018, but transparency data are only available between 1980 and 2016. Data are compiled from the Constituency-Level Elections Archive Party Nationalization Measures (CLEA-PNM), Quality of Governance (QoG), Polity V, and Varieties of Democracy 10 (VDem) datasets. All observations are recorded in country–election years based on elections in lower-house legislatures.

Primary Variables

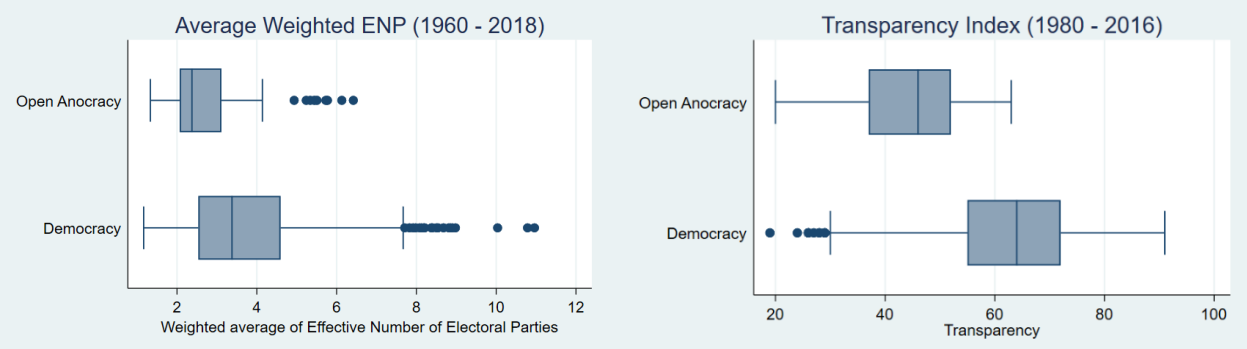
The dependent variable tested for both hypotheses is the effective number of national parties (ENP) reported in the CLEA-PNM dataset. The effective number of parties was calculated for each election-year using the popular formula created by Laakso and Taagepera (1979) that balances the total number of parties with their relative size and level of influence. The final value represents the number of parties of equal size that would have the same effective fragmentation as do the actual number of parties in an observed year. The CLEA data is based on the share of votes rather than seats, effectively representing the number of politically viable parties, and not just those that clear district thresholds for formal representation in government. The weighted version of this metric was used to counter skewing caused by large numbers of independent candidates and balance constituency size. A higher ENP value indicates a greater number of competitive parties.

To test the first hypothesis, civic activity was operationalized in two different independent variables: (a) voter turnout percentage (International Institute for Democracy and Electoral Assistance, via QoG), or (b) a civic participation index ranging from low to high activity (0 to 1; VDem data, via QoG). The second hypothesis assesses effective parties as a function of an independent *Transparency* variable (0 to 100, no to complete transparency). This variable combines Transparency International's CPI data (2014 – 2016, via VDem) with a comparable metric from the Index for Information and Accountability Transparency (1980 – 2010; via QoG). The latter was developed based on CPI methodology specifically to address the shortage of earlier data.

Democracy vs Anocracy

This study is interested in contested elections generally and was intended to assess both democracies and open anocracies, as categorized by their polity 2 scores (Polity V). Difference of means testing for key variables revealed significant differences in the number of effective parties ($p<0.001$) and corruption ($p<0.001$) between the two systems (Fig. 1). Democracies have a significantly higher number of competitive parties, with a mean of 3.674 effective parties, compared to an average of 2.764 in open anocracies (Tables S1, S2). This almost certainly reflects the different levels of civic freedom available in true democracies, and the existence of higher barriers to party organization and ballot access that exist in anocracies. Similarly, the average democracy has a transparency score of 62.39%; nearly 20% higher than the mean anocracy score of 43.63%. Thus, the two regime types were considered separately to isolate real trends within each system.

Figure 1. Open Anocracy vs Democracy



Having established the significant difference between each regime type, linear regression was used to test both hypotheses since the dependent variable and all relevant independent variables and controls are continuous. The Stata *xtreg* function was used to effectively control for ethnic and cultural variation between countries. Unless stated otherwise, the regressions presented below are based on random effects to provide balance for temporal variation within states' elections.

III. Results

H1: Voter Turnout to Effective National Parties (Bivariate)

Bivariate linear regression revealed that there is a significant relationship between voter turnout and the number of competitive parties in democracies only. Specifically, the number of effective parties decreases by 0.0167 for every 1% increase in voter turnout. This is a highly significant relationship and there is less than a 1% chance that it would have been observed randomly ($p=0.008$). We are therefore able to reject the null hypothesis in favor of the proposed H1a. Higher voter turnout in an election does predict party fragmentation in that same year.

Lagging ENP to reflect the turnout of the previous election shows a negative relationship with ENP, but one that is much weaker than the effect of same-year turnout with only 12% of the magnitude of the same-year data. This correlation is significant in a fixed effects model ($p=0.029$), but far less so in the preferred random effects regression ($p=0.198$). Additionally, the subpopulation of lagged election years is dramatically smaller ($n=29$) and should be treated with caution. The relative robustness and magnitude of the same-year correlation suggests that the impact of voter turnout on ENP has more to do with the choices made by the electorate in a given election than in motivating parties to organize in response to turnout from the previous election. Reverse causality is still possible in this scenario and voter turnout might suffer if a fewer number of parties are unable to meet diverse interests. Unfortunately, this model also has extremely low explanatory power and can only account for 0.72% of the variation in the number of effective parties ($r^2=0.0072$). Even so, voter turnout is a reliable indicator for fragmentation.

Table 1. Voter Turnout to ENP

	Effective Parties (Democracy)	Effective Parties (Open anocracy)	Effective Parties (Democ. lagged)
Voter Turnout	– 0.167013 **	– 0.0044	– 0.02121
	(0.0062505)	(0.0090)	(0.0164886)
Constant	4.872123 ***	3.1706 ***	4.849394 ***
	(0.4840983)	(0.6628)	(1.271065)
N	765	92	29
R^2	0.0072	0.0108	0.0173

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

ENP$_{\text{Democracy}}$ = 4.872123 – 0.167013(Voter Turnout)

The alternative civic activity index was not confirmed to significantly correlate with the number of effective parties. Although we fail to reject the null hypothesis that civic activity does not correlate with effective parties, the data come close to confirming a positive relationship in democracy above an 85% confidence level (p=0.127) and do not contradict the findings on voter turnout. Interestingly, a third regression did find civic participation to negatively correlate with voter turnout (p=0.005).

Voter Turnout$_{\text{Democracy}}$ = 83.83386 – 17.83104(Civic participation)

A 10% increase in civic engagement in this model corresponded with a 1.78% decrease in voter turnout. This association might suggest that citizens who are confident in the robustness of civic society overall are comfortable enough to forego voting individually. Taken alongside the association between turnout and parties, higher civic engagement, corresponding with lower turnout, could also indicate higher party fragmentation and would warrant future investigation.

In any event, the conclusion that lower voter turnout correlates with higher fragmentation is valid. Additional difference of means tests were conducted to see if the effect of turnout rates on ENP was complicated by the existence of mandatory voting requirements. A significant difference was not observed when comparing countries without mandatory voting to either states with any requirement, or to those that strictly enforce mandatory voting.

H2: Transparency to Effective National Parties

Bivariate linear regression failed to reject the null hypothesis that public corruption leads to higher party fragmentation in democracies. The relationship observed in democracy had less than a 40% chance of reflecting a non-random correlation (p=0.671). The results in anocracy were not much better. A positive correlation between transparency and ENP was observed in anocracies using fixed effects (p=0.015), but this model had only minimal explanatory power (r^2= 0.0075) and was undermined in random effects (p=0.670).

An effort was made to tease out a conditional correlation in democracy with limited effect. First, lagging the independent variable as described above was unhelpful (n=18; p=0.671). Secondly,

democracy was considered without the lower outliers of non-transparent democracies (Transparency < 36.89), or even for those with a rating of at least 50% without significance. A highly significant, positive correlation does exist above the mean rating of 62% (β= 0.04174; p=0.004), but the conditionality to reach this result misses the entire point of finding a relationship that applies to all democracies, which have already been separated from the questionably competitive anocracies.

Similarly, subdividing democracies around the mean regime durability (*durable*; polity V) of 22 years did not produce a significant relationship. A positive correlation was observed at 40 years (p=0.024), and it may be said that higher transparency is correlated with greater party fragmentation in enduring democracies. Again, though, the conditions imposed to find this relationship fail to explain causality in the majority of democratic regimes. Based on this, we fail to reject the null hypothesis that effective party count is not affected by the level of corruption in democracies generally.

H1: Voter Turnout to Effective National Parties (Multivariate Analysis)

Multivariate linear regression was conducted to expand upon the relationship between voter turnout and ENP confirmed definitively for Hypothesis 1a. Continuous control variables were gradually introduced to the model, with the following showing significant correlations in certain combinations.

- Ideological polarization (VDem): To control for the effects of polarization on vote disparity.
- Regime durability (Polity V): To account for common trends in democratic consolidation.
- Urbanization % (World Bank, via QoG): Intended as a metric for geographic dispersion.
- GDP per capita (World Bank, via QoG): For the impact of national wealth on organization.

All of these variables weakened the significance and magnitude of voter turnout to varying degrees. The initial addition of polarization alone revealed a significant negative correlation with voter turnout (p=0.048). As was expected, polarized voters cluster around exclusive ideologies and reduce the space for intermediary parties to operate. The confidence for this variable's effects decreased with the addition of other controls, but its coefficient was reliably negative. The effects of regime durability were more inconsistent across models. At its strongest, durability was significant at a 99.99% confidence (p=0.001) when added with polarization, but its inclusion lowered the overall explanatory power of the model and cast doubt on durability as an explanatory factor.

Surprisingly, urbanization proved to have a robust positive correlation with ENP even though overall population density did not. Urbanization retained high significance (p=0.015) when controlling for GDP, suggesting that cities specifically are conducive to party organization independent of income. Every 10% of a population to live in an urban area corresponds with 0.1843 more effective parties. In the same model, GDP per capita was highly significant (p<0.001). A $10,000 increase in per capita GDP in 2010 dollars corresponds with 0.37 more effective parties. For an average democracy (mean $19,527.14), 0.7225 effective party power can be linked to GDP.

Table 2. Voter Turnout to ENP (Democracy 1960 – 2018)

	Effective Parties	Effective Parties	Effective Parties (Durable > 22)
Voter Turnout	– 0.0093149 (0.0066951)	– 0.0069262 (0.0060613)	– 0.012195 (0.0072671)
Polarization	– 0.200785 (0.1194476)	– 0.1008542 (0.1100878)	0.1198851 (0.1131656)
Regime Durability	0.0044627 (0.0055176)	– 0.0077099 (0.0059428)	0.0100116 (0.0060219)
Urbanization	0.0248419 ** (0.0084555)	0.018434 * (0.0075811)	0.0262024 ** (0.100898)
Population Density	0.0018492 (0.0018757)	—	—
GDP per capita	—	0.000037 *** (0.0000105)	0.0000407 *** (0.00000861)
Constant	2.503785 *** (0.5527871)	2.831462 *** (0.4967941)	2.436031 ** (0.803366)
N	571	581	269
R^2	.0424	0.1169	0.3383

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

See Tables S3, S4 for complete results.

$$\mathbf{ENP_{Democracy}} = 2.831462 - 0.0069262(\text{Voter Turnout}) - 0.1008542(\text{Polarization}) - 0.0077099(\text{Durability}) + 0.018434(\text{Urbanization}) + 0.000037(\text{GDP per capita})$$

$$\mathbf{ENP_{Durable\ Dem.}} = 2.436031 - 0.012195(\text{Voter Turnout}) - 0.1198851(\text{Polarization}) - 0.0100116(\text{Durability}) + 0.0262024(\text{Urbanization}) + 0.0000407(\text{GDP per capita})$$

The general model for democracy accounts for 11.7% of the variation in effective party count, which is still relatively limited. However, the explanatory power triples to 33.8% when regimes with below-average durability are excluded. Durable regimes are those without a major change in their polity score for 22 years. While durability itself still lacked significance as a potential causal factor for fragmentation, the qualification actually reinforces the importance of GDP per capita, which was not all significant in non-durable regimes (p=0.628). Even if higher political stability is conducive to income, these findings suggest an effect in which people who are comfortable with their economic stability make more adventurous campaign contributions and raise fragmentation. This qualification also restored some explanatory power to voter turnout with greater than 90% confidence (p=0.093). In these durable regimes 10% higher voter turnout correlates with 0.122 fewer effective parties, compared to 0.093 fewer parties in all democracies.

IV. Conclusion

Voter turnout is a reliable indicator of fragmentation, but based on this data it is difficult to predict changes ahead of the election to which it is relevant. It would therefore be useful for future work to focus on the drivers of voter turnout in specific contexts. This work identifies civic activity as one such factor, but whose direct relationship could benefit from deeper analysis. Demographic changes are a more precise and immediately available way to predict changes in party systems long-term. Urbanization and GDP have much greater explanatory power for fragmentation than other factors, and should be easier to project using other models. In addition, regime durability appears to have some effect that was not conclusively determined here. It may not directly affect fragmentation as originally speculated, but durability or another indicator of political stability should be considered in similar research.

A study focused on party longevity and/or turnover merits deeper attention. The present study intended to mimic the party volatility that Mair emphasizes in democratic hollowing via party fragmentation, but the metric does not necessarily reflect the frequent turnover or brief runs of convenient protest parties. A study that distinguishes between effective parties relative to their longevity might reveal sharper correlations, but such a cross-section would require vastly more detailed data than was used here. Such an approach might also identify a direct relationship with corruption that was not found with the effective number of parties. It is theoretically plausible that voters would reject specific parties after holding office, and the replacement of one rejected party with a new one would not be observed in ENP.

In sum, a relationship between voter turnout and party fragmentation does exist in democracies. However, turnout itself has limited explanatory value for why this is the case, and context must remain at the forefront of any application of the findings presented above.

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Supplementary Material

Table S1. Effective National Parties, 1960-2018

Polity Type	n	mean	s.d.	variance	Quartiles			Range	
					25	50	75	min	max
Democracy	784	3.6737	1.5332	2.3507	2.5349	3.3778	4.5958	1.1641	10.9593
Anocracy	107	2.7638	1.0971	1.2036	2.0662	2.3847	3.1231	1.3321	6.4815

Table S2. Transparency Index, 1980-2016

Polity Type	n	mean	s.d.	variance	Quartiles			Range	
					25	50	75	min	max
Democracy	607	62.3921	12.5375	157.1892	55	64	72	19	91
Anocracy	78	43.6282	10.3987	108.1327	37	45	52	19	63

Table S3. Multivariate Regressions (Democracy 1960 – 2018)

	Effective Parties (Random effects)	Effective Parties (Random effects)	Effective Parties (Random effects)	Effective Parties (Random effects)
Voter Turnout	– 0.0125921 (0.0070768) p=0.075	– 0.0060751 (0.0064844) p=0.349	– 0.0093149 (0.0066951) p=0.164	– 0.0069262 (0.0060613) p=0.253
Polarization	– 0.2238714 * (0.1131656) p=0.048	– 0.1976095 (0.1161929) p=0.089	– 0.200785 (0.1194476) p=0.093	– 0.1008542 (0.1100878) p=0.360
Regime Durability	—	0.014711 ** (0.0043251) p=0.001	0.0044627 (0.0055176) p=0.419	– 0.0077099 (0.0059428) p=0.195
Urbanization	—	—	0.0248419 ** (0.0084555) p=0.003	0.018434 * (0.0075811) p=0.015
Population Density	—	—	0.0018492 (0.0018757) p=0.324	—
GDP per capita	—	—	—	0.000037 *** (0.0000105) p<0.001
Constant	4.525163 *** (0.5423742)	3.744849 *** (0.4977074)	2.503785 *** (0.5527871)	2.831462 *** (0.4967941)
N	595	595	571	581
R^2	0.0014	0.0003	.0424	0.1169

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table S4. Multivariate Regression (Durable vs Non-durable Democracy; 1960 – 2018)

	Effective Parties (Durable)	Effective Parties (Not durable)
Voter Turnout	– 0.012195 (0.0072671) p=0.093	– 0.0055502 (0.00708189) p=0.429
Polarization	0.1198851 (0.1131656) p=0.231	– 0.1407581 (0.0985801) p=0.153
Regime Durability	0.0100116 (0.0060219) p=0.205	0.0173382 (0.0114623) p=0.130
Urbanization	0.0262024 ** (0.100898) p=0.009	0.0317454 ** (0.0094217) p=0.001
GDP per capita	0.0000407 *** (0.00000861) p<0.001	– 0.0000107 (0.000022) p=0.628
Constant	2.436031 ** (0.803366)	2.489104 *** (0.6581832)
N	269	312
R^2	0.3383	0.0575

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$