Web Appendix-"Was Duverger Correct?"

In these appendices I present supplementary material to the analyses presented in the paper "Was Duverger Correct?" These include a description of the data sources used in the paper and graphical presentations of the distributions of electoral outcomes being studied in the multivariate analysis. I also present the estimates from an alternative estimation of the vote-shares data as well as specifications of the model that include a separate control for Canada, India, and UK elections to see if these cases are significantly different from other plurality systems.

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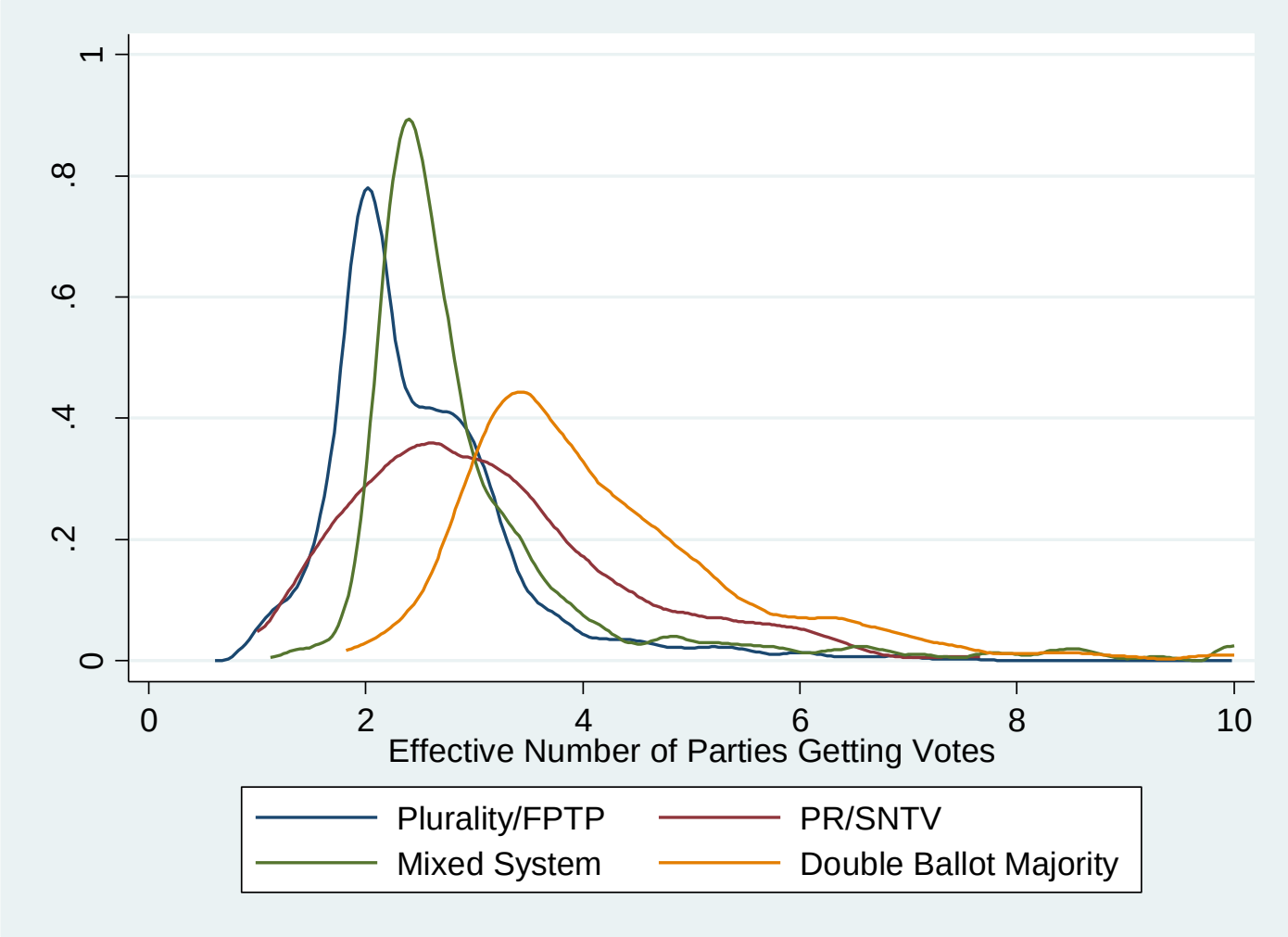
Appendix 1: Data Sources

Country	Year	Sources
Albania	2005	Electoral Agency (www.cec.org.al/)
Austria	1995	Caramani (2000)
Bahamas	2002	www.fredmitchelluncensored.com/electiondetail.html
Bangladesh	2001	Electoral Agency (www.ecs.gov.bd/Bangla/)
Barbados	2003	www.cohobblopot.org
Belize	2003	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Bermuda	2003	Parliamentary Registry (www.elections.gov.bm/)
Bolivia	2002	Brancati (2007)
Botswana	1999	Independent Electoral Commission (www.gov.bw/elections)
Canada	2000	Elections Canada (www.elections.ca/home.asp)
Comoros	2004	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Dominica	2002	www.avirtualdominica.com/election2000/election2000.htm
France	2007	Ministry of the Interior (www.interieur.gouv.fr/)
Germany	2005	Federal Returning Officer (http://www.bundeswahlleiter.de/)
Ghana	2000	Electoral Commission (www.ec.gov.gh/)
Greece	1996	Caramani (2000)
Grenada	1999	www.spiceisle.com
Haiti	2006	Electoral Council (www.cep-ht.org/)
Honduras	2001	National Electoral Agency (www.tne.hn/)
Hungary	1998	National Electoral Tribunal (www.tne.hn/)
India	1999	Electoral Commission (www.eci.gov.in/)
Italy	2001	Brancati (2007)
Jamaica	1997	Electoral Office (www.eoj.com.jm/)
Japan	2005	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Kiribati	2002	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Lesotho	2007	Electoral Comission (www.iec.org.ls)
Lithuania	2000	University of Essex (www2.essex.ac.uk/elect/database/database.asp)
Malawi	1999	SDNP (www.sdnp.org.mw)
Marshall Islands	2001	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Mexico	2003	Brancati (2007)
Micronesia	2003	Brancati (2007)
New Zealand	2002	Chief Electoral Agency (www.electionresults.govt.nz/)
Niger	1999	Brancati (2007)
Panama	1999	Electoral Tribunal (www.tribunal-electoral.gob.pa/)
Peru	2001	National Office of Electoral Processes (www.onpe.gob.pe/)
Russia	1999	University of Essex (www2.essex.ac.uk/elect/database/database.asp)
Samoa	2001	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Scotland	2003	Electoral Comission (www.electoralcommission.org.uk/)

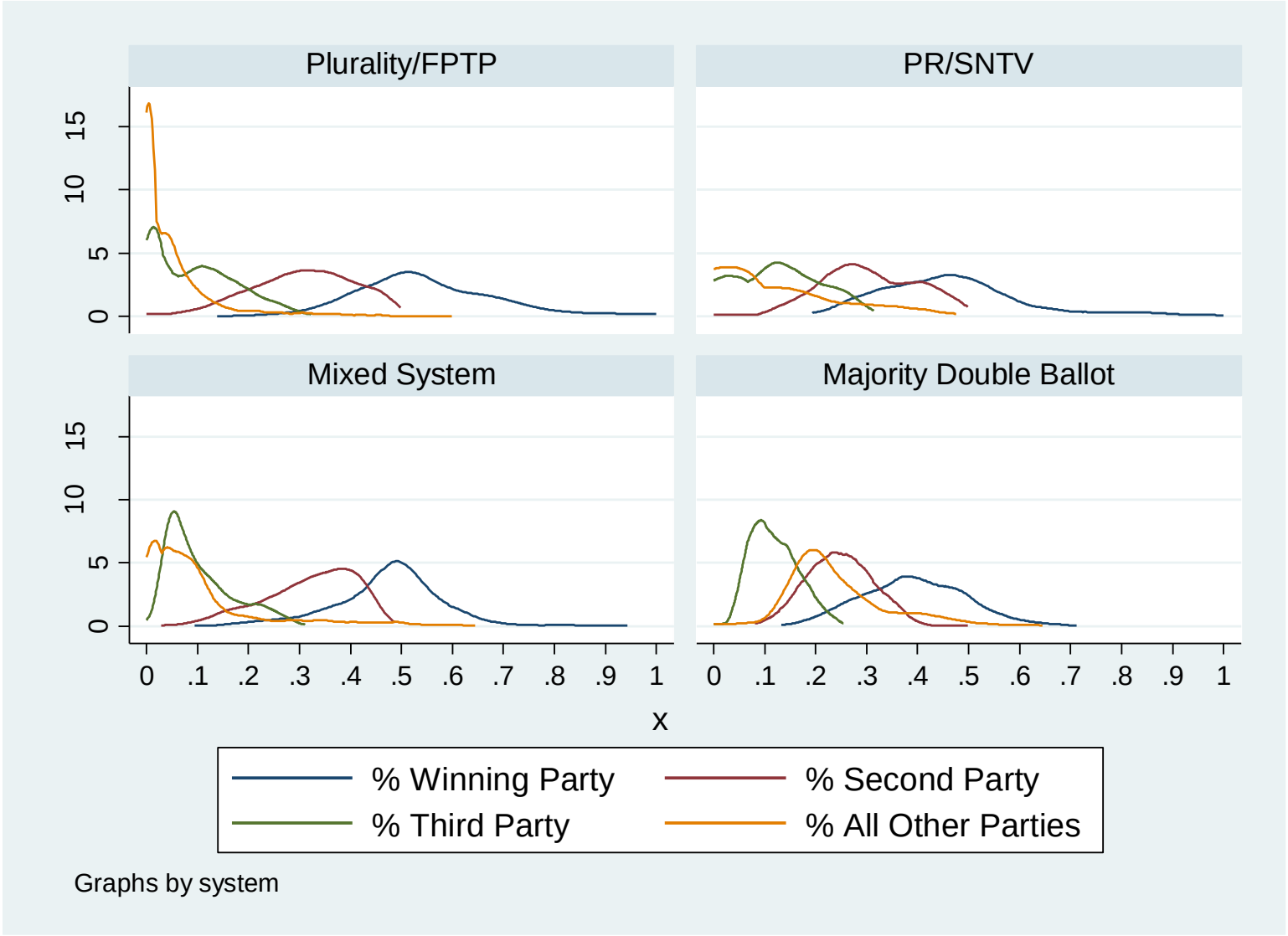
Solomon Islands	2001	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Spain	1996	Caramani (2000)
St. Kitts	2000	St Kitts Bee (www.skbee.com/)
St. Lucia	2001	Electoral Commission (www.stlucia.gov.lc/)
St. Vincent	2001	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Switzerland	1998	Caramani (2000)
Thailand	2005	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Trinidad and Tobago	2002	Trinidad and Tobago News (www.trinidadandtobagonews.com)
Tuvalu	2002	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Ukraine	1998	University of Essex (www2.essex.ac.uk/elect/database/database.asp)
United Kingdom	1997	Caramani (2000)
United States	2002	Federal Elections Commission (www.fec.gov)
Vanuatu	2002	Adam Carr's Elections Archive (psephos.adam-carr.net/)
Venezuela	2000	National Electoral Court (www.cne.gov.ve/)
Wales	2007	Electoral Comission (www.electoralcommission.org.uk/)
Zambia	2001	Kollman et al (2008)

Appendix 2: Distribution of the Effective Number of Parties Getting Votes (Capped so that Districts with ENPV>10 Equal 10)[1]

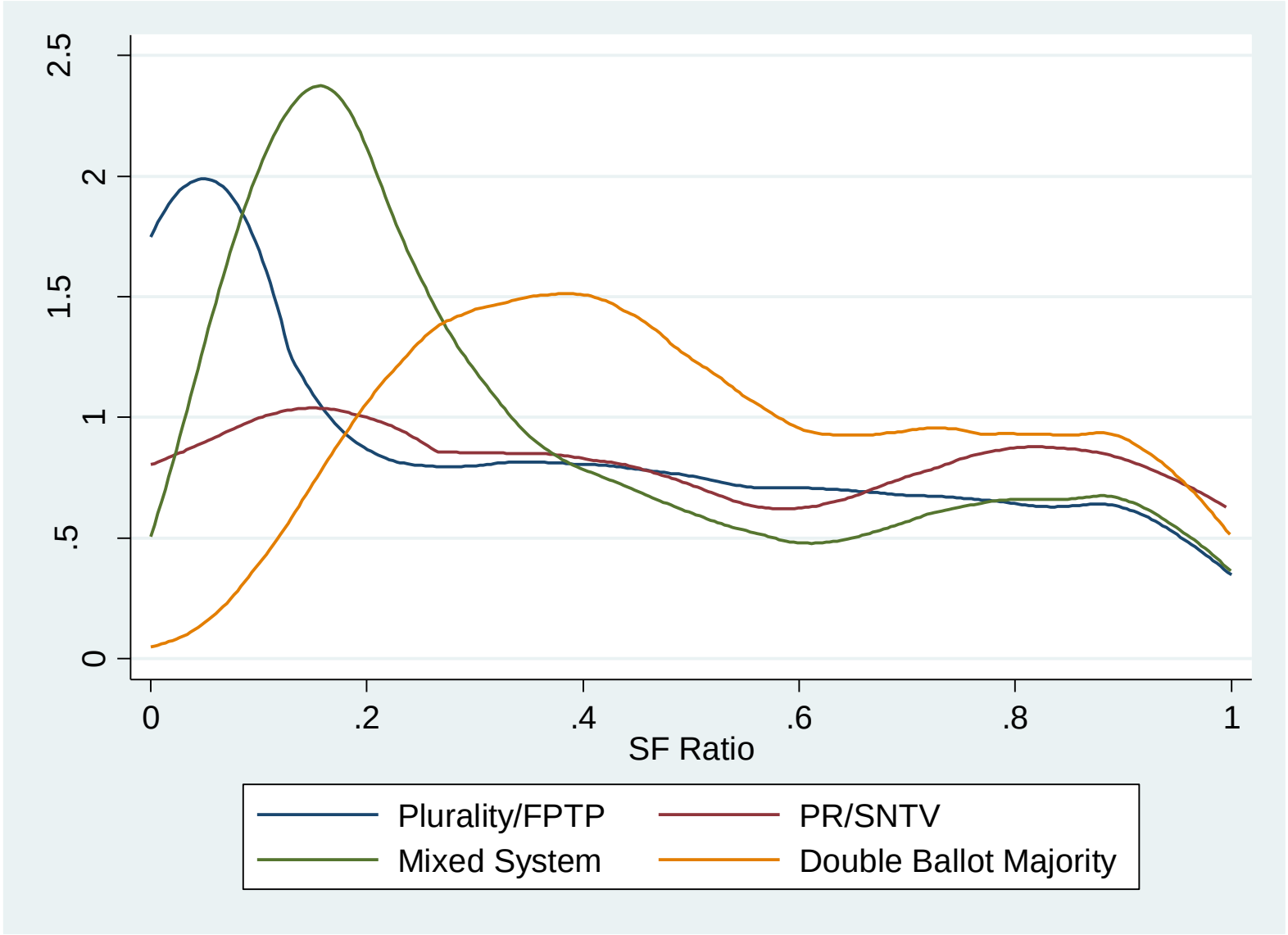


[1] In the analysis, the effective number of parties getting votes is analyzed no matter how large-this change was made here for convenience in presenting the graphics.

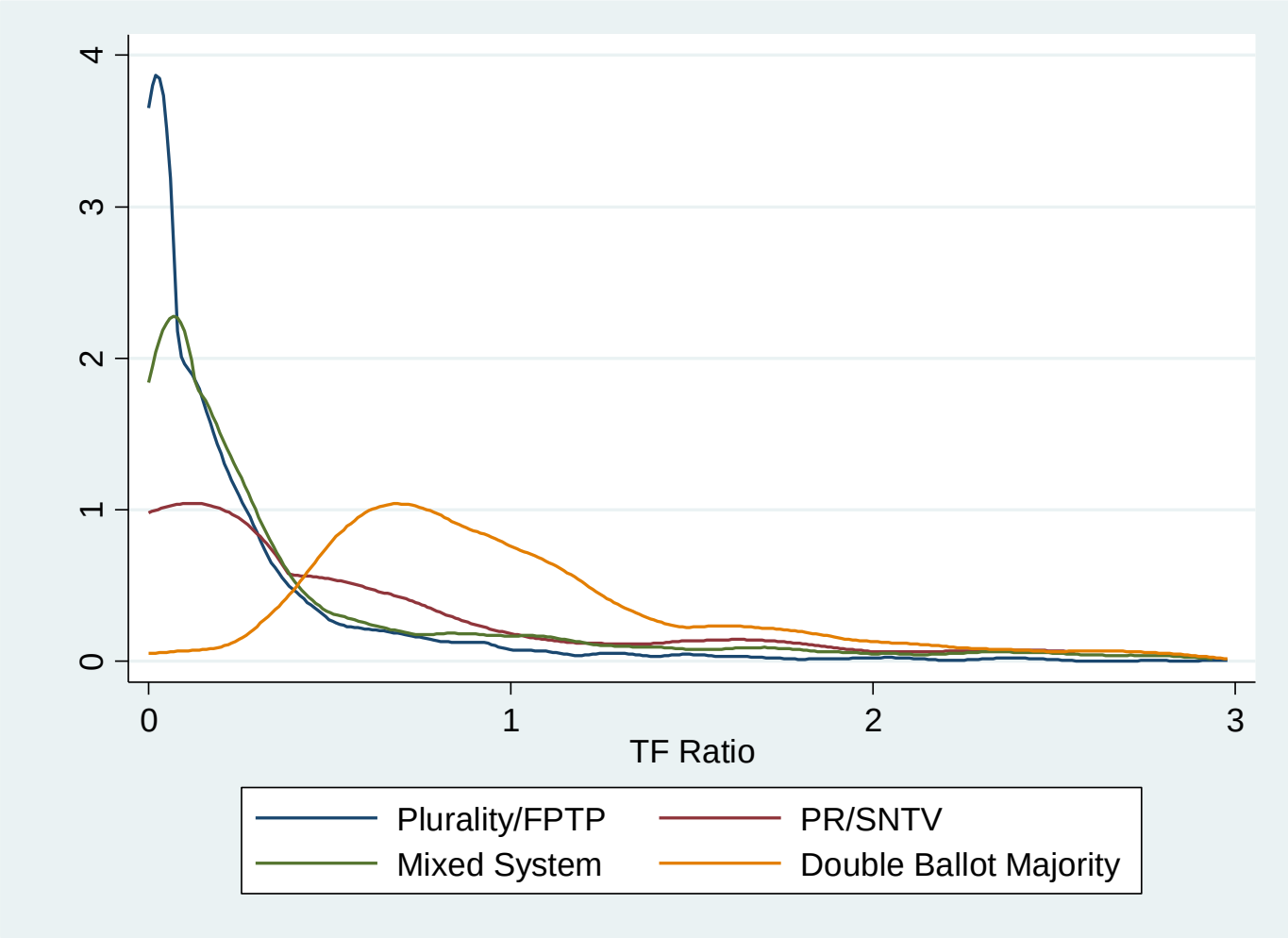
Appendix 3: Distribution of Electoral Support for the First, Second, Third, and All Other Parties



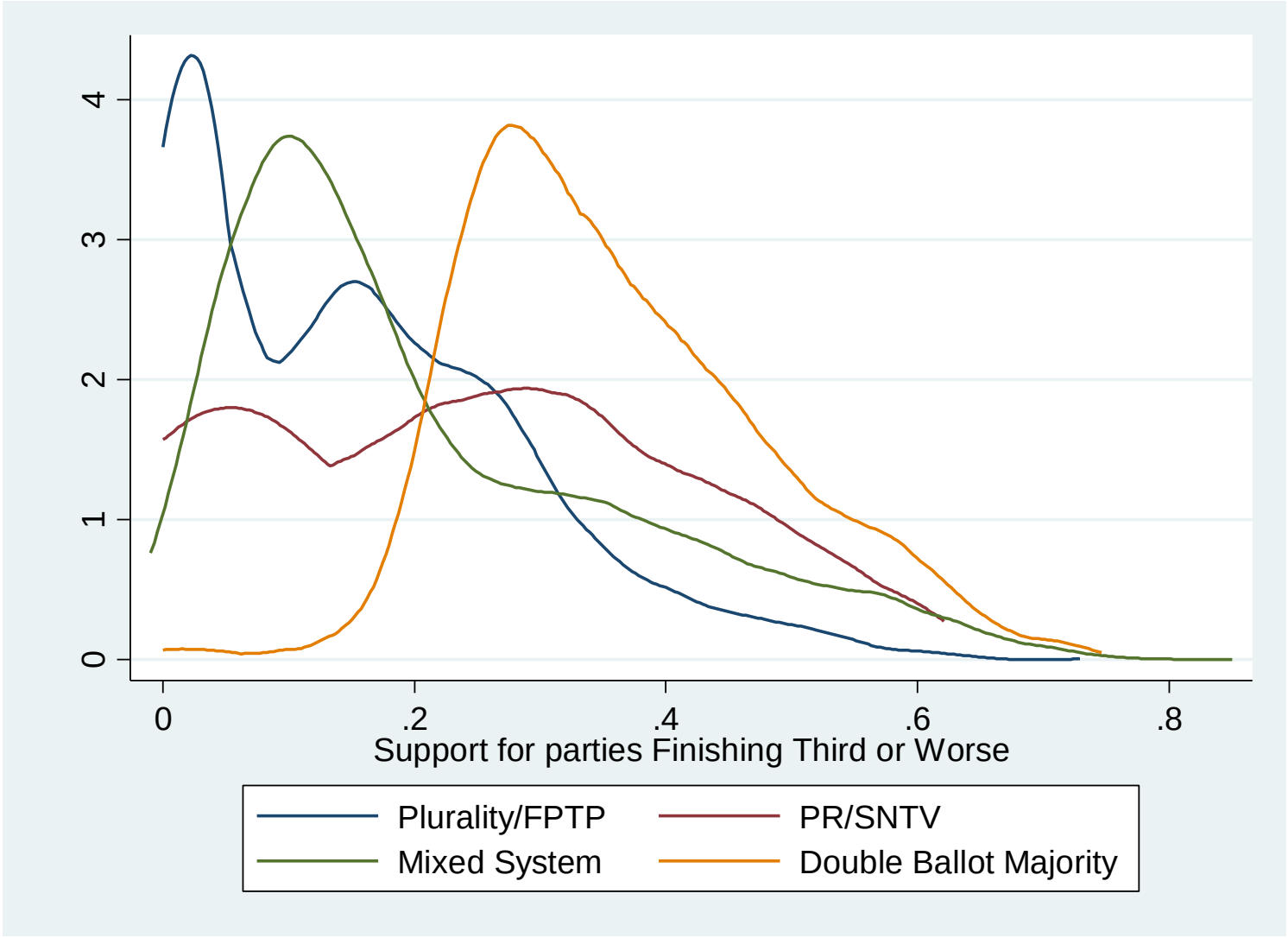
Appendix 4: Distribution of SF Ratios



Appendix 5: Distribution of the TF Ratio (Truncated to exclude cases where TF>3 to facilitate presentation)



Appendix 6: Combined Support for Parties Finishing Third or Worse



Appendix 7: Multi-Level Model of Election Outcomes in Single-Member Districts in Pure Plurality Countries, Controlling for Canada, India, and the UK Using the 2010 UK Election

	Effective Number of Parties Getting Votes	% Third or Worse Parties	SF Ratio	TF Ratio	Effective Number of Parties Getting Votes	% Third or Worse Parties	SF Ratio	TF Ratio
Constant	2.205***	0.071**	0.156**	0.117	2.123***	0.054*	0.111*	0.100
	(0.148)	(0.023)	(0.048)	(0.128)	(0.296)	(0.027)	(0.052)	(0.139)
Canada, India, the United Kingdom					0.529	0.117	0.292*	0.108
					(0.600)	(0.069)	(0.111)	(0.281)
Concurrent Plurality	0.138	0.060	0.196°	0.104	0.167	0.067	0.211°	0.109
Presidential Election	(0.391)	(0.058)	(0.105)	(0.241)	(0.529)	(0.061)	(0.109)	(0.248)
New Democracy	-0.324	-0.045	-0.049	-0.185	-0.242	-0.027	-0.004	-0.169
	(0.319)	(0.049)	(0.088)	(0.198)	(0.444)	(0.051)	(0.091)	(0.208)
Federal Country	0.191	0.053	0.133	0.082	0.066	0.025	0.063	0.056
	(0.271)	(0.044)	(0.093)	(0.192)	(0.444)	(0.042)	(0.081)	(0.208)
Ln(population)	0.042	0.008	0.015	0.009	0.008	0.001	-0.004	0.002
	(0.043)	(0.007)	(0.013)	(0.026)	(0.068)	(0.008)	(0.013)	(0.032)
Ethnic Divisions	0.797	0.106	0.090	0.575°	0.919	0.133	0.157	0.600°
	(0.758)	(0.108)	(0.195)	(0.309)	(0.691)	(0.104)	(0.177)	(0.324)
National Variance Component	0.430***	0.009***	0.032***	0.090***	0.436***	0.009***	0.028***	0.096***
District Variance Component	0.362***	0.008***	0.062***	0.085***	0.362***	0.008***	0.062***	0.085***
Multilevel OLS Regression, Standard Errors in Parentheses, ° p<0.10, * p<0.05, ** p<0.01, *** p<0.001 N Countries = 22, N Districts =3207 in all models								

Appendix 8-Controlling for Patterns in Canada, India, and the UK

Previous work on Duverger's Law has documented the continued support for third-place candidates in Canada, India, and the UK despite plurality rule.[2] Thus the results in Table 1 beg the question of whether they are being driven by these three large countries and perhaps Duverger's Law is better supported in the other 19 countries in this sample. To test this possibility, in the table below I add a dummy variable for the three large parliamentary countries to the last 4 columns in Table 1. The predicted level of fragmentation in plurality elections in the rest of the sample is slightly lower when these three countries are excluded from the baseline category. Yet sufficient votes go to parties beyond the top-two that the total support for candidates finishing third or worse and the SF ratio are significant even outside Canada, India, and the UK.

It is less clear if levels of election fragmentation in Canada, India, and the United Kingdom differ from other plurality countries. The dummy variable for these three cases simulates the expected outcome in these countries if their large populations and (in two cases) federal structure are controlled for-if the federalism and population variables are excluded from the model (which in this specification are not significant at conventional levels) then the gap between these countries and the other plurality countries grows and the effective number of parties becomes significantly higher than in the other cases. Yet even if these countries were smaller and had different institutions, the SF ratio would be significantly higher in these three countries, with a third place party gaining 12 percent of the vote. So even after controlling for their size and structure, there is higher than expected fragmentation in these countries that the model cannot account for. Moreover, the model provides no evidence in the initial specification

[2] e.g. Gaines, 'Duverger's Law and the Meaning of Canadian Exceptionalism'; Diwaker, 'Duverger's law and the Size of the Indian Party System'; Grofman, Blais, and Bowler, *Duverger's Law of Plurality Voting: The Logic of Party Competition in Canada, India, the United Kingdom, and the United States.*

that size or federalism raises fragmentation generally in FPTP countries, so we cannot attribute the different outcomes in Canada, India, or the UK to these characteristics.

	Effective Number of Parties Getting Votes	% Third or Worse Parties	SF Ratio	TF Ratio
Constant	2.139***	0.055*	0.114*	0.106
	(0.291)	(0.028)	(0.053)	(0.137)
Canada, India, the United Kingdom	0.415	0.101	0.277*	0.070
	(0.589)	(0.065)	(0.106)	(0.276)
Concurrent Plurality Presidential Election	0.111	0.059	0.203	0.091
	(0.520)	(0.060)	(0.108)	(0.244)
New Democracy	-0.247	-0.028	-0.005	-0.170
	(0.436)	(0.051)	(0.091)	(0.205)
Federal Country	0.026	0.020	0.057	0.043
	(0.437)	(0.042)	(0.080)	(0.205)
Ln(population)	0.012	0.001	-0.003	0.003
	(0.067)	(0.008)	(0.013)	(0.032)
Ethnic Divisions	1.035	0.149	0.173	0.640*
	(0.678)	(0.100)	(0.174)	(0.319)
National Variance Component	0.420***	0.009***	0.027***	0.093***
District Variance Component	0.370***	0.008***	0.061***	0.081***
Multilevel OLS Regression, Standard Errors in Parentheses, * p<0.05, ** p<0.01, *** p<0.001 N Countries = 22, N Districts =3207 in all models				

Appendix 9: Outcomes in Mixed Systems without Distinguishing the Age of the System

In Table 2 I break down patterns in MMM systems according to their age and region. This analysis combines them into a single category and shows that, on average, MMM districts tend to be more fragmented than pure plurality, a pattern I ascribe to patterns in Eastern Europe and former Soviet states.

Multi-Level Model of Election Outcomes in Single-Member Districts

	Effective Number of Parties Getting Votes	% Third or Worse Parties	SF Ratio	TF Ratio
Constant	2.021***	0.059**	0.132***	0.033
	(0.161)	(0.021)	(0.037)	(0.085)
Majority System	1.782***	0.244***	0.337***	0.906***
	(0.352)	(0.037)	(0.048)	(0.194)
PR	0.662*	0.108**	0.184*	0.239*
	(0.280)	(0.039)	(0.070)	(0.119)
Mixed-Member Majority System	1.005*	0.116*	0.137*	0.532*
	(0.412)	(0.045)	(0.067)	(0.231)
Mixed-Member Proportional System	0.693***	0.134***	0.215**	0.308**
	(0.188)	(0.029)	(0.069)	(0.098)
Concurrent Plurality Presidential Election	0.275	0.042	0.118	0.158
	(0.348)	(0.050)	(0.088)	(0.163)
Concurrent Majority Presidential Election	1.997***	0.216***	0.282***	1.128***
	(0.347)	(0.039)	(0.051)	(0.205)
New Democracy	-0.005	0.003	0.059	-0.022
	(0.290)	(0.033)	(0.053)	(0.165)
Federal Country	0.322	0.051	0.139**	0.151
	(0.275)	(0.033)	(0.052)	(0.147)
Ln(population)	-0.005	0.002	-0.001	-0.014
	(0.036)	(0.005)	(0.009)	(0.017)
Ethnic Divisions	0.718	0.107	0.115	0.578*
	(0.608)	(0.081)	(0.131)	(0.278)
National Variance Component	0.639***	0.010***	0.029***	0.171***
District Variance Component	0.640***	0.008***	0.057***	0.190***
Multilevel OLS Regression, Standard Errors in Parentheses, * p<0.05, ** p<0.01, *** p<0.001				
N Countries = 53, N Districts =6745 in all models				