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Rational entry and the conservation of disproportionality: Evidence from Japan

In this brief chapter I provide some district-level evidence pertinent to Taagepera and Shugart's Law of Conservation of Disproportionality, a proposition articulated at the system level that hinges on rational entry decisions. Both Taagepera and Shugart (1989:123) and Lijphart (1994:97), among others, have noted that the bivariate correlation between a system's proportionality and its number of parties reflects a reciprocal causal mechanism at work. Increasing the number of contestants (beyond some threshold determined by the electoral system's capacity to dispense seats proportionally, and holding all else constant) decreases measured proportionality. *Anticipated* deviations from proportionality, however, tend to depress the number of parties. For, if everyone anticipates a disproportional outcome, and everyone agrees that party A will be on the short end of this disproportional outcome, then party A has reason to drop out of the race. But if A does drop out, then the correspondence between votes and seats actually obtained will be less distorted than had been anticipated.[1]

The lesson that Lijphart (p. 97) draws from the reciprocal causation between the number of parties and the proportionality of the electoral outcome is that proportionality measured on the basis of actual vote shares will overestimate proportionality measured on the basis of true preferences: "Assuming that many voters cast their votes for larger parties because they do not want to waste their votes on small parties with poor chances of being elected, the parties' seat shares deviate much more from the pattern of the voters' true preferences than from the actual vote shares." The lesson that Taagepera and Shugart (p. 123) draw, essentially similar, is that measured proportionality will not respond as much to changes in electoral structure – in particular, increases in district magni-

[1]Sartori (1985:66, n. 12) is another who makes this kind of point, in his criticism of Rose (1983).

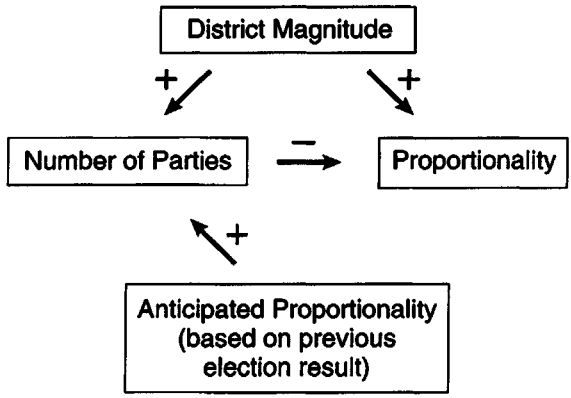

Figure 9.1. Conserving disproportionality

tude – as it would were no strategic adjustments to take place: thus their law of conservation of disproportionality.

The reasoning behind this law is straightforward. Higher district magnitudes boost the proportionality of a system but also tend to increase the number of parties competing. Increases in the number of parties, however, depress proportionality. Thus the direct positive effect of district magnitude on proportionality is partially offset by an indirect negative effect (via increases in the number of competitors).

Of course, as noted above, if parties *anticipate* a disproportional result at their own expense then they may well withdraw their candidate(s). The structure of relationships is thus as it appears in Figure 9.1: The number of parties is positively related to both district magnitude and anticipated proportionality; while actual proportionality is positively related to district magnitude but negatively related to the number of parties.

Plausible though the argument for a conservation of disproportionality may be, its empirical importance hinges on two conditions that may or may not be met in any given election. First, entry decisions must be sensitive to anticipated defeat (or underrepresentation) in the current election. This seems a natural condition to assume but it should be noted that the degree to which disproportionality is conserved depends on how sensitive party entry decisions are to variations in current electoral prospects. The level of sensitivity might be rather low for parties that take a long-term view and seek an eventual realignment of forces or change of regime (e.g., post-war communist parties).

Even if all parties in the system do base their entry decisions on their assessment of how well they can convert their votes into seats, a second condition is also necessary before any conservation of disproportionality is

to be expected: The parties must agree on who it is that is likely to suffer underrepresentation. If party A thinks only party B will suffer underrepesentation, and party B thinks only party A will, then both may enter. But then there will be no (or diminished) conservation of disproportionality.

All told, then, the theoretical expectation that there should be a conservation of disproportionality requires both that parties be short-term instrumentally rational, i.e., concerned substantially with converting their votes into seats in the current election, and that they have common expectations about the likely outcome of the current election. What is the empirical evidence for this proposition?

The only evidence of which I am aware takes advantage of a unique feature of Venezuela's former electoral law, under which Venezuelans cast a fused vote, but only for legislative races (Shugart 1985; Taagepera and Shugart 1989:120–125). There is not much opportunity to replicate Shugart's research design elsewhere because few other systems employ fused votes, and those that do include the presidential race. In this chapter, I offer an alternative research design that may be easier to apply to other systems.

This alternative approach uses district-level data (in this case, from Japan) to estimate a system of two equations that approximates the structure of forces postulated in Figure 9.1. In equation (1), proportionality is predicted as a function of district magnitude and the number of parties competing. In equation (2), the number of parties is predicted as a function of district magnitude, *past* proportionality (a proxy for *anticipated* proportionality), and the district's ruralness (introduced as a control variable).

Operationally, the analysis focuses on a measure of *dis*proportionality, rather than proportionality. The dependent variable in the first equation is $\text{EXCESS}_{it} = \text{ENPV}_{it}/\text{ENPS}_{it}$, where ENPV_{it} is the effective number of elective parties in district i, election t, and ENPS_{it} is the effective number of parliamentary parties in district i, election t. Large values of EXCESS indicate that there are substantially more parties chasing votes than winning seats, hence that there is a disproportion between vote and seat shares. Results are similar if a more conventional measure of disproportionality, e.g., Rae's, is used.

Table 9.1 displays the results of regressing EXCESS first on district magnitude alone (Model 1), then on magnitude plus the number of parties competing (Model 2), finally on both these variables and the lagged value of EXCESS (Model 3). The first model shows a weak negative bivariate relationship: Larger-magnitude districts have less disproportional results. The second model shows that the relationship between magnitude and disproportionality is substantially stronger when one controls for the number of parties competing. Thus, the impact of elec-

Table 9.1. The law of conservation of disproportionality: Japan, 1960–90

Dependent variable: $EXCESS_{it}$

Independent variables	*Model 1*		*Model 2*		*Model 3*	
	Param.	*Std. err.*	*Param.*	*Std. err.*	*Param.*	*Std. err.*
CONSTANT	1.32	0.032	1.16	0.031	1.01	0.044
$MAGNITUDE_{it}$	–.033	0.008	–.074	0.008	–.067	0.008
$N\ OF\ PARTIES_{it}$	—	—	0.101	0.007	0.095	0.007
$EXCESS_{i,t-1}$	—	—			0.123	0.026
R SQUARED	.01		.16		.17	
N OF OBS	1324		1324		1324	
DW STATISTIC	1.60		1.67		1.90	

Notes: The dependent variable, $EXCESS_{it}$, is a measure of disproportionality in the ith district at election t, equal to $ENPV_{it}/ENPS_{it}$, where $ENPV_{it}$ is the effective number of elective parties in district i, election t, and $ENPS_{it}$ is the effective number of parliamentary parties in district i, election t. Large values of EXCESS indicate that there are substantially more parties chasing votes than winning seats. $MAGNITUDE_{it}$ is the number of members elected from district i, election t. $N\ OF\ PARTIES_{it}$ is the number of parties running candidates in district i, election t. The estimation was performed using OLS.

toral structure on disproportionality is greater when strategic adjustments (entry and exit decisions as reflected in the number of parties competing) are held constant: Taagepera and Shugart's Law of Conservation of Disproportionality holds at the district level, at least in Japan. The final model is included because the first two suffer from positive autocorrelation. Including the lagged dependent variable takes care of this problem, while leaving the key regression coefficient (measuring the impact of district magnitude) unchanged.

The dependent variable in the second equation (see Table 9.2) is the number of parties competing in district i, election t. The regressors are the lagged number of parties (included to deal with autocorrelation), the district magnitude, the lagged value of EXCESS in the district, a measure of the ruralness of the district, and a series of year dummies. As can be seen, all of the independent variables of primary interest have statistically significant effects of the expected sign. The important result for present purposes is that districts that had more disproportional outcomes in the previous election – presumably those in which high levels of disproportionality would be expected, were the same cast of parties to enter the

Table 9.2. Predicting the number of parties: Japan, 1960–90

Dependent variable: N OF PARTIES$_{it}$

Independent variables	*Coeff. est.*	*Standard errors*
CONSTANT	0.52	0.14
N OF PARTIES$_{i,t-1}$	0.57	0.02
MAGNITUDE$_{it}$	0.18	0.02
EXCESS$_{i,t-1}$	−.19	0.08
PURBE$_{it}$	0.01	0.00
YEAR63	−.86	0.08
YEAR67	−.44	0.08
YEAR69	−.19	0.08
YEAR72	−.51	0.08
YEAR76	−.26	0.08
YEAR79	−.46	0.09
YEAR80	−.61	0.08
YEAR83	−.60	0.08
YEAR86	−.65	0.08
YEAR90	−.62	0.08
R SQUARED	.60	
N OF OBSERVATIONS	1323	
DURBIN-WATSON	2.25	

Notes: The estimation was performed using OLS. PURBE$_{it}$ is the percentage of all electors in the district who reside in urban areas. The variables YEARxx are all dummy variables, equal to one for observations occurring in year xx, equal to zero otherwise. See Table 9.1 for definitions of the other variables.

fray again – had fewer parties, *ceteris paribus*. The inference is that some parties, with reasonably significant vote totals but no seats last time, decided not to run again. Presumably, they traded their votes for reciprocal treatment in another district or for some other concession.

To return to the issue of conservation of disproportionality, the results indicate that a unit increase in district magnitude would directly *decrease* disproportionality by .067; but would indirectly *increase* disproportionality by .017 (because larger magnitudes lead to more competitors, and more competitors lead to more disproportional results).[2] Hence, the

[2]The .067 is the coefficient of MAGNITUDE in Model 3, Table 9.1. The .017 equals the coefficient of MAGNITUDE in Table 9.2 (.18) times the coefficient of N OF PARTIES in Model 3, Table 9.1 (.095).

overall effect of a unit increase in magnitude (the sum of the direct and indirect effects) is to decrease disproportionality by .050.[3] By these numbers, then, the direct effect of the change in magnitude, what we would like to measure, is about 1.34 times larger than the overall effect, what has usually been measured in the literature. To put the point another way, by failing to account for the strategic adjustment of parties, we underestimate the direct effect of changing the district magnitude by .017/.067 = 25%.[4]

The two-equation model presented here is not fully simultaneous, with current disproportionality and current number of parties both endogenous. It takes the view that (1) there is a temporal sequence in which the variables are determined: the number of parties is determined first, then the election is held, producing a disproportionality score of some value; and (2) the only basis on which parties might forecast disproportionality, at the time they are deciding whether to enter the race or not, is what happened last time. If there are other, contemporaneous sources of information available to parties regarding what the level of disproportionality might be, then a more fully simultaneous treatment might be appropriate.[5] But the current results do illustrate the interconnections between disproportionality, anticipated disproportionality, and number of parties in a somewhat finer-grained fashion than previous work at the system level has done.

[3]This estimate of the overall effect (−.050) is larger in magnitude than the estimate of the overall effect derived from Model 1, Table 9.1 (−.033). The discrepancy between these two estimates may indicate some misspecification of the model.

[4]Another way to interpret the results presented here is as describing dynamic adjustment paths over time. For a district of given magnitude (say 3) and urbanness (say 66% urban, the median for Japanese districts), in a given year (say 1983, by which time, judging from the string of similar year effects observed in Table 9.2, the system may have hit a steady state), the equations estimated in Tables 9.1 and 9.2 reduce to (dropping the i subscripts and letting E stand for EXCESS and N for N OF PARTIES):

$$E_t = 1.01 - .067(3) + .095N_{t-1} + .123E_{t-1} = .81 + .095N_{t-1} + .123E_{t-1}$$

$$N_t = 1.13 + .57N_{t-1} - .19E_{t-1}$$

If we assume that the system has hit a steady state, at which $N_t = N_{t-1} = N$ and $E_t = E_{t-1} = E$, then we have a system of two equations in two unknowns. Solving, we find that (approximately) $E = 1.27$ and $N = 2.07$.

[5]The econometric model is consistent with a rational expectations approach if the only systematic information that potential candidates possess about the likely outcome of the current election, when they must make their entry decisions, is the last electoral result in the district.