Chapter 6 Online Appendix

Potential shortcomings of SF-ratio analysis

Using SF-ratios to understand strategic behavior is not without potential problems, but in general these issues do not cause significant problems for our analysis in this chapter. One potential problem with using SF-ratios to understand strategic behavior is that they cannot demonstrate who the key actors are. An SF-ratio around zero does not tell us if voters have cast ballots strategically or if there has been a strategic desertion of the race by candidates. However, this issue does not worry us here. To begin with, it is a problem in most individual-level surveys of voters, as such surveys tend to focus purely on the set of choices available to voters, not how they would have behaved in the face of a different set of candidates and/or parties. In addition, our concern in this chapter is not who the key strategic actors are, but rather the conditions under which strategic behavior (in the form of strategic defection) is most likely.

Cox (2001) raises another potential problem – that the meaning of SF-ratio values can be ambiguous: A value of one might occur when (a) both the second and third loser are considered potentially strong candidates – and so, therefore, voters abandon neither – or (b) when both are truly minor candidates, neither of whom receives many votes. Again, we do not believe that this issue raises significant problems for our analysis because we include in our models a measure of the competitiveness of the race between first and second place, which therefore makes it possible for us to distinguish between the (a) and (b) types of SF-ratio values of one.

The "ecological inference" problem is the most obvious disadvantage to any analysis that uses aggregated data to understand individual behavior. That is, it is impossible to know which individual voters within a large group are driving aggregate patterns and for what reasons. As a

result, it is not always possible to draw accurate inferences about individual-level voter behavior based on data that are put together simply by aggregating thousands of votes.[1]

Just Looking at SF-ratios (not the multivariate analysis) – Effect of Mixed System Tier Linkage on Strategic Defection?

Looking simply at the SF-ratio patterns in Appendix 6A, we see only limited evidence to suggest that there will be more strategic defection under unlinked mixed system rules. As we noted earlier, it is likely that there will be less strategic defection from poorly ranked candidates in systems where seat totals are primarily dependent upon PR vote success – in short, where strategic behavior in the SMD tier will be unlikely to alter the total number of seats a party will win. It is *possible* that the lack of clear SF-ratio patterns that we see in Scotland and Wales are a result of their linked systems (see Appendix 6A1). That being said, linked systems in Germany and New Zealand appear to demonstrate the same clear pattern of SF-ratios leaning toward zero in the SMD tier as is the case in unlinked systems such as Japan's.[2]

At the same time, in order to determine whether SF-ratio patterns really are based on strategic behavior, we need to control for factors such as the closeness of the race. For example, in contrast to substantially closer races in later years, the average margin of victory in Germany in 1953 was 22 percentage points, leaving many uncompetitive districts where strategic defection made little sense.

Analysis that takes into account previous outcomes

[1] Of course, this is also an issue for the other major approach to studying strategic voting in mixed-member systems,
[2] If anything, the SF-ratio pattern shifted toward zero more quickly in Germany and New Zealand than in Japan.

The main model (Model 2 in Table 6.1) we used to estimate the impact of the different variables on SF-ratios does not take into account how past results shape current ones. That is, presumably, all else being equal, there will be no change in the SF-ratio from election to election. For this reason, it is useful to examine the relationship between the SF-ratio and the different variables here once we also include the SF-ratio in the previous election as an explanatory variable. For reasons that we explain in Appendix 6B, we do not include this variable in determining Figure 6.3. But we do include it in Model 4 in Table 6.1. When we include the SF-ratio in the previous election as an explanatory variable, we no longer find a statistically discernible effect of the margin of victory in new democracies. In either case, close races in SMDs in new democracies do not appear to have the expected effect of driving down the SF-ratio.

We should add that in this alternative model the effect of the margin of victory in established democracies variable becomes smaller, but remains statistically significant: All else being equal, races in which one candidate dominates the competition have an expected SF-ratio of .38, as compared to .28 in very close races.

Voters *and* Elites

In our discussion in this chapter, we highlight the strategic defection of both voters and elites. Strategic defection by voters – i.e., voters shifting their support from their most preferred candidate to one who is more likely to be competitive – is the most commonly discussed form of strategic electoral behavior. However, at least as important is the behavior of elites: Party leaders, campaign contributors, and candidates themselves are much less likely to support potentially uncompetitive candidates, thereby helping to winnow down the number of strong

candidates. At the same time, elite defections are predicated in part on anticipated voter defections. Thus, the aggregate behavior of voters is critical to sending both elites and voters a signal as to who is competitive, and voters' strategic behavior therefore is very much a part of the electoral outcomes and party systems that emerge.

Some evidence suggestive of strategic defection in mixed-member systems

Past analysis of ticket splitting under mixed systems offers suggestive evidence of the existence of greater strategic defection under SMD rules. For example, looking at elections in five mixed-member systems in the 1990s, Moser and Scheiner (2000) find that the average first place candidate won anywhere from 3.4 (in Lithuania) to 11.7 (in Japan) percentage points more votes in her SMD than her party won votes under PR within the district. Strategic voting is frequently held up as one of the principal reasons for this ticket splitting (Bawn 1999; Cox 1997; Fisher 1973; Roberts 1988; Reed 1999). Most studies assume that votes cast in PR balloting usually represent voters' true preferences, and that many of the "extra" SMD votes going to the top candidates in SMDs under mixed systems are strategic ballots cast by voters who want to affect the race.

Moser and Scheiner (2000) find that a candidate's place in the SMD election has a substantial impact on the difference between her votes under SMD balloting and her party's vote under PR: In the 1990s, most winning and second place candidates in Germany (1998), Japan (1996), and New Zealand (1999) received a larger number of SMD votes in their district than their party did in the SMD in PR balloting. In contrast, third and worse placed candidates were markedly less likely to have a positive SMD-PR vote gap: In Germany, for example, only three percent of first place candidates, but 94.5 percent of fourth place candidates won fewer SMD

votes than their party won PR ballots. In contrast, very different ticket splitting patterns existed in Russia (1999), where there was relatively little difference in the percentage of candidates at different ranks with a smaller number of SMD than PR votes: 33.3 percent of first place candidates and 28.9 percent of fourth place candidates received fewer SMD votes than their party won PR ballots in the district (Moser and Scheiner 2000). The implication is that in established democracies there are large numbers of voters who defect strategically from their top choice under plurality rules. In contrast, there is less evidence of such a pattern in new democracies.

Johnston and Pattie's analysis of split ticket voting in the initial elections under the mixed-member systems in New Zealand, Scotland, and Wales indicates that "many electors will only vote a split ticket when they receive and are convinced by information suggesting that this is a sensible strategy" (2002: 598).

Evidence from Hungary (Duch and Palmer 2001)

Benoit (2001) provides similar evidence of strategic voting in Hungary.

Germany

We should add that, there was no overwhelming mode in the SF-ratio patterns in SMDs in 1953 in Germany, the country's first election in the postwar period under the mixed-member system (see Appendix 6A1). With the shift toward 0 in 1957, it appears that over time voters and elites strategically moved away from SMD candidates who were ranked lower than second place.

Germany is unique in that its SF-ratios in PR regularly have modes that push toward zero. That being said, it should be noted that these modes are still somewhat removed from the more

extreme zero position. Moreover, Germany is unique among mixed-member systems in having two large parties that have dominated the country's politics for many years. Most likely, all of these features are due in part to Germany's somewhat high (five percent) legal threshold of representation in the PR tier.

Russia

As noted in Chapters 1 and 3, the PR vote in Russia arguably provided more information in the form of voter surveys that showed the relative support for PR parties, and thus indicated that some of these parties were unlikely to overcome the five percent legal threshold. However, similar information was usually not available for local SMD races between candidates (see Moser 1999).

Even in 2003, independent candidates did not cease to be a major part of Russian elections. In the last election held using a mixed-member system, 77 independent candidates won election, which was less than United Russia's 97 seats but greater than the total seats won by all other parties.

Predicted Effect of Tier Linkage

We should add that, given the substantial strategic defection that we saw in Chapter 5 in the German and New Zealand linked systems and the fact that all of the postcommunist countries in our data set use unlinked systems, we did not feel confident that our results would show evidence of the impact of linkage mechanisms on strategic defection.

Including previous election in the analysis

We also run Model 4 (Table 6.1), which replicates Model 2 but with a control for autocorrelation. We include as an independent variable *SF-ratio t-1*, which was the SF-ratio in the district in the previous election. Presumably, to some degree the SF-ratio we see in a district is simply a function of the past: Voters continue to cast ballots similar to how they did in the previous election. We had not controlled for this in Model 2 because using a lagged dependent variable forces us to drop the first election under the mixed system in any country and we assumed that one of the greatest shifts in strategic behavior would be from the first to the second election. In addition, we were unable to guarantee that district boundaries stayed the same for a number of our cases, and therefore including the lagged dependent variable forces us to reduce our number of cases even more. Nevertheless, we thought it important to make sure that leaving out this variable did not especially bias our results and therefore run Model 4, which includes as an explanatory variable the SF-ratio (with a logit transformation) from the district in previous election. The lagged dependent variable (*SF-ratio t-1*) has a strongly positive and significant relationship with the SF-ratio in the current election, but the results for the other variables do not change markedly. The coefficients on the margin of victory variables are smaller, but they continue to indicate the same patterns as seen in Model 2. We see no evidence of strategic defection in new democracies (Margin of Victory is now non-significant), but see quite a bit in established democracies. Election Number (log) now has a non-significant coefficient, but we attribute this to the elimination of the first election – because we cannot compute a lagged dependent variable for the first election – from the analysis, when we expect the greatest difference in strategic behavior between the first two elections.

Also, it may be inappropriate to use time t information on the closeness of the race to predict voters' strategic behavior in the election at time t. For reasons that we outline in Chapter

5, we are not terribly concerned by this issue, but to do due diligence we run Model 5, which is the same as Model 4 but now measure closeness of the race by using the Margin of Victory in the district in the previous election. We also use this measure to create a new interaction term between Margin of Victory (previous election) and Established Democracy. Given that including these t-1 measures of the closeness of the race means that we must necessarily drop any cases for which we cannot calculate previous election results in the district, there is no longer a need to avoid using the lagged dependent variable, so we also include SF-ratio t-1 in the model. The substantive meaning of the results for Model 5 does not differ markedly from those in Model 2: We still see a lack of evidence of strategic defection in new democracies and still find substantial strategic defection in established democracies. Indeed, as Figure 6.5 illustrates, the impact of the closeness of the race appears to be even greater using the lagged measures from Model 5 rather than the time t measures from Model 2.

Additional Models

We also run two additional versions of the model, but do not include their results in Table 6.1. We were concerned that perhaps Germany's (many) later elections were exerting too much influence on our results, so we ran a model that drops all elections after the first 4 for any country. There were no major changes in results, although the coefficient on Unlinked became non-significant (but still is negative). Also, we ran a model that replaced Election Number (log) with a dichotomous dummy variable that indicated if the election was the first under the mixed system. Again, the results for our most important variables – most notably, the Margin of Victory variables – did not change much, but here, too, the coefficient on the linkage variable became non-significant (but still is negative). In short, these results suggest that our findings

about strategic voting are very robust, but that we can be less confident about the impact of the SMD-PR linkage rules on SF-ratios.

Additional Detail on the Established Democracy Cases

The most obvious exceptions to the pattern of established democracies quickly shifting toward SF-ratios near zero are Scotland and Wales, where, despite a long history of democratic elections, SF-ratio patterns tended to show no clear pattern. Four reasons appear to account for the lack of clear patterns in these two cases: The first reason is akin to Cox's (1997: 79) condition for Duvergerian outcomes that voters be short-term instrumentally rational. As we discuss in Chapter 5, in both Scotland and Wales, there was a general sense on the part of voters as time went on that it was the central U.K. government – and not their own Scottish or Welsh assembly – that was really in charge (Boon and Curtice 2003; ESRC 2003: 4; Glendinning and Scully 2003). For voters who felt this way, there was far less reason to try to use votes for the sake of policy representation. Second, more along the lines of our theoretical discussion above, in both Scotland and Wales surveys indicate that voters had very little sense of the differences between the parties (Boon and Curtice 2003: 4; Glendinning and Scully 2003: 6, 18). Lacking such information, voters faced relative difficulty casting strategic votes. The fact that the SF-ratios in both the SMD and PR tiers are roughly similar to one another in both Scotland and Wales suggests that many voters ultimately focused simply on casting sincere votes in the SMD tier (although the analysis in Chapter 5 suggests that many others cast personal votes for a different party's candidates). Third, the existence of important regionalist parties in the Plaid Cymru in Wales and the Scottish Nationalist Party may have undermined another of Cox's conditions for strategic defection: These parties probably enjoyed a higher level of core support

than other third parties, and their supporters stuck with them despite little likelihood of success because they saw little significant difference between the more competitive parties. Finally, our data set includes only the first two elections in Scotland and Wales, and it is possible that SF-ratio patterns shifted toward zero later.

In Japan, the shift toward zero occurred relatively slowly as well, not occurring until 2003, the third election under the new system. This lag is probably a function of a number of factors. Among established democracies, Japan has a relatively weak party system in the sense that independent candidates make up a fairly large part of the system and voting is highly candidate-centered. As a result, parties were probably less capable of structuring vote choices than they might have been in other established democracies. In addition, from 1993 on, the Japanese party system was in flux, with many new parties entering and exiting the system (Scheiner 2006). Further muddying the water for voters and elites, a number of small parties ran in every election. Most notably, until 2007 the Japan Communist Party (JCP) had a policy of running a candidate in nearly every district (Baker and Scheiner 2004). Supporters of the Communist Party candidates tend to be neither short-term instrumentally rational nor much interested in casting ballots for a "lesser of two evils," thus going against two key conditions that Cox argues are necessary for Duverger's Law to hold. However, over time, these smaller parties have had less of a presence. They have run in fewer districts and voters have gradually shifted away from voting for them.

Trichotomous Dependent Variable

We also run two additional models in which the dependent variable is the SF-ratio for each district broken down into one of three SF-ratio categories: 0-.25, .25.-.75, and .75-1.0. We decided to group the data into these categories because we deemed changes across categories more meaningful (e.g., a change from .1 to .3) than changes within categories (e.g., a change from an SF-ratio of .4 to one of .6). Following the literature (especially Cox 1997), we used relatively demanding criteria for our two extreme categories so that the Duvergerian outcome of 0 and non-Duvergerian outcome of 1 were smaller than the middle category in order to better distinguish our two extreme categories. To the best of our knowledge, the Linear Mixed Model we used to analyze our continuous dependent variable was not available for a discrete variable with more than two choices, so here we run a random effects ordered probit model, where the trichotomous variable categories represent three discrete values in an ascending order. We run this using Generalized linear latent and mixed models (GLLAMMs) in Stata.

In many ways, this trichotomous measure that categorizes results as either close to 0, close to 1, or in the middle is a more reasonable one, as small shifts in SF-ratios may be fairly meaningless from the perspective of understanding strategic defection, but shifts between the categories may tell us quite a bit more. Ultimately, the Duvergerian logic hypothesizes a dramatic shift to nearly zero, given widespread strategic defection from parties that are out of the running (or corresponding elite strategic behavior that is in anticipation of such voter defection).

Using this new dependent variable, we run Models 7 and 8 (not show, which, respectively, use the same explanatory variables as, Models 2 and 5. In Model 7, our variables are based on the new democracy/established democracy dichotomy, with Margin of Victory measured for the current election. As shown in Table 6.2, the results for Model 7 are largely the

same as in Model 2, but the coefficient on Margin of Victory is no longer significant. In other words, there is no discernible impact of the closeness of the race in new democracies. The results for Model 8 are also quite similar to those in Model 5. Using the t-1 measure of Margin of Victory and a t-1 measure of the SF-ratio in the district, most of the variables remain statistically significant. However, again, closeness of the race (now lagged) is no longer statistically significant.

[Table 6.2 about here]

Given these results, we argue that the more difficult (and arguably telling) test of strategic voting – a shift from middling SF-ratios to extreme ones – correspond to our general argument that there is substantial evidence of strategic defection in established democracies but not in new ones.

Table 6.2: Random Effects Ordered Probit Model of Correlates of Trichotomous SF-ratio

	(7) Estab. vs. New		(8) Lagged DV and Margin	
	Coef.	**SE**	**Coef.**	**SE**
Election Number (log)	-0.463	(0.021)***	0.045	(0.042)
SFPR	2.834	(0.069)***	2.407	(0.099)***
Margin of Victory	-0.116	(0.179)	-0.536	(0.389)
Established Democracy	-1.136	(0.054)***	-1.612	(0.093)***
Margin*Estab. Dem.	1.070	(0.214)***	2.195	(0.420)***
No SMD-PR Linkage	-0.697	(0.043)***	-0.277	(0.061)***
SF-ratio t-1			0.616	(0.033)***
Cut-point 1	-0.609	(0.068)***	0.408	(0.128)***
Cut-point 2	1.059	(0.068)***	1.956	(0.130)***
N	8,603		4,875	
Number of countries	11		9	

$^{+}p < 0.1$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

ID Variable: Country (11)

Unit of Analysis: Single-member district

Dependent variable: Trichotomous SF-ratio (1st loser vote divided by 2nd loser vote)

- SF-ratio between 0 and .25 is coded as 0
- between .25 and .75 is coded as 1
- greater than .75 is coded as 2