## Supporting Information for "Signaling and Counter-Signaling in the Judicial Hierarchy: An Empirical Analysis of *En Banc* Review"

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In this appendix, we:

- explain our case selection procedures;
- describe our weighting and variable creation procedures;
- present a robustness check using an alternative measure of the whistleblower.

## Case Selection

Our dataset comprises two distinct sources of cases that differ according to whether a particular three-judge panel decision was reviewed *en banc* or not.

Our starting point is the Songer Database, which comprises a random sample of published cases heard in the Courts of Appeals from 1925 to 2002 (Songer 1999, Kuersten and Haire 2007). Specifically, the database samples 30 cases from each circuit for each year. From this sample, we selected each case heard between 1986 and 2002. For each case, we identified the ideological direction of the panel's decision based on the coding procedures in the codebook for the database. If the ideological direction of a case could not be ascertained, we dropped it. We then identified the three judges on the panel; if there was a dissent on the case, we identified which judge on the panel dissented. (We dropped the handful of cases with multiple dissents.)

To increase statistical power, we then augmented this dataset with all cases that were re-heard *en banc* that we had not already collected. the universe of *en banc* reviews of threejudge panel decisions made between 1986 and 2002, subject to the constraint that some cases were not included due to missing data or because the ideological direction of the disposition could not be ascertained. We started with the *en bancs* analyzed in Clark (2009), which covered the 1986 to 1996 period. This dataset identified whether there was a dissent from the three-judge panel decision, but did not identify which judge dissented. We added this information (again dropping a small number of cases with multiple dissents). In a few cases, the panel decision was not available (because it had been withdrawn upon the granting of *en banc*), and we dropped these from our dataset.

Next, we sought to obtain the universe of panel decisions decided from 1997 to 2002 that were reheard *en banc*. Specifically, we used the following search in Westlaw: SY,DI(BANC % "BANC DENIED")—this means the search examines both the synopsis of the case and Westlaw's digest of the case. We examined the cases that resulted from this search to determine if they were both actual grants of *en banc* review and that they originated from a three-judge panel; we did not include cases that went directly from a district court decision to the full circuit. Because votes for rehearing often come a year or two after a panel decision is made, we extended our search through 2004 to capture all potential panel decisions through 2002 that may have been reheard. With these cases in hand, we then added necessary information on the panel decision, the judges in the case, whether there was a dissent, and the general issue in the case (based on the coding of the **geniss** variable in the Songer database). As above, we excluded cases with no clear ideological direction. Finally, in rare instances, multiple panel decisions will be consolidated into a single *en banc* review. In these instances we treated each panel decision as a separate observation.

For cases reheard *en banc*, we then proceeded to code whether the full circuit reversed the three-judge panel's decision. When analyzing a panel decision, it is usually clear whether the panel reverses the lower court, since this information in contained directly in the summary of a case. With *en bancs*, however, such an approach is not possible, since the full circuit usually withdraws the panel's decision upon the grant of review, and thus it is not clear whether the full circuit is reversing (or upholding) either the district court's decision or the panel decision. Therefore, to generate a reliable and valid measure of reversal, we coded the direction of each *en banc* decision as either liberal or conservative, using the same coding

protocols as used in the Songer database. If the panel made a liberal decision and the full circuit made a conservative decision, we code this as a reversal (and likewise if the panel made a conservative decision and the full circuit made a liberal decision).

A note about the Ninth Circuit The Ninth Circuit is unique in that uses a "mini enbanc procedure." Instead of all the judges sitting together *en banc*, a subset of judges from the circuit—specifically the Chief Judge plus 10 additional judges selected at random—is drawn to hear *en banc* cases. The use of this procedure does not affect our review results, since the subset is not drawn until *after* the full circuit votes to rehear a case.<sup>1</sup> With respect to reversal, it is possible that in any given case we have mis-measured the ideal point of the median judge on any given *en banc* panel, should it differ from the ideal point of the median judge on the full circuit. However, such deviations should cancel out on average, given the random assignment of 10 of the 11 judges on the *en banc* court, and any measurement error should weaken our results. As a robustness check, we reran the analyses dropping the 9th circuit and the results were unchanged.

## Constructing weights

The result of this procedure is that our data includes all decisions made by three-judge panels between 1986 and 2002 that were ultimately reviewed *en banc*, plus a stratified random sample of cases that were not reviewed *en banc*. As such, observations need to be weighted in two ways in order to make proper population-level inferences (Manski and Lerman 1977). First, due to the fact that the Songer database samples cases equally across circuits, circuits with lighter caseloads are overrepresented relative to circuits with higher caseloads. Second, reviewed cases are (greatly) overrepresented relative to non-reviewed cases. For all the analyses that appear in the paper, we constructed weights to account for both types of

<sup>&</sup>lt;sup>1</sup>See p. 142 of the 9th circuit's rules, available at http://www.ca9.uscourts.gov/rules/: "The *en banc* court, for each case or group of related cases taken en banc, shall consist of the Chief Judge of this circuit and 10 additional judges to be drawn by lot from the active judges of the Court. In the absence of the Chief Judge, an 11th active judge shall be drawn by lot, and the most senior active judge on the panel shall preside. The drawing of the *en banc* court will be performed by the Clerk or a deputy clerk of the Court in the presence of at least one judge and shall take place on the first working day following the date of the order taking the case or group of related cases *en banc*."

oversampling. To obtain the total number of cases in the universe, we use the number of published cases (since the Songer database only samples published cases) in each circuityear.<sup>2</sup> Cases that were not reviewed *en banc* are weighted by the inverse of these population proportions. To account for the oversampling of cases that were reviewed *en banc*, we need to know the probability of *en banc* review in the population. We estimate this probability by dividing the number of published cases from that circuit-year that were reviewed *en banc* by the total number of decisions published in that circuit-year. We then calculate the proportion of cases in our data that were reviewed *en banc* for each circuit-year. Cases that were reviewed *en banc* are weighted by the ratio of these two quantities.

As we note in the text, the analysis of reversal is based on the universe of *en banc* decisions, so we do not employ weights in these analyses.

## Constructing judicial ideology measures

Information on each judge's appointing president, party of the appointing president, home state and year of appointment was taken from the appeals court judges attribute database (Gryski and Zuk 2008); for district court judges sitting by designation, the same information was taken from the district court judges attribute database (Gryski, Zuk and Goldman 2008). In some cases, either a judge from the Federal Circuit or a non-Article III judge (for example, one from the U.S. Court of International Trade) sat on a three-judge panel. We used the biographical database of the Federal Judicial Center, available at http://www.fjc.gov/public/home.nsf/hisj, to identify the judge's appointing president and the president's party.

The measure of judicial ideology used in the regression analyses are the scores created by Giles, Hettinger and Peppers (2001). They involve using the Common Space scores (that is, ideal point estimates of the President and members of Congress that are comparable across time and branches) of the appointing president and/or a nominee's home state senators

 $<sup>^2{\</sup>rm This}$  measure was provided to us by Stefanie Lindquist, and comes from caseload data from the Administrative Office of the U.S. Courts.

(Poole 1998). The procedure is the same for all appeals court judges and district court judges.

The first step is to determine whether senatorial courtesy is in effect. Following Giles, Hettinger and Peppers (2001), we assume that senatorial courtesy exists whenever one senator from a nominee's home state is of the same party as the president. If one (and only one) senator is of the same party, then the GHP score takes on that senator's Common Space score. If both senators are of the home state party, the GHP score is average of their Common Space scores. If neither senator is of the president's party, the GHP score takes on the president's Common Space score. We assume that senatorial courtesy is not in effect for judges appointed to the D.C. Circuit, judges who come from U.S. territories, all non-Article III judges. Thus, for these judges, their GHP scores is the common space score of their appointing president.

For each judge we coded their appointing president's Common Space score, the Common Space scores of the judge's home state senators, and whether senatorial courtesy was in effect during the judge's nomination. In some cases, more than two senators served during the Congress in which a nominee was appointed. Using the "Biographical Directory of the United States Congress," we determined which two senators were in office at the time of the judge's nomination. (The directory can be accessed at http://bioguide.congress.gov/biosearch/biosearch.asp.) We then created GHP scores using the above criteria.

To obtain the ideology of the full circuit for our analyses, for each circuit and each year from 1986 to 2002, we collected the name and party of the appointing president of every active judge from the biographical database of the Federal Judicial Center, available at http://www.fjc.gov/public/home.nsf/hisj. We counted a judge as being active in a given year if he or she served at least six months in that year. Senior judges were not included. For example, if a judge took senior status in May 2003, she was not counted as having been active in 2003. We then calculated the GHP score of each active judge on a circuit, and then calculated the median score in a given year.

## Analysis using alternative measure of the whistleblower

While the robustness checks presented in the paper support our theoretical claims, a potential objection is that the analysis assumes that the same judge serves as the whistleblower, regardless of whether the panel makes a liberal or a conservative decision. Of course, this may not be the case—on a three-judge panel, the whistleblower may vary depending on the decision the panel reaches. For example, when the panel is more liberal than the circuit, we identify the whistleblower as the most conservative judge on the panel. But when the panel makes a conservative decision, this judge is in fact *most* favorably disposed to the panel's disposition, so one might expect the most *liberal* judge to be the whistleblower, given that is the judge *least* disposed to the disposition. This expectation is based simply on the interaction between judges' preferences and the panel's decision, and is thus independent of the location of the circuit.

An alternative measure of the whistleblower, derived from *votes*, captures this possibility using the following operationalization: define the whistleblower as the most liberal judge if the panel disposition is conservative, and the most conservative judge if the panel disposition is liberal.<sup>3</sup> The downside of this measure is that it is endogenous to the votes in the case, whereas our preference-based measure is not. Note, however, that in *suspicious decisions* with dissent, the two measures will lead to identical codings of the variable *whistleblower dissent*, and thus the key difference comes when evaluating non-suspicious decisions.

Our theory predicts that dissents from such decisions should *not* trigger *en banc* review. Again, this is not always true empirically, as some dissents by these judges do generate review. But, just as with the preference-based measure of the potential whistleblower, dissents by "votes-based" whistleblowers should not trigger review in non-suspicious decisions in a manner consistent with the predictions about counter-preference signals and panel-circuit distance.

<sup>&</sup>lt;sup>3</sup>Note this does not assume the potential whistleblower *disagrees* with the disposition, just that he will get less spatial utility than his colleagues, given the utility function in the model, which is a function of the distance between a judge's indifference points and the case facts.

	(1)	(2)	(3)
Intercept	$-5.37^{*}$	$-6.29^{*}$	-6.02
	(0.18)	(0.21)	(0.40)
Whistleblower dissent	2.19	2.77	2.83
	(0.42)	(0.43)	(0.45)
Suspicious decisions	0.06	0.19	0.26
	(0.22)	(0.24)	(0.24)
Panel-whistleblower (P-W) distance	-0.43	0.14	-0.08
	(0.47)	(0.53)	(0.55)
Panel-circuit (P-C) distance	0.11	0.46	0.07
	(0.49)	(0.49)	(0.49)
Suspicious decision $\times$ (P-W) distance	-0.46	-0.87	-0.78
	(0.53)	(0.60)	(0.61)
Suspicious decision $\times$ (P-C) distance	2.65	2.32	2.40
	(0.56)	(0.58)	(0.59)
Whistleblower dissent $\times$ suspicious decision	0.64	0.40	0.62
	(0.54)	(0.54)	(0.56)
Whistleblower dissent $\times$ (P-W) distance	0.02	-0.76	-1.17
	(1.27)	(1.28)	(1.33)
Whistleblower dissent $\times$ (P-C) distance	-0.71	-0.86	-0.99
	(0.97)	(0.97)	(0.95)
Whistleblower dissent $\times$ suspicious decision $\times$ P-W distance	-1.23	-0.51	-0.50
	(1.42)	(1.44)	(1.49)
Whistleblower dissent $\times$ suspicious decision $\times$ P-C distance	1.23	1.28	1.69
	(1.17)	(1.19)	(1.17)
Non-whistleblower dissent		2.52	2.64
		(0.14)	(0.15)
Panel reversed lower court		0.75	0.78
		(0.11)	(0.11)
	5589	5589	5589
AIC	126.44	129.98	190.94

Table A-1: Regression models of review, using the votes-based measure of the potential whistleblower. The inputs of the model are the same as in Table 2 in the paper. Each model is a weighted logit. Standard errors in parentheses. Fixed effect for circuits, years, and issues are estimated in Model 3, but not displayed.

Table A-1 presents three regression models of *en banc* review that parallel Models 1-3 in Table 2 of the paper, except that we use the alternative measure to create the preferences of W. We then define panel-whistleblower distance as the absolute value of the distance between the panel median and the whistleblower. We use Model 2 in this table to generate Figures A-1A and A-1B, which parallel the results in Figure 5C and Figure 5D in the paper, respectively. Again, we see that both distances play no role in the probability of review. Thus, even when we define the whistleblower in terms of votes, the probability of review of non-suspicious decisions does not vary in the location of the panel or the whistleblower, consistent with the predictions of the model. Taken together, we are confident that our theory and empirical approach is capturing the way in which dissents interact with preferences in the judicial hierarchy.



Figure A-1: Predicted probabilities of *en banc* review in non-suspicious decisions, using an alternative measure of the whistleblower. A) How the probability of review changes as the distance between the panel median and whistleblower increases, in non-suspicious decisions with whistleblower dissents. B) How the probability of review changes as the distance between the panel median and circuit median decreases, in non-suspicious decisions with whistleblower dissents. Results based on Model 2 in Table A-1.

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