RATIONAL JUDICIAL BEHAVIOR:

A STATISTICAL STUDY

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ABSTRACT

This paper analyzes the connection between ideology and voting of judges using a large sample of court of appeals cases decided since 1925 and Supreme Court cases decided since 1937. The ideological classifications of votes (e.g., liberal or conservative) are dependent variables in our empirical analysis and the independent variables include the party of the appointing President, the relative number of Republican and Democratic Senators at the time of the judge's confirmation, the appointment year, characteristics of the judge (e.g., gender, race and prior experience), and the ideological make-up of the judges on the court in which the judge sits as measured by the relative number of judges appointed by Republican and Democratic Presidents. We have a number of interesting results, including how a judge's voting's is affected by the voting of the other judges he serves with. We find a political-polarization effect among Justices appointed by Democratic but not by Republican Presidents; that is, the fewer the judges appointed by Democratic Presidents, the more liberally they vote. With regard to court of appeals judges, we find a conformity effect: if the number of judges appointed by Republican Presidents increases (decreases) relative to the number appointed by Democratic Presidents, all judges in the circuit tend to vote more conservatively (more liberally).

1. INTRODUCTION

A large literature, mainly in political science, uses statistical techniques to explain various aspects of judicial behavior, with particular emphasis on

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federal appellate judges—circuit (that is, court of appeals) judges and Supreme Court Justices. Legal writers have tended to ignore this literature despite its richness,[2] in part because its vocabulary and empirical methodology are unfamiliar and in part because, unlike economic analysis of law, it does not have clear implications for the reform of legal doctrine and cannot readily be integrated into the teaching of the major law school courses. We believe, however, that it has a great deal to offer to the understanding of judicial behavior—a subject of theoretical interest to economists as well as to other social scientists and to academic lawyers and of practical significance to lawyers and judges.[3] We try to make a distinctive contribution to the literature in this paper.

2 A number of the previous studies, mainly by political scientists, are based, as is ours, on one of two large databases (or both)—a court of appeals database called the "Songer" database[4] and a Supreme Court database called the "Spaeth" database.[5] These databases record data on a large sample of court of appeals cases decided since 1925 and Supreme Court cases decided since 1937. (Appendix B describes the databases.) Many of the data collected about each case—such as the date of the case, the main issue in it, and its disposition by the court—are straightforward or nearly so. But a critical datum is not. It is the classification of the vote of each judge or Justice as being "liberal," "conservative," "mixed," or "other." (The "mixed" and "other" categories are found only in the court of appeals database.) "Mixed" means that the judge voted for an intermediate outcome, for example to affirm a criminal conviction but reduce the sentence; in other words, he cast a

2 A richness exemplified by James L. Gibson, "From Simplicity to Complexity: The Development of Theory in the Study of Judicial Behavior," 5 *Political Behavior* 7 (1983).

3 Richard A. Posner, *How Judges Think* (2008).

4 The "U.S. Courts of Appeals Database" was originally compiled by Donald R. Songer, and updated by Ashlyn K. Kuersten and Susan B. Haire. It is archived at the S. Sidney Ulmer Project for Research in Law and Judicial Politics, available at www.as.uky.edu/polisci/ulmerproject. For data about the attributes of the judges, we used "The Attributes of Federal Court Judges Database," originally compiled by Gary Zuk, Deborah J. Barrow, and Gerard S. Gryski, also archived at the S. Sidney Ulmer Project home page and sometimes referred to as the "Auburn" database.

5 The U.S. Supreme Court database was compiled by Harold J. Spaeth for the 1953–2000 terms and by Lee Epstein and Jeffrey A. Segal for the 1937–1952 and 2001–2006 terms. The "justice-centered" databases that we used ("The Justice-Centered Warren Court Database," "The Justice-Centered Burger Court Database," and "The Justice-Centered Rehnquist Database") were created by Sara C. Benesh from the original Spaeth database. All these Supreme Court databases are also archived at the S. Sidney Ulmer Project for Research in Law and Judicial Politics.

liberal vote on one issue and a conservative vote on another in the same case. "Other" means that the vote had no political valence—usually because the opposing sides could not be classified as "liberal" and "conservative." The ideological classifications of votes are dependent variables in studies that seek to explain judicial behavior by reference to judges' characteristics, such as (the particular interest of political scientists who study the courts) whether a judge is "liberal" or "conservative." That characteristic is usually proxied by the party of the President who appointed the judge—if it was the Democratic Party the judge is deemed "liberal" and if the Republican Party,"conservative." Other proxies are sometimes used, however.

3 Of course it is possible to question the assumption that all judges appointed by Democratic Presidents are liberal and all judges appointed by Republican Presidents are conservative. But for some purposes the realism of the assumption is irrelevant. If the question, for example, is whether Democratic Presidents appoint more liberal judges than Republican Presidents do, the classification of the votes supplies the answer: If judges appointed by Democratic Presidents vote more often for liberal outcomes than judges appointed by Republican Presidents, it doesn't matter whether a particular judge, when appointed, would have been considered liberal.

4 But the classification of judges' votes is problematic in the two databases. A problem limited to the court of appeals database is that the coders who classified decisions as liberal or conservative (or mixed or other) apparently had trouble classifying older cases. A spot check of 40 cases, 10 from each approximately 20-year period in the database (which, remember, covers the 77 years from 1925 to 2002), reveals a high error rate in cases decided before 1960.[6] Second—and again this is a more serious problem with the court of appeals database—a number of the systematic classification decisions that the coders made are erroneous, such as classifying all votes for plaintiffs in intellectual-property cases as liberal. We have reviewed and corrected the systematic classifications, as explained in Appendix C. But we have not reread enough of the actual decisions to be able to correct the misclassification of individual cases, as distinct from categories such as intellectual property.

5 We also found numerous coding anomalies in the court of appeals database. For example, more than a thousand votes were associated with judge

6 In the first sample, consisting of cases decided between 1925 and 1940, the error rate is 40 percent; in the second sample, 1940 to 1959, it is 20 percent; but for the period from 1960 to 2002 it is only 10 percent.

codes 9999 and 99999. Sometimes these codes denoted a district court judge sitting on the court of appeals, but other times they denoted a court of appeals judge who could not be identified by name. We also found instances in which the same judge code was assigned to different judges or where multiple codes were assigned to the same judge. There were even instances in which the votes of two different judges in the same case were assigned to a single judge or in which the appeal was recorded as having been decided before the date on which it was filed. We were able to correct some but not all of these errors, which would have required rereading all cases contained in the database.

6 The databases as corrected by us are the source of the data in our statistical analysis, so let us see just how significant the corrections are. Table 1 compares the number of liberal, conservative, and unclassified votes in the Supreme Court database, with and without our corrections. Table 2 makes the same comparison for the court of appeals database but with the addition of "mixed" votes and the elimination of votes with coding errors that could not be corrected without reviewing each case. The principal effect of the corrections is to increase the number of decisions that are classified as nonideological. The corrections are not major in the Supreme Court database but do lead to substantial changes in the court of appeals database.

7 Applying statistical methodology to the corrected databases, we explore a range of empirical questions, such as whether a judge's political voting

Table 1. Votes by Supreme Court Judges in NonUnanimous Cases: 1937–2006

	Civil Liberties	Economic/labor/tax	All
Uncorrected			
Total	41,032	19,438	60,470
Other	184	13	197
Corrected			
Total	39,228	18,936	58,164
Other	2,004	506	2,510

Notes: (1) Civil liberties includes criminal procedure, civil rights, first amendment, due process, privacy, attorneys, federalism and judicial power.

(2) In both the corrected and uncorrected data, we excluded several hundred votes because we could not classify the subject matter.

(3) We were able to determine the subject matter of the "Other" category but not the ideological direction of the votes.

(4) We analyze unanimous decision in a later section of the paper.

Table 2. Votes by Federal Court of Appeals Judges 1925–2002

	Criminal	Constitutional	Econ./labor	Miscellaneous	All
Uncorrected					
Total	16,939	8,528	31,428	1,889	58,784
Other	54	103	4,715	556	5,428
With Errors Removed					
Total	15,885	7,930	29,347	1,799	54,941
Other	40	81	4,399	486	5,006
With Ideology Corrected					
Total	9,334	6.989	24,713	1,106	42,142
Other	5322	394	6226	958	12,900

Notes: (1) The coders of the original data could not ascertain the ideological direction or subject matter of 4422 votes. We have excluded these votes from the analysis.

(2) Total is net total which excludes votes that are not classified ideologically ("Other").

(3) "Ideology Corrected" adjusts for both data errors and ideology reclassifications.

(4) The "Other" category is composed of cases in which we can determine the subject-matter but not the ideological direction of the votes.

behavior changes over his term of office and whether it depends on the ideological make-up of the other judges on the court—that is, whether social influence or group effects play a role in judicial decision making. We are especially though not exclusively interested in testing hypotheses derived from a rational-choice (economic) approach to judicial behavior. We do not propose a formal economic model of judicial behavior, but in the next part we sketch an informal such model to guide our empirical analysis.

Before turning to that, however, we note one more methodological innovation. Social scientists have become very interested in recent years in group effects, such as group polarization, but most of their empirical work on such effects utilizes students as experimental subjects. Judicial voting in both the Supreme Court and the court of appeals (trial judges sit by themselves) provides an opportunity to observe the behavior (in the form of votes) of actual rather than experimental groups, and thus avoids criticisms of the realism of extrapolating from experimental to real social situations. 8

2. RATIONAL JUDICIAL BEHAVIOR

Our analysis is limited to federal judges (Supreme Court Justices and federal court of appeals judges). Federal judges who are appointed under Article 9

III of the Constitution (as Supreme Court Justices and federal district and circuit judges are, but other federal judicial officers, such as magistrate judges, bankruptcy judges, and administrative law judges, are not) have an unusual career structure and employment conditions. The federal judiciary is primarily a lateral-entry system, judges being appointed in their 40s or 50s after a career in another branch of the legal profession. For example, the average age of appointment of the court of appeals judges in our sample is 53. That age has declined slightly over time and now averages about 49 for judges sitting in 2005. Promotion from one tier of the judiciary to another is unusual, so that for most federal judges there is no promotion carrot to motivate them. Only 15, which is fewer than 3 percent of the judges in the court of appeals sample, have been promoted to the Supreme Court. "External" promotion (appointment to a higher-paying job in the private sector) is rare; the judicial appointment normally is terminal. Nor can federal judges receive bonuses or raises for exceptional performance or have their pay be docked for substandard performance. Their outside income is strictly limited, and of course they are not permitted to hear cases in which they might have a direct or indirect pecuniary stake. The removal of federal judges from office is virtually impossible unless they engage in criminal behavior.

10 Because the ordinary motivations and constraints that are designed to minimize agency costs are absent from the federal judiciary, emotional and other non-pecuniary factors are bound to play a larger role in judicial behavior than in that of normal employees. But we believe that most judicial behavior is rational and hence that there is a judicial utility function.[7] We would expect that leisure would be a major argument in the judicial utility function, as in that of any rational individual with secure tenure; also self-expression, for example of political preferences or ideology, since there are no (or very weak) penalties for basing judicial decisions on such preferences. Another argument in the judicial utility function is likely to be esteem (prestige, reputation, etc.), which in turn is likely to make judges averse to being reversed. A related point is that a judge's preferences over outcomes or ideology are likely to play a bigger role in judicial decision-making when the law is less well settled and the prospect of reversal is weak, because then a judge will face fewer obstacles to producing a result that will conform to his ideology. This informal model of judicial behavior will enable us to suggest explanations for a number of the findings in our statistical analysis.

7 *See* references in Posner, note 3 above, ch. 1.

3. ANALYSIS OF SUPREME COURT VOTING: 1937-2006

11 Our Supreme Court sample contains 43 Justices (including eight who were appointed prior to 1937) and 636 observations. As suggested by Andrew Martin and Kevin Quinn,[8] we exclude from most of our analysis 9–0 decisions because they are unlikely to involve the kind of ideological issues that divide judges. That is not to say that ideology plays no role in such cases, so we present a separate analysis of them to test their conformity to the Justices' ideological make-up.

A. Judicial Ideology Rankings

12 Table 3 ranks the Justices in our sample from most to least conservative on the basis of their judicial votes. Rehnquist and Thomas rank as the most conservative Justices, while Thomas, Roberts, and Alito are the most conservative in economic cases (economic regulation, labor, and tax).[9] At the other end of the ideological spectrum, Marshall, Douglas, Murphy, and Rutledge are the most liberal, although Black is the most liberal in the economic-regulation category. We present results in two other subject-matter categories as well: civil liberties (all cases minus economic-regulation, labor, and tax cases, as in Table 1) and adjusted civil liberties (which excludes from the civil liberties category federalism cases and judicial-power cases). The two civil liberties categories track all cases closely because they account for 67 percent of all votes in non-unanimous cases. Notice the drop in the fraction of conservative votes of the most liberal Justices in the adjusted compared to the unadjusted civil liberties category. Apparently issues of federalism and judicial power tend to be less ideological than issues involving personal liberty.

13 Our ideological rankings are generally consistent with what everyone knows to be the ideological differences among Supreme Court Justices—the Justices at the top are indeed more conservative than those at the bottom—but some of the specific rankings cannot be taken seriously. For example, Kennedy is more conservative than O'Connor, Ginsburg more conservative than Blackmun, McReynolds more conservative than Powell. And Justices who served 70 years ago are difficult to place on the same ideological scale as current Justices, because the meanings of "liberal" and "conservative" have changed over this period.

8 *See* Andrew D. Martin and Kevin M. Quinn, "Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953–1999," 10 *Political Analysis* 134, 137 n. 3 (2002).

9 It should be noted, however, that the calculations for Roberts and Alito are based on votes in only two terms.

Table 3. Fraction of Conservative Votes in Non-unanimous Cases: 1937–2006 Terms for 43 Supreme Court Justices Ranked from More to Less Conservative

Justice	Fraction Conservative Votes[1]				Mean Votes Per Term	Other Ideology Measures[5]		
	All	Civ. Lib.	Econ.	Adj. Civ. Lib.		S/C Score[2]	M/Q Score[3]	Adj. Civ. Lib.[4]
Thomas	.822	.841	.751	.884	52.69	.840	3.65	.765
Rehnquist	.815	.864	.630	.891	87.09	.955	2.77	.774
Scalia	.757	.791	.625	.820	65.57	1	2.57	.724
Roberts	.753	.767	.700	.804	46.5	.880	1.54	–
Alito	.740	.754	.688	.860	36.5	.900	1.46	–
Burger	.735	.771	.607	.790	118.29	1	1.79	.711
O'Connor	.680	.687	.653	.709	83.75	.585	.86	.632
Powell	.677	.694	.609	.700	106.81	.835	.91	.627
Whittaker	.673	.682	.660	.696	79.50	.500	1.22	.562
Kennedy	.647	.671	.556	.707	59.0	.635	.80	.623
Harlan	.628	.656	.560	.649	100.12	.125	1.59	.533
Vinson	.613	.693	.510	.723	83.86	.250	.97	.634
Burton	.587	.669	.482	.673	84.64	.720	1.00	.614
Minton	.587	.710	.412	.717	68.63	.280	1.04	.624
White	.556	.605	.384	.606	109.88	.500	.43	.575
Stewart	.555	.557	.549	.529	115.17	.25	.55	.486
Jackson	.546	.594	.499	.612	87.25	0	.71	.585
Clark	.534	.651	.332	.668	91.11	.500	.47	.562
McReynolds	.520	.550	.505	.463	101.00	–	2.55	–
Frankfurter	.512	.571	.453	.516	92.125	.335	.52	.465
Roberts, O.	.505	.546	.482	.535	112.13	–	1.55	–
Sutherland	.500	.429	.522	.500	30.00	–	1.96	–
Blackmun	.492	.504	.446	.503	102.40	.885	–.03	.470
Butler	.481	.531	.460	.429	134.00	–	1.90	
Reed	.467	.617	.340	.631	92.65	.275	.35	.639
Stone	.384	.508	.316	.451	117.33	.700	–.07	–
Byrnes	.383	.523	.296	.577	115.00	.670	–.18	
Hughes	.378	.510	.322	.395	120.50	–	.10	–
Souter	.374	.358	.433	.357	54.59	.675	–.82	.371
Brandeis	.373	.492	.323	.412	110.00	–	–.50	–
Breyer	.372	.355	.446	.359	50.31	.525	–1.15	.387

Table 3. (Continued)

Justice	Fraction Conservative Votes[1]				Mean Votes Per Term	Other Ideology Measures[5]		
	All	Civ. Lib.	Econ.	Adj. Civ. Lib.		S/C Score[2]	M/Q Score[3]	Adj. Civ. Lib.[4]
Stevens	.341	.325	.399	302	79.47	.75	–1.56	.347
Fortas	.336	.335	.341	.195	107	.155	–1.13	.179
Cardozo	.333	.800	.211	.800	24	–	–1.68	–
Ginsburg	.312	.308	.324	.302	51.36	.320	–1.29	.337
Warren	.308	.334	.257	.263	103.63	.25	–1.12	.213
Black	.283	.354	.190	.300	105.09	.125	–1.70	.259
Brennan	.265	.249	.312	.184	113.41	0	–1.87	.203
Goldberg	.248	.209	.341	.110	100.67	.25	–.75	.112
Rutledge	.247	.270	.227	.246	93.29	0	–1.34	.237
Murphy	.241	.292	.203	.195	96.40	0	–1.52	.209
Douglas	.213	.187	.253	.139	98.08	.270	–4.07	.113
Marshall	.211	.186	.305	.133	109.50	0	–2.72	.186

Notes: (1) Fraction Conservative Votes are weighted by the number of cases the Justice voted on in each term in each category. Civil Liberties includes criminal procedure, civil rights, first amendment, due process, attorney, federalism and judicial power. Economics includes economic, union and tax cases. Adjusted Civil Liberties category excludes federalism and judicial power from the broader Civil Liberties category.

(2) S/C Perceived ideology of Justices prior to appointment is from Jeffrey Segal and Albert Cover, "Ideological Values and the Votes of Supreme Court Justices," Amer. Political Science Rev. 83: 557–565 (1989) and updated in Table 6-1 in Lee Epstein et. al. The Supreme Court Compendium: 4th Edition (2007).

(3) M/Q Score is yearly average of posterior mean scores from Andrew D. Martin and Kevin M. Quinn, "Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953–1999," 10 *Political Analysis* 134 (2002). The data are available thru 2006 at mqscores.wustel.edu/index.

(4) Votes in the adjusted civil liberties category for the 1946–2004 terms are from Lee Epstein et al, The Supreme Court Compendium (2007) Table 6-4.

(5) We converted the S/C and Epstein I estimates from liberal to conservative ideologies to facilitate comparison with the estimates presented in the first four columns.

Table 3 includes three other ideology measures. One, labeled "S/C score," is 14
based on a content analysis by Jeffrey Segal and Albert Cover of newspaper editorials published prior to the Justice's confirmation, but is limited to Justices appointed after 1945. The Segal/Cover scores range from 0 (most liberal) to

Table 4. Correlation Matrix of Ideology Measures

	Civ. Lib.	Econ.	Adj. Civ. Lib.	Segal/Cover	Martin/Quinn	Epstein Adj. Civ. Lib.
All	.90	.93	.91	.65	.88	.95
Civ. Lib.		.73	.97	.62	.79	.96
Econ.			.76	.63	.80	.84
Adj. Civ. Lib.				.65	.76	.98
Segal/Cover					.59	.63
Martin/Quinn						.91

Note: Correlations for All, Civ. Lib., Econ., Adj. Civ. Lib., and Martin/Quinn are for average values from 1937–2006 for 43 judges; correlations for Segal/Cover are for 36 judges and Epstein Adj. Civil Liberties is for 32 judges.

1 (most conservative).[10] The two remaining measures are based, like ours, on judicial votes. Martin and Quinn derive ideology scores from votes in non-unanimous cases, using the uncorrected Spaeth Supreme Court database, while Lee Epstein and her colleagues calculate the fraction of conservative and liberal votes in the adjusted civil liberties category on the basis of an expansion of the Spaeth database to cover the 1946 to 2004 terms; but the expanded database, like the original one, does not correct for erroneous ideological classifications. Table 4 is a correlation matrix of the various ideology measures.

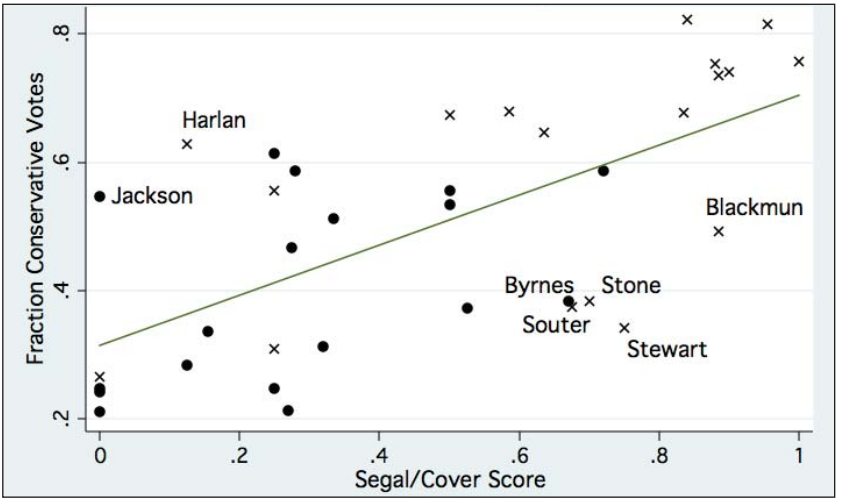
15 It is no surprise that the measures based on actual votes are more highly correlated with each other than the Segal/Cover scores, which are based on newspaper editorials that in effect predict the Justice's judicial voting. In contrast, the correlations between our data and Epstein's in Table 3 are above .95 (unsurprisingly, since our corrections of the Supreme Court database were relatively few) except for the correlation between their civil-liberties category and our economic-regulation category.

16 Nevertheless, the high positive correlations between the Segal/Cover scores and the fraction of conservative votes suggest that newspaper editorials prior to appointment are surprisingly good predictors of judicial behavior. Indeed, Segal/Cover scores will turn out to be highly significant predictors in our regression analysis of judicial voting.

17 Figure 1 relates the Segal/Cover scores to the fraction of conservative votes in all categories for the 36 Justices whose Segal/Cover scores

10 We have transformed them to 0 for most liberal and to 1 for most conservative in order to make them easier to compare to our ranking of fraction of conservative votes. The Segal/Cover scores are reproduced in Table 6–1 in Lee Epstein et al., *The Supreme Court Compendium: Data, Decisions & Developments* (4th ed. 2007).

Figure 1. Fraction Conservative Votes & Segal/Cover Scores



Note: "x" and "o" denote Judges appointed by Republican and Democratic Presidents respectively.

are available.[11] As expected, Justices appointed by Republican Presidents (denoted by the x's) tend to vote more conservatively and have higher Segal/Cover scores, while judges appointed by Democratic Presidents ("o") tend to vote less conservatively and have lower Segal/Cover scores. Notice that the positive relation between the fraction of conservative votes and Segal/Cover scores is similar for Justices appointed by Republican Presidents and those appointed by Democratic Presidents.[12]

Several outliers in Figure 1 should be noted, however. Jackson and (the second) Harlan (also Vinson and Stewart, but less so) voted more conservatively than predicted by their Segal/Cover scores, while Stevens, Souter, Byrnes, Stone, and Blackmun voted more liberally. These discrepancies suggest that Presidents may sometimes lack good information concerning the ideological proclivities of Supreme Court candidates. Nevertheless, Table 5 reveals a strong correlation between the political party of the appointing President and the voting behavior of the Justices appointed by a President of that party. In each of the 11 subject-matter categories (excluding a

11 The straight line in Figure 1 depicts the regression (*t*-statistics in parentheses) $Y = .315\ (7.29) + .390\ (5.10)X$. Y and X denote the fraction of conservative votes and the Segal/Cover scores respectively.

12 There was no significant difference between the regression coefficients when we estimated separate regressions for the two classes of Justices.

Table 5. Fraction of Conservative Votes in Non-Unanimous Cases by Subject Matter and by Political Party of Appointing President: 1937–2006 Terms

Case Category	Proportion of Conservative Votes			Ratio	Number	
	All Judges	Judges Appointed by Republican President	Judges Appointed by Democratic President		Observations	Votes
Criminal Procedure	.535	.603**	.436	1.38	637	12980
Civil Rights	.466	.549**	.338	1.62	629	8678
First Amendment	.454	.507**	.387	1.31	626	4522
Due Process	.450	.531**	.346	1.53	569	2211
Privacy	.578	.589	.545	1.08	308	583
Attorneys	.469	.509*	.389	1.31	339	605
Unions	.423	.534**	.337	1.58	543	2382
Economic Activity	.405	.485**	.337	1.44	635	13217
Judicial Power	.593	.625**	.558	1.12	631	7054
Federalism	.445	.480**	.401	1.20	616	2595
Federal Taxation	.344	.389**	.314	1.24	563	3337
All Categories	.473	.544**	.391	1.39	636	58165
Civil Liberties	.510	.570**	.428	1.33	635	39228
Adj. Civ. Lib.	.496	.565**	.393	1.44	635	29579
Economic, Union & Tax	.397	.475**	.333	1.43	635	18936

Note: Difference between Republican and Democrat appointees is significant at .05 (*) and .01 (**) levels.

miscellaneous category in which there is only 1 non-unanimous vote), the fraction of conservative votes cast by Justices appointed by a Republican President is greater than that cast by Justices appointed by a Democratic President—and significantly so except in the privacy category, which has the fewest votes after the miscellaneous category.

19 Our finding in Table 5 that ideology matters is consistent with a large empirical literature in political science, and supports the hypothesis of a self-expression argument in the judicial utility function. The freedom of federal judges from the usual sticks and carrots of an employment situation and the nature of the cases they decide enable them to express those views, even though it may make them unfaithful agents of Congress (when they are interpreting federal statutes) or the framers and ratifiers of constitutional provisions (when they are interpreting the Constitution).

This is not to suggest that Justices appointed by Republican Presidents 20
always cast a conservative vote or Justices appointed by Democratic presidents always a liberal one. The former vote liberal more than conservative in 3 of the 11 categories in Table 5, while the latter vote liberal more than conservative in 9 categories. The key to the "ideology matters" hypothesis is not the absolute magnitude of the fraction of conservative (or liberal) votes of a group of Justices but the difference in the fraction of conservative (liberal) votes between groups with different ideologies. The biggest differences are found in "Civil Rights," "Due Process," and "Unions" and the smallest in "Privacy," "Judicial Power," "Federalism," and "Taxation". In the first group, Justices appointed by a Republican President are more than 50 percent more likely than those appointed by a Democratic President to vote conservatively. In the second group, the differences shrink to between 8 and 24 percent. "Privacy" and "Judicial Power" are the two categories in which both types of appointee vote most conservatively.

Table 6 provides further support for the importance of ideology. Here we 21
categorize each Justice as conservative, moderate, or liberal on the basis of our own assessment of where each Justice is located on the ideological spectrum.[13] Not surprisingly, the ideological differences are substantially greater across the three groups in Table 6 than the two in Table 5, because Republican Presidents have appointed liberal Justices and Democratic presidents have appointed conservative Justices.[14] For example, in civil liberties cases the fraction of conservative votes by conservative Justices is 2.76 times the fraction for liberal Justices in Table 6 but only 1.33 times higher in Table 5 for Justices appointed by Republican than by Democratic Presidents. The difference is smaller but still significant in the broad economic category: 1.67 to 1.43.

13 Our assessment is based on a large number of studies, both quantitative and qualitative, mainly by political scientists, historians, and biographers, and is detailed in two memoranda by our research assistant Xingxing Li, which we have posted on the website of the Judicial Behavior Workshop, www.law.uchicago.edu/academics/judicialbehaviorworkshop/. Illustrative studies on which we relied are Henry J. Abraham, *Justices, Presidents, and Senators: A History of U.S. Supreme Court Appointments from Washington to Bush II* (5th ed. 2008); Jeffrey A. Segal and Harold J. Spaeth, *The Supreme Court and The Attitudinal Model Revisited* 322 (2002); Melvin I. Urofsky, *The Warren Court: Justices, Rulings, and Legacy* (2001); Jeffrey A. Segal and Albert D. Cover, "Ideological Values and the Votes of U.S. Supreme Court Justices," 83 *American Political Science Review* 557 (1989); Edward V. Heck and Steven A. Shull, "Policy Preferences of Justices and Presidents: The Case of Civil Rights, 4 *Law and Policy Quarterly* 327 (1982).

14 Cardozo, Stone, Owen Roberts, Brennan, Warren, Stevens, and Souter are listed as liberals in Table 6 even though Republican Presidents appointed seven, while Democratic Presidents appointed six conservative Justices (McReynolds, Reed, Burton, Vinson, Clark, and Minton). Of the twelve moderates, Republican Presidents appointed eight (Hughes, Whittaker, Harlan, Stewart, Blackmun, Powell, O'Connor, and Kennedy), Democratic Presidents four (Frankfurter, Jackson, Byrnes, and White).

Table 6. Fraction of Conservative Votes in Non-Unanimous Cases by Subject Matter and by Judge's Ideology: 1937–2006 Terms

Terms & Case Category	Proportion of Conservative Votes			Ratio of C/L
	Conservative Justices	Moderate Justices	Liberal Justices	
1937–2006 Terms				
Civil Liberties	.791**	.609**	.287	2.76
Adj. Civil Liberties	.788**	.608**	.236	3.34
Economic, Unions & Tax	.482	.492**	.288	1.67
All Categories	.667**	.575**	.287	2.32
1980–2006 Terms				
Civil Liberties	.820**	.620**	.264	3.11
Adj. Civil Liberties	.853**	.640**	.238	3.58
Economic, Unions & Tax	.649**	.537**	.365	1.78
All Categories	.784**	.603**	.285	2.75
1937–1979 Terms				
Civil Liberties	.711**	.603**	.297	2.39
Adj. Civil Liberties	.730**	.588**	.235	3.11
Economic, Unions & Tax	.430*	.479**	.274	1.57
All Categories	.597*	.561**	.288	2.07

Notes: (1) The conservatives are Sutherland, Butler, McReynolds, Vinson, Minton, Burton, Clark, Reed, Burger, Rehnquist, Scalia, Thomas, Roberts, and Alito.

(2) The moderates are Hughes, Byrnes, Jackson, Whittaker, Frankfurter, Stewart, Harlan, Powell, White, Blackmun, O'Connor, and Kennedy.

(3) The liberals are Cardozo, Brandeis, Owen Roberts, Stone, Murphy, Rutledge, Goldberg, Warren, Fortas, Black, Douglas, Brennan, Marshall, Ginsburg, Stevens, Breyer, and Souter.

(4) The level of significance (*significant at .05 level and **significant at .01 level) under the Conservative column refers to the difference between conservative and moderate Justices and under the Moderate column the difference between moderate and liberal Justices.

22 Table 6 also suggests that ideological voting has increased. For example, in the civil liberties category, the fraction of conservative votes for conservative relative to liberal Justices has increased from 2.39 in the 1937–1979 period to 3.11 in 1980–2006. We observe similar increases in the other categories, except for a small and insignificant increase in the broad economic category. Interestingly, the fraction of conservative votes is slightly higher for moderate than conservative Justices in the economic-union-tax category for the 1937–1979 period. This is the only category and period in

which moderates vote more conservatively than conservatives. Notice also the big leap in the fraction of conservative votes in the economic-union-tax category between 1937–1979 and 1980–2006, which is not paralleled in the other categories. Conservative, moderate and liberal judges are all voting more conservatively in economic but not civil liberties cases, which is consistent with the general conservative drift of U.S. public opinion in economic matters since the election of Ronald Reagan in 1980.

23 That a Justice's ideology plays a significant role in his or her votes, as found in Tables 5 and 6 is not surprising; since the lower courts will have decided the straightforward cases—cases that can be decided on the basis of the orthodox materials of legal decision-making, such as statutory or constitutional text and precedent, the cases that the Supreme Court decides will tend to involve disputes that cannot be resolved legalistically. Case selection should reinforce the role of ideology in the Supreme Court, because the Court's docket is discretionary and so the Court is more likely to select the cases that arouse most disagreement (including those where there are conflicts among the circuits) and so are not likely to be decidable on the basis of neutral legal analysis, unflavored by ideology.

24 Supreme Court Justices do not acknowledge that any of their decisions are influenced by ideology rather than by neutral legal analysis. But if that were true, the party of the appointing President would be uncorrelated with a Justice's votes.

25 Another possibility, however, is that Justices confront novel areas of law and therefore vote ideologically because the orthodox materials of legal decision-making do not yield a clear answer, but that over time they refine their analytical techniques and so, eventually, as in the replacement of superstitious explanation of natural phenomena by scientific ones, all competent Justices regardless of ideology would converge on case outcomes. There is no evidence of that in Table 6 (on the contrary, there is as we noted an increase over time in ideological voting), but our analysis cannot exclude the possibility that there is convergence in particular areas, but that new types of legal dispute arise all the time, so that the Court is continuously dealing with novel cases.

26 It has been suggested that a Justice's judicial ideology might vary over his tenure, depending on strategic considerations, changes in preferences, and changes in the composition of cases before the court.[15] We tested this

15 *See* Martin and Quinn, note 8 above; Epstein et al., note 10 above.

hypothesis by estimating separate regressions for each Justice who served 15 or more terms. The dependent variable is the fraction of the Justice's conservative votes (y) and the independent variable is the length of time that he served (or has served, if he is a current Justice) on the Supreme Court (where x equals 1 for his first term, 2 for his second term, and so on). We make the simplifying assumption that the Justice's judicial ideology either is constant over time (the regression coefficient is statistically insignificant) or changes linearly (the Justice becomes more or less conservative at a constant rate, as shown by whether the regression coefficient is significantly positive or significantly negative). The changing-ideology hypothesis is supported for 11 of the 21 Justices who served a minimum of 15 terms.[16] We find statistically significant negative coefficients for Blackmun, Brennan, Douglas, Marshall, O'Connor, Rehnquist, Stevens, and Souter and statistically significant positive coefficients for Frankfurter, Reed, and White.[17] Of the eight Justices who became more liberal, six were appointed by Republican Presidents; the three who became more conservative had all been appointed by Democratic Presidents. This is further support for a self-expression argument in the judicial utility function. The Justices are not faithful agents of their appointing President because there is nothing the President can do (even before the President leaves office) to affect their welfare.

27 The moderation of Rehnquist's conservative stance (i.e., the negative time trend) seems related to his becoming Chief Justice in 1986. If we add a dummy variable for the period he served as Chief Justice, the regression coefficient is negative (indicating about a 10 percent decline in the fraction of conservative votes) and nearly significant, while the coefficient on the tenure variable becomes insignificant.

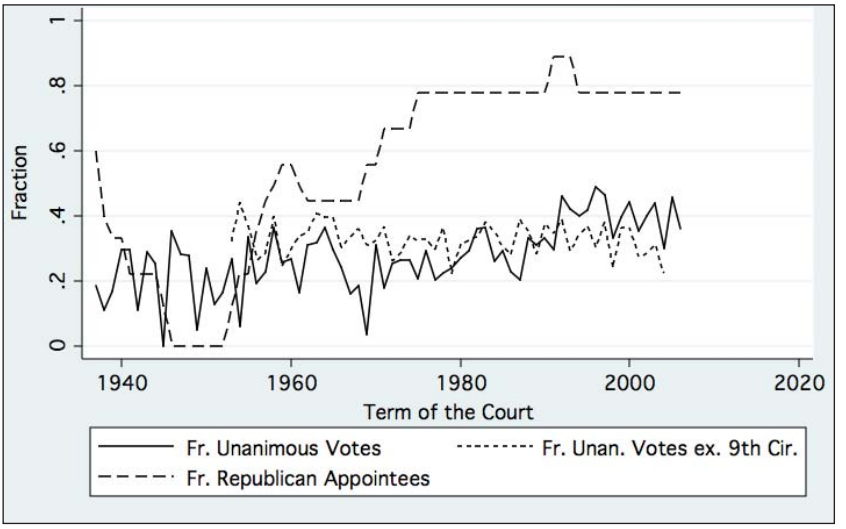
B. Unanimous Votes

28 Figure 2 shows that about 30 percent of the Supreme Court decisions in the 1937–2004 period were decided unanimously (defined as 9–0 votes, thus

16 We used 15 terms as the cut-off to increase the reliability of our estimates. If we lower the cutoff to 10 terms, we also find significant negative coefficients for Ginsburg (14 terms) and Murphy (10 terms) and a significant positive coefficient for Jackson (12 terms).

17 There is substantial overlap between our findings and those in Martin and Quinn and in Epstein et al. Martin and Quinn find that Black, Frankfurter, Thomas, and White became more conservative, while Blackmun, Brennan, Marshall, Stevens, and Souter became more liberal. Epstein et al. find no trends for Marshall and Brennan but liberal trends for Warren, Clark, and Powell.

Figure 2. Unanimous Decisions and Party of Appointing President



excluding unanimous cases in which one or more Justice was absent).[18] The fraction of unanimous decisions has been trending upward from around 30 percent in the 1960s, and is now in the 40 percent range, but this is the result of an increasing fraction of unanimous decisions reversing the Ninth Circuit.[19] If we exclude those cases, the upward trend in Figure 2 disappears.

Since many of the unanimous decisions are coded as conservative or liberal, we might expect a weak connection between the ideological direction of these decisions and the Justices' ideology. To test this hypothesis, we regressed the fraction of conservative votes in unanimous decisions against the fraction of Justices appointed by Republican Presidents. This yielded a positive regression coefficient of .240 and a *t*-statistic of 3.90 (significant at the .01 level). However, if we add a linear time-trend variable to the regression, neither the trend nor the fraction of Justices appointed by Republican Presidents is statistically significant because the two variables are highly correlated (.84). Thus we cannot reject the hypothesis that the positive relationship between the fraction of conservative unanimous votes and the fraction of Justices appointed by Republican

18 The fraction of unanimous votes, the fraction excluding the Ninth Circuit, and the fraction of unanimous conservative votes are all from our Supreme Court database.

19 Since 1980, about 75 percent of unanimous decisions from the Ninth Circuit have been reversed compared to about 65 percent for the other circuits. On the "rogue" character of the Ninth Circuit, *see* Richard A. Posner, "Is the Ninth Circuit Too Large? A Statistical Study of Judicial Quality," 29 *Journal of Legal Studies* 711 (2000).

Table 7. Definition and Means of Variables in Supreme Court Regressions: 1937–2006

Variable	Definition	Mean
FrCon	Fraction of conservative votes in all non-unanimous decisions	.472
ID	Segal/Cover perceived ideology from a content analysis of newspaper editorials	.467
Pres	1=Republican appointee; 0=Democratic appointee	.535
SenRep	Fraction of Republican senators at time of initial appointment	.430
Resid	Residual or unexplained ideology in Segal/Cover regression	0
Term	Term of court or time trend variable	1971.5
YrAppt	Term of Judge's confirmation to the Supreme Court	1956
AppCt	1=federal appellate judge prior to appointment; 0 otherwise	.349
SCRep	Fraction of other judges appointed by Republican presidents	.549

Notes: (1) The mean for *FrCon* is weighted by the number of votes per judge per term in that category and the mean for *SCRep* is weighted by the number of terms of each judge. The means for the remaining variables (except for the term variable which is the midpoint between 1937 and 2006) are the averages for the 43 judges in our sample.

(2) Since Segal/Cover scores are only available for 36 judges appointed on or after 1937 (except for Stone appointed in 1925), we assigned the residual value "0" for 7 judges appointed before 1937 who cast votes in the 1937–2000 period. These judges only account for 22 of the 636 observations because most were no longer on the court after 1940.

Presidents vanishes once we account for the positive time-trend in the fraction of conservative unanimous decisions.[20]

C. Regression Analysis of Non-Unanimous Votes

30 We use regression analysis to try to explain the percentage of conservative votes in non-unanimous decisions as a function of a set of variables that seem likely to influence the ideological direction of a Justice's vote.[21] Table 7 defines the variables in the analysis and Table 8 presents the regressions.

31 We use two regression equations:

$$ID_i = \alpha_0 + \alpha_1 X_i + u_i \quad (1)$$

$$FrCon_{ij} = + \beta_0 + \beta_1 X_i + \beta_2 u_i \beta_3 Y_{ij} + w \quad (2)$$

20 If we use the conservative/moderate/liberal categories for Justices instead of the Republican/Democratic classification, we still find no significant effects of ideology on the fraction of conservative unanimous decisions when we include a time-trend variable.

21 The percentage of liberal votes is simply 1 minus the percentage of conservative votes, since the Supreme Court database does not contain "mixed" or "other" categories but only "conservative" and "liberal."

Table 8. Regression Analysis of Supreme Court Votes in Non-Unanimous Cases: 1937–2006 Terms (*t-statistics in parentheses*)

Independent Variables	Dependent Variable			
	Segal/Cover Score	Fraction of Conservative Votes in Non-Unanimous Cases		
	(1)	(2) All judges	(3) Rep. appointed	(4) Dem.-appointed
Pres	.246* (2.20)	.060 (0.96)	–	–
SenRep	.135 (0.25)	.485* (2.05)	1.252* (2.20)	.771* (2.49)
Residual	–	.358** (4.12)	.331** (3.24)	.309 (1.72)
Term	–	–.002 (1.19)	–.006** (2.69)	.001 (0.44)
YrAppt	.006* (2.68)	.006** (2.86)	.012** (4.16)	.001 (0.28)
AppCt	–.100 (0.94)	–.083 (1.37)	–.059 (0.71)	–.105 (1.34)
SCRep	–	–.150 (1.81)	–.048 (0.29)	–.182 (1.82)
Constant	–12.12 (2.67)	–925* (2.56)	–11.147** (2.66)	–4.011* (1.33)
R^2	.44	.46	.47	.39
N	36	636	348	288

Notes: (1) Regressions (2)–(4) are weighted regressions where each observation is weighted by the number of votes the judge casts per term.

(2) Standard errors are estimated assuming that the observations are clustered by judge (since a judge's votes in one year is likely to be correlated with his votes in other years).

(3) *significant at .05; **significant at .01.

In equation (1), ID_i denotes the i^{th} Justice's ideology prior to his appointment (as proxied by his Segal/Cover score);[22] X_i is a set of factors likely to predict his ideology (such as the party of the appointing President, the

32

22 *See* Lee Epstein and Jeffrey A. Segal, *Advice and Consent: The Politics of Judicial Appointments* 108–113 (2005), for a concise description of how ideology scores are computed from editorials. Segal and Cover first coded each paragraph as describing the candidate as conservative, liberal, or moderate, and then subtracted the fraction coded liberal from the fraction coded conservative and divided by the total number of paragraphs. The scores range from +1 for most liberal to –1 for most conservative. They are reproduced in Epstein et al., note 10 above, tab. 4–17, for Justices nominated between 1937 and 2006.

fraction of senators who are Republicans, the year or first term of the judge, and prior experience if any as a federal court of appeals judge); and u_i is the residual, that is, the difference between the Justice's actual and predicted voting-ideology score. In equation (2), the dependent variable ($FrCon_{ij}$) is the fraction of conservative votes that each Justice cast in each term from 1937 to 2006, and the independent variables include X_i, u_i, and such other factors (Y) as prior judicial experience, years on the Supreme Court, a time trend, and a variable that we call "group effects" or "social influence," which estimates the influence of other members of the Court on Justice *i*'s votes. A positive (negative) u_i in equation (1) indicates that the Justice's conservative ideology score is higher (lower) than the X_i variables predict. In other words, the Justice is even more conservative than one could have predicted. This implies that he will be found in equation (2) to vote more conservatively than a Justice with a lower u_i would. Similarly, the larger a Justice's negative u_i, the more likely he is to vote liberally.

33 The group-effects variable tests whether the ideological leanings of *other* members of the Court influence the ideological cast of a Justice's votes and, if so, in what direction. Three group effects should be distinguished. One is conformity: wanting to be "on board" with the majority. We do not interpret this as a psychological phenomenon, although social psychologists discuss it in those terms; instead, we relate it to (rational) dissent aversion.

34 The second group effect or social influence that we consider is group polarization, which is the notion that deliberation among persons who lean in one direction is likely to make them lean even farther in that direction. The economic interpretation (though again there is also a psychological one) is that a person who takes an extreme view among a group of like-minded persons is likely to be the best informed, and so it is rational for the other members of the group to be persuaded by him.

35 If conformity dominates, an increase in the fraction of Justices appointed by Republican Presidents should lead a Justice to vote more conservatively whether a Republican or a Democratic President appointed him. In contrast, group polarization would lead a Justice appointed by a Republican President to vote more conservatively as the fraction of Justices appointed by Republican Presidents increases, but would not affect the voting behavior of Justices appointed by a Democratic President.

36 In a different sense, polarization could refer to two interacting groups growing farther apart, as when political scientists speak of the growing "polarization" of the American electorate. Here an increase in the fraction of

Justices appointed by Republican Presidents could lead Justices appointed by a Republican President to vote more conservatively and Justices appointed by a Democratic President to vote more liberally. We shall call this third social influence "political polarization," but we do not have an economic interpretation for it.

37 Now to the results: The variables in the first regression equation explain about 43 percent of the variance in Segal/Cover scores (ID_i) Two of the four variables in equation (1) are statistically significant. Justices appointed by Republican Presidents have significantly higher conservative scores prior to confirmation than those appointed by Democratic Presidents. And holding constant the party of the appointing President, more recent appointees have significantly higher ideology scores; that is, they tend to be more conservative.

38 But our main use of equation (1) is to obtain an ideological variable for regressions based on equation (2). These are regressions (2) through (4) in Table 8. In regression (2) the dependent variable is the fraction of conservative votes by Justices whether they are appointed by Republican or Democratic Presidents. In regressions (3) and (4) the dependent variable also is the fraction of conservative votes but (3) is limited to Justices appointed by Republican Presidents, and (4) to Justices appointed by Democratic Presidents.[23]

39 Regression (2) reveals that Justices appointed by Republican Presidents tend to vote conservative in a higher fraction of cases (about 6 percent higher across all categories) than Justices appointed by Democratic Presidents, but the result is not statistically significant. That is surprising in light of Table 5, which showed highly significant differences in nearly all categories between Justices appointed by Republican and by Democratic Presidents even though Presidents have sometimes appointed Justices whose ideologies differed from their own.

40 The lack of statistical significance of the President variable in Table 8 might appear to undermine the "ideology matters" hypothesis. There are three reasons, however, why it does not. One is that Table 5 compares differences in mean voting without holding constant the impact of other variables. Our regression analysis includes as independent variables the Justice's perceived ideology prior to his appointment and the composition of the

23 Regression (2) includes 636 observations for 43 Justices over the period 1937–2006 or, on average, 14.8 observations per Justice.

Senate at the time of appointment, and both variables are significant predictors of the Justice's ideological voting and therefore support the "ideology matters" hypothesis. Second, the party of the appointing President and the composition of the Senate are highly correlated (=.74), which makes it less likely that both variables will be statistically significant in the same regression. (So if we exclude the Senate variable from regression (2) in Table 8, the President variable becomes highly significant (t=2.97).)

41 Third, we cluster the observations by Justice. We do this because a Justice's ideological voting in one term is unlikely to be independent of his voting in another term, which implies that the residuals in equation (2) are likely to be correlated for the different terms of a given Justice, in violation of the assumption of a least-squares regression that the residuals are independent. By clustering the observations by Justice, we adjust for the term-to-term Justice correlations, which results in higher standard errors and lower *t*-statistics.[24]

42 The political composition of the Senate at the time of the Justice's appointment has a separate and significant effect on how ideological a Justice turns out to be. In the three regressions, the greater the fraction of Republican Senators, the greater the fraction of conservative votes of a Justice. Regression (2) indicates, for example, that a change in the Senate lineup from 47 to 53 Republicans increases the fraction of conservative votes of a Justice by .029 (=.06 × .485) in equation (2), holding constant the party of the appointing President and the other variables in the regression. The combination of the Senate's political composition being correlated with observed pre-confirmation ideology (regression (1)) and with how the Justice votes suggests that Senators have private information about the ideological leanings of Supreme Court candidates—information that is not publicly available, as evidenced by the content of newspaper editorials, from which the Segal/Cover scores are derived. This implies further that the composition of the Senate at the time of confirmation influences the President's choice of whom he appoints to the Court; for the greater the fraction of Republican senators, holding constant the appointee's observed ideology and the President's party, the more conservative the Justice turns out to be.

24 Intuitively, clustering is analogous to reducing the "effective" number of observations in the regression from 636 (where a Justice's vote in each term is a separate observation) to 43 (the number of Justices in our sample), which leads to a roughly four-fold increase $(=(636/43)^{1/2})$ in the standard errors and lowers the level of statistical significance of the regression coefficients. Indeed, if we didn't cluster the observations by Justice, the *t*-value on the appointing President variable would be 3.2 not the .96 in Table 8.

43 The statistically most significant variable in regressions (2) and (3) is the residual (u) from equation (1)—the difference between the Segal/Cover score and the predicted score from regression (1). As expected, the fraction of conservative votes significantly increases as u increases. Consider Justice William Brennan, who was appointed by a Republican President (Eisenhower) and confirmed by a Senate equally divided between Republicans and Democrats. Although Brennan's Segal/Cover score is 0 (the maximum liberal score), his predicted ideology score in regression (1) is .615, which gives Brennan the highest unexplained liberal score (negative residual). In regression (3) this implies that Brennan would vote liberally on average in about 65 percent of the cases compared to 45 percent if one did not know Brennan's Segal/Cover score but knew the party of the appointing President and the composition of the Senate at the time of Brennan's appointment.

44 Here are two examples at the other extreme. Roosevelt appointed James Byrnes in 1941, when Democrats outnumbered Republican Senators by more than 2 to 1. Byrnes's predicted ideology score from regression (1) is .231, yet his Segal/Cover score was a relatively conservative .67. Similarly, in 1945 Truman appointed Harold Burton, whose Segal/Cover score was .72 but whose predicted ideology score was .260. Byrnes and Burton have the highest unexplained conservative scores (.439 and .459 respectively) of any Justice in our sample, and this results in about 16 percent more conservative votes by Byrnes and Burton than would be predicted from the other variables in regression (2).

45 The *SCRep* variable in the regressions in Table 8 tests whether a Justice's colleagues influence his votes. The conformity hypothesis predicts a positive sign in regressions (2)–(4)—that is, predicts that the larger the fraction of Justices appointed by Republican Presidents, the more conservatively each Justice will vote. We find the opposite—negative signs in the three regression equations, although only in equations (2) and (4) does the sign approach statistical significance. Our results thus suggest that there is no conformity effect, or, equivalently, "dissent aversion," in the Supreme Court. We offer an economic explanation later, when we discuss our finding that there *is* dissent aversion in the courts of appeals.

46 The *SCRep* variable does not allow us to test the group-polarization effect (that is, the tendency of an in-group to take a more extreme position than the average member of the group, owing to the influence of its most extreme

members[25]) directly, because we do not know whether an increase (decrease) in *SCRep* implies that a new Justice is more (less) conservative than the Justices that were previously appointed by Republican (Democratic) Presidents. But the *SCRep* variable provides an indirect test of the hypothesis, since the larger the relative size of the in-group, the likelier there is to be a group-polarization effect because the likelier there is to be a member with extreme views. The smaller the group, the lower the probability that there will be a member in the tail of the distribution in which the most extreme views are found. But we find a negative rather than a positive, though insignificant, effect of *SCRep* in the Republican-only regression (regression (3)) and a marginally significant negative effect in the Democratic-only regression (regression (4)). The implication is that Justices appointed by Democratic Presidents tend to become more liberal as they become more outnumbered. This is consistent with conservative Justices' tending to be ideologically more committed—their views are less affected by the views of liberal Justices, whereas the liberals are not roused to assert their full liberalism until pushed into a corner by a growing conservative bloc. This conclusion, however, must be tempered by the weak level of significance of the *SCRep* variable in regression (4).

47 The third social influence is what we called "political polarization," and leads to the prediction that if one bloc of Justices grows at the expense of another the result will be to push a Justice in the ideological direction of the group to which he belongs. Thus, if the Supreme Court becomes more dominated by, say, Justices appointed by Republican Presidents (an increase in *SCRep*), those Justices will vote more conservatively than before, but the smaller number of Justices appointed by Democratic Presidents will vote more liberally. As just noted, we find this latter effect. In regression (4), if the Court shifts from a 5–4 majority of Justices appointed by a Democratic President to a 5–4 majority of Justices appointed by a Republican President, a Justice appointed by a Democratic President can be expected to vote more liberally in about 2 percent of the cases (=.182 x 1/8 as *SCRep* increases from 4/8 to 5/8). But the *SCRep* variable never reaches the .05 level of significance and we find no similar effect when the parties are reversed.

48 If we divide the sample into civil liberties cases and economic cases and re-estimate the regressions in Table 8, we find a significant negative effect of the *SCRep* variable in the second category (a regression coefficient of –.03 and *t*-ratio of 2.22) but not the first. That is, the tendency of Justices appointed by

25 Alice H. Eagly and Shelly Chaiken, *The Psychology of Attitudes* 655–659 (1993).

Democratic Presidents to vote more liberally as their number shrinks shows up only in economic cases. We have no explanation for this finding.

Our regression analysis yields the following additional results: 49

(1) Justices appointed more recently (*YrAppt*) are more likely to vote conservative. But although highly significant overall (equation (2)), this result appears limited to Justices appointed by Republican Presidents (equation (3)).

(2) *Term* (i.e., time-trend) is negative, but is significant only in the Republican regressions. The effect is small—about a .018 increase in the fraction of liberal votes every three years. The explanation for the effect and its small size may be that what is moving the Court in a conservative direction is the ideology of the appointees. That effect is picked up in *YrAppt*, so that the small negative effect of *Term* may be reflecting the less conservative drift of society rather than the more conservative drift of judges appointed by Republican presidents. The former may have an independent effect on the Justices because they do not want to get too far out of step with public opinion.

(3) Supreme Court Justices appointed from the federal courts of appeals vote more liberally than other Justices. One might speculate that Justices who had been socialized into the judicial role by prior appellate experience on a lower court that is required to conform to Supreme Court precedent would be more respectful of precedent than a Justice who had not been appointed from a lower court, and this could result in more liberal votes by the former group because the most controversial precedents are the liberal decisions of the Warren Court and, to a lesser extent, of the Burger Court, and the current Court is to the right of both. However, this effect is never significant in Table 8.

D. Other Behavior of Supreme Court Justices

We now regress such outcome variables as fractions of dissents, concurrences, one-vote decisions, and reversals on independent variables that include the fraction of non-unanimous conservative votes of the median Justice (a measure of the median Justice's ideology), the difference between the Justices with the maximum and the minimum fraction of non-unanimous conservative votes in a given term (a proxy for the range of ideological differences among Justices), the number of new Justices, Justices' length of tenure, the number of cases per term of Court, and a time-trend variable. The data cover the 1937–2004 period. Table 9 explains the variables and reports their means. 50

Table 9. Definition and Means of Variables for Supreme Court Regressions; 1937–2004 (All Variables Are Per Court Term)

Variable	Definition	Mean
Dissent	Fraction of Cases with Dissenting Opinion	.584
Concur	Fraction of Cases with Concurring Opinion	.348
OneVote	Fraction of Cases Decided by a One-Vote Margin	.152
Reverse	Fraction of Cases in which Appellant Prevailed	.619
Med_Judge	Fraction of Conservative Votes of Median Justice	.528
Range	Difference between Justice with Maximum and Minimum Fraction of Conservative Votes	.560
New	Number of New Justices	.5
Service	Average years of Service of Justices on the Court	12.04
Term	Term or Time Trend Variable (1937–2004)	1972.5
Cases	Number of Cases Decided by the Court	119.5

51 We can expect that the greater the ideological differences among Justices, the greater the fraction of close decisions.[26] A more ideologically divided court is less likely to be able to coalesce around a single opinion in each case. Table 10 presents the regression results. The dependent variables are the fraction of dissents (regression (1)), the fraction of concurrences (regression (2)), the fraction of cases decided by one vote ((3)), and the fraction of reversals ((4)) in the 1937–2004 terms (although data on reversals only begin in 1946).

52 Regressions (1) and (2) reveal a positive and statistically significant correlation between the fraction of cases in which there is a dissent and the fraction in which there is a concurrence. Causation, however, is unclear. One might have expected concurrences and dissents to be substitutes; we find them to be complements. The explanation may be that ideological differences generate not only dissents but also concurrences, the former reflecting disagreement over the outcome and the latter over the grounds for the outcome. Absence of dissent aversion may also be a factor that reduces the substitutability of a concurrence for a dissent.

53 Other results of the regression analysis in Table 10 are:

(1) The ideology of the ideologically median Justice has a significant effect on the fraction of decisions with dissenting opinions (regression (1)), the

26 Although in a case decided by one vote there necessarily is at least one dissent, the mean proportion of cases with dissenting opinions is 58 percent, whereas the mean proportion of cases decided by one vote is only 15 percent.

Table 10. Regression Analysis of Supreme Court Cases 1937–2004 Terms
(t-statistics in parentheses)

Independent Variables	Dependent Variables			
	Dissent(1)	Concur(2)	One-Vote(3)	Reverse(4)
Med_Judge	.250 (2.05)*	-.133 (1.61)	.176 (2.99)**	-.494 (7.04)***
Range	.295 (2.61)**	-.017 (0.26)	.224 (4.82)***	.145 (1.73)
New	-.017 (0.84)	-.003 (0.21)	-.005 (0.46)	-.005 (0.38)
Term	-.005 (3.82)***	.005 (6.35)***	.000 (0.14)	.001 (1.27)
Service	-.001 (0.18)	.001 (0.14)	-.001 (0.24)	.006 (1.17)
Cases	-.001 (2.91)**	.001 (2.98)**	-.000 (0.33)	.001 (1.27)
Concur	.708 (4.81)***	–	–	–
Dissent	–	.445 (6.14)***	–	–
Constant	9.88 (4.02)***	-9.85 (6.41)***	-.234 (0.21)	-1.63 (0.92)
R^2	.57	.73	.59	.45
N	68	68	68	59

Notes: *significant at .05; **significant at .01; ***significant at .001.

fraction of one-vote decisions (regression (3)) and the fraction of reversals (regression (4)). Specifically, the more conservative the median Justice, the greater the fraction of cases with dissenting opinions and 5–4 decisions but the smaller the fraction of reversals. We have no explanation for the first two results. The third suggests that lower-court judges tend to be conservative, since the reversal rate is a measure of the disagreement between the Supreme Court and the courts whose decisions it is reviewing. We shall suggest an explanation when we discuss the court of appeals cases in our database.

(2) The greater the range of potential disagreement among Justices as proxied by the difference between the Justice with the highest fraction of conservative votes each term and the Justice with the lowest fraction, the greater the fraction of dissents and of cases decided by one vote. These results are highly significant in regressions (1) and (3). The range variable has no signifi-

cant effect on concurrences (regression (2)) and reversals (regression (4)), which is at least a little surprising, as one might expect a polarized Court both to generate more disagreement (hence more concurrences) and to be more unpredictable (hence more reversals because the lower-court judges would have greater difficulty predicting how the Supreme Court would decide their cases). That is the situation today, with pretty solid blocs of four liberals and four conservatives and a moderate Justice (Kennedy) who swings between them, though more often to the conservative side.

(3) Contrary to what one might have expected, there is a *negative* time trend in the fraction of dissents (regression (1)), implying a decline in disagreement among the Justices, holding ideological differences (the range variable) constant.[27] But dissents register disagreement in outcome; concurrences have increased significantly over time, which might imply an increase in disagreements over reasoning as opposed to outcome.

(4) The number of cases per term is negatively and significantly related to the fraction of dissents (regression (1)) and positively and significantly related to the fraction of concurrences (regression (2)). The first correlation makes economic sense; the more cases the Court decides, the less time Justices have to write a dissent and hence the more costly it is to dissent. But the positive effect of cases on concurrences is puzzling because time constraints should also reduce the number of those opinions. The increase in concurrences may reflect either our point above about disagreement or a desire to provide more guidance to lower courts, since concurring opinions by the Supreme Court often are influential with the lower courts.

(5) We find no significant effects of number of new Justices or of average tenure on the outcome variables.

4. ANALYSIS OF COURT OF APPEALS VOTING: 1925–2002

A. Data Summary

54 The court of appeals (Songer) database contains random samples of 15 decisions from each federal court of appeals annually from 1925 through 1960, and of 30 decisions annually from 1961 through 2002.[28] Our cor-

27 This is the mirror image of our earlier analysis that showed an increase from about 30 to 40 percent in the fraction of unanimous decisions over the last 40 or so years.

28 The data are limited to the 12 regional circuits. The Federal Circuit, created in 1982 with a semi-specialized jurisdiction, is omitted.

Table 11. Court of Appeals Votes by Subject Matter and Ideology for 538 Court of Appeals Judges Only: 1925–2002

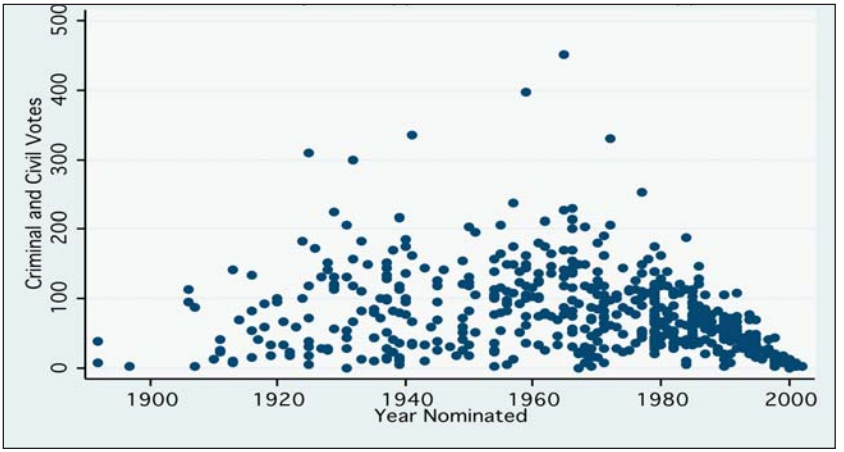
	Crim	Civ Rts	First	Due Process	Priv	Econ	Labor	Misc	Total
Conservative	6823	2721	566	461	117	9361	1351	525	21925
Liberal	1876	1766	477	201	67	9884	1922	559	16752
Mixed	635	460	89	51	13	1775	420	22	3465
Other	5321	210	102	79	3	6047	179	958	12899
Total	14,655	5157	1234	792	200	27,067	3872	2064	55,041

rected court of appeals database includes 538 court of appeals judges[29] and 42,142 votes—an average of 78.3 votes per judge. As shown in Table 11, these votes are sorted into three ideological categories (conservative, liberal, and mixed) and eight subject-matter categories (criminal, civil rights, first amendment, due process, privacy, economic regulation, labor, and—a residual category—miscellaneous). The 12,899 "other" votes are votes that can be classified by subject matter but not by ideology. For example, a vote in favor of the plaintiff in a trademark case fits the economic category but has no clear ideological direction in the absence of detailed information about the parties and the case. Similarly, a judge's vote in a white-collar criminal case is difficult without further detail to classify ideologically. Although we exclude "other" votes from the regression analysis, it is useful to note its magnitude since many of our corrections to the court of appeals database involved shifting votes from one of the ideology categories into the "other" category. About 23 percent of the votes in our database are in the "other" class.

The average of 78 votes per judge hides the fact that there are fewer votes for those judges appointed before 1925, the first sample year, and for those judges appointed not long before 2002, because both sets of judges cast relatively few votes in the period covered by the database. Thus, of the 72 judges with fewer than 20 votes (including one with zero votes), 11 were appointed between 1892 and 1925 and 34 after 1990. Figure 3 shows the distribution of votes by the year in which the judge was appointed.

29 We exclude from our analysis 4481 votes of non-court of appeals judges (mainly district court judges) sitting on the court of appeals and 382 votes the subject matter and ideological direction of which could not be ascertained. An interesting question for future research is whether district court judges exhibit distinctive behavioral traits when they sit on the court of appeals—for example, are they less likely to dissent than a court of appeals judge is?

Figure 3. Total Votes by Year Appointed to the Court of Appeals



56 Table 12 relates the ideological direction of votes in the different subject-matter categories to the party of the appointing President.[30] We see that judges appointed by Republican Presidents are indeed more likely to vote conservative, with the imbalance being greatest among judges appointed by the most recent Republican Presidents—Reagan and the first Bush.[31] There is also a positive time trend in the fraction of conservative votes, regardless of the party of the appointing President, though this finding must be taken with a grain of salt because of the high error rate in the ideological classification of votes in older cases and the absence of other independent variables.[32] The ideological time trend is observed even if criminal appeals, which yield a high proportion of conservative votes for both Republican and Democratic appointees, are excluded. The overwhelming majority of criminal appeals are by criminal defendants whose appeals are financed by the government, and with the cost of appealing thus being zero to most criminal defendants there is a high percentage of groundless criminal appeals.

30 The sum of the fractions of conservative and of liberal votes in the court of appeals is less than one because of mixed votes, which account for between 5 and 10 percent of the total number of votes.

31 There are seven appointees by the second Bush in our database but they only account for 17 votes.

32 Recall from note 6 that a spot check of appellate cases found a 40 percent error rate in classifications of cases decided between 1925 and 1940, compared to only a 10 percent rate for cases decided since 1960.

Table 12. Fraction of Mixed (M), Conservative (C) and Liberal (L) Votes for 538 U.S. Court of Appeals Judges by President at Time of Appointment: 1925–2002

Category	Harrison, McKinley, T. Roosevelt & Taft			Wilson			Harding, Coolidge & Hoover			Roosevelt & Truman			Eisenhower			Kennedy/Johnson		
	M	C	L	M	C	L	M	C	L	M	C	L	M	C	L	M	C	L
All	.030	.489	.482	.049	.448	.503	.068	.483	.448	.051	.469	.479	.067	.543	.390	.078	.488	.434
Civil	.023	.449	.527	..051	.474	.474	.067	.456	.476	.054	.426	.521	.074	.473	.453	.086	.416	.498
Criminal	.073	.764	.164	.029	.757	.214	.074	.733	.193	.038	.738	.224	.045	.766	.189	.056	.686	.259
Constitutional	0	.647	.353	.000	.800	.200	.000	.629	.371	.007	.656	.337	.046	.614	.340	.081	.483	.436
Econ. & Labor	.026	.425	.549	.054	.450	.495	.072	.441	.487	.059	.408	.533	.083	.445	.472	.092	.398	.510
Number Tenure	11 26.2			16 17.9			37 15.2			77 14.0			44 12.5			60 14.9		

Table 12. (Continued)

Category	Nixon/Ford			Carter			Reagan			Bush			Clinton		
	M	**C**	**L**	**M**	**C**	**L**	**M**	**C**	**L**	**M**	**C**	**L**	**M**	**C**	**L**
All	.093	.543	364	.111	.503	..385	.111	.590	.299	.101	.619	.280	.096	.524	.380
Civil	.102	.468	.430	.114	.447	.439	.120	.524	.356	.112	.557	.332	.103	.466	.431
Criminal	.067	.764	.170	.103	.673	.224	.087	.766	.147	.075	.782	.143	.079	.679	.242
Constitutional	.096	.556	.347	.104	.490	.406	.113	.591	.297	.101	.612	.287	.107	.513	.380
Econ. & Labor	.107	.439	.469	.124	.421	.455	.128	.489	.383	.124	.525	.351	.103	.436	.461
Number Tenure	57 13.4			56 16.3			78 13.8			37 10.9			60 6.3		

Notes: (1) Republican presidents appointed all judges in our sample before Wilson.

(2) Number denotes the number of judges who have at least one vote.

(3) Means (fractions) are weighted by the number of judge votes; for example, in the All category, the fraction of each judge's vote in the *M, C* and *L* classes is weighted by the judge's total votes in the three classes.

(4) The constitutional category includes civil rights, first amendment, due process and privacy cases.

(5) Shaded areas are Republican and unshaded are Democratic Presidents.

When parties bear their own cost of appeal (as in most civil cases), the party who loses in the trial court is unlikely to appeal if his legal arguments have no merit or the lower court's factual findings are not even arguably clearly erroneous. The economics of litigation predicts that a case will be appealed only if the probability of reversal (which is increasing in the likelihood that the lower court has committed a reversible error) times the judgment exceeds the cost of appeal. Even then, the case is likely to be settled unless the parties disagree about the probable outcome of an appeal, and so cases that are appealed are likely to contain a significant percentage of cases that are "close," and in such cases a judge's ideology may have a significant influence on his vote, though less so than in the Supreme Court, where there are more close cases. 57

To test the hypothesis that ideology plays a greater role in the Supreme Court than in the courts of appeals, we can compare the difference in the fraction of conservative (or liberal) votes of Republican and Democratic appointees in the Supreme Court and appellate courts. But we cannot meaningfully make the comparison across all cases, because the two judiciaries have a different case mixture. Instead we compare just votes in the civil liberties category that we used for the Supreme Court (see Table 5) to votes in the constitutional category (civil rights, First Amendment, due process, and privacy) for the court of appeals. We find that the fraction of conservative votes by judges appointed by Republican and Democratic Presidents is .588 and .514 respectively in the court of appeals compared to .570 and .428 in the Supreme Court. The ratio is thus 1.14 in the courts of appeals but 1.33 in the Supreme Court. Even if we limit the court of appeals to judges appointed since 1981 (when President Reagan largely ended the tradition of senatorial appointments of court of appeals judges), the court of appeals ratio is still only 1.16. 58

The difference in ratios is even greater if we consider the data in Table 6, which, classifying Justices as conservatives, moderates, and liberals, yield a ratio of 2.76 for conservative versus liberal Justices in the civil liberties category.[33] 59

The overall fraction of conservative votes is typically higher in the courts of appeals than in the Supreme Court—for example, .553 in the constitutional 60

33 This may not be an accurate comparison because we use the conservative-liberal designation for Supreme Court Justices but continue to use the party of the appointing President for court of appeals judges, which is only a proxy for conservative and liberal judges.

category in the courts of appeals versus .510 in the civil liberties category in the Supreme Court.[34] The likeliest explanation is a selection effect similar to the one that explains the tendency of liberals to cast conservative votes in criminal cases. The liberal side of a civil case is generally the plaintiff's side. Most cases are losers—for example, most employment discrimination cases (a major category of civil rights cases) are dismissed and the dismissal affirmed. The affirmance of a civil rights case that has been dismissed, as of most civil cases in which the defendant won in the district court, is classified as a conservative vote. So since most dismissals of civil rights cases would be affirmed by any judge who was not ultraliberal, even liberals vote conservative in a large fraction of civil cases. The situation in the Supreme Court is different. Any litigant who loses in the district court can appeal to the court of appeals, but the Supreme Court jurisdiction is discretionary and the Court hears only a tiny percentage (currently only slightly more than one-tenth of 1 percent[35]) of the cases decided by the courts of appeals. The appeals the Court accepts for review tend to be more meritorious (as indicated by the fact that the Court reverses about two-thirds of the cases it decides—a much higher reversal rate than in the courts of appeals), since if the court of appeals had affirmed an obvious loser the Supreme Court would rarely bother to take the case. Being more meritorious on average, the civil rights appeals decided by the Supreme Court attract a higher fraction of liberal votes than the average court of appeals case.

B. Regression Analysis

61 Most of our independent variables are the same as in Table 7. But some are new, including dummy variables denoting the judge's circuit (*Circuit Variables*), gender (*Gender*), race (*Black*), and prior experience as a district judge (*District Court*).[36] There have been too few black and female Supreme Court Justices (just two of each) to enable meaningful comparisons with other Justices, and virtually no Justices who had been district judges, whereas 8.3 percent of our court of appeals sample (45) consists of female judges

34 This difference also holds when we look separately at judges appointed by Republican and by Democratic Presidents. For example, the fraction of conservative votes by the former is .570 in the Supreme Court constitutional category and .588 in the court of appeals civil liberties category; and by the latter it is .428 in the Supreme Court and .514 in the court of appeals.

35 Posner, note 3 above, ch. 10.

36 We include 11 *CIR* dummy variables for the 12 circuits (the omitted variable is the D.C. Circuit). *GEND* equals 1 for a male and 0 for a female judge; *BLACK* equals 1 for black and 0 otherwise; and *DIST* equals 1 if the judge had been a district court judge and 0 otherwise.

and 4.8 percent (26) of black judges, along with a substantial percentage—40.8 percent—of judges appointed from the district court. Over the period embraced by the sample, the percentage of court of appeals judges who are former district judges has remained steady at around 41 percent. Moreover, there are no significant differences in the fraction of former district court judges across racial and gender groups.

62 There are several differences between the Supreme Court and court of appeals regressions. They are due to differences between the two databases that have required us to tabulate our court of appeals vote data in the form of votes per judge over the sample period rather than votes per year and have prevented us from distinguishing between majority and dissenting votes. Also, because the data are sampled (15 cases per court of appeals through 1960 and 30 per court of appeals thereafter), there may be no or only a few cases per judge in any year, which makes it difficult to study the time path of a judge's votes within subject-matter categories. And while an increase in the fraction of conservative votes in the Supreme Court translates into an identical decrease in the fraction of liberal votes because there is no "mixed" vote category in the Supreme Court database, in the court of appeals database such an increase can lead to a decrease in the fraction of mixed votes, of liberal votes, or of both. The biggest effect, however, is a decrease in the fraction of liberal votes because, as Table 12 shows, the fraction of mixed votes is only 8.2 percent of all votes (excluding "other" votes).

63 Table 13 presents our regression results for the courts of appeals for the years 1925–2002. We estimate separate regressions for the fraction of conservative and liberal votes because, as noted above, the two do not sum to one. In the civil regressions, we include independent variables for the fraction of the judge's votes (excluding criminal) in economic and labor cases (*ECON*), and in the miscellaneous case category (*MIS*), in order to account for differences in the mixture of civil cases across circuits. We estimated separate regressions for criminal cases because conservative votes in this category (that is, votes against the defendant) are more likely to be a reflection of the lack of merit of these cases than of a judge's ideological bent. We did not report a similar division in the Supreme Court because the Court's selectivity means that the cases in all categories are likely to be difficult. Consistent with this suggestion, the fraction of conservative votes in the Supreme Court's criminal cases is only slightly higher than the fraction of civil cases—for example, the fraction of conservative votes in the criminal-procedure category, .535, is near the midpoint of the range of the other categories, which is .41 to .59, excluding

Table 13. Regression Analysis of Court of Appeals Votes: 1925–2002

(t-statistics in parentheses)

Independent Variables	Dependent Variables					
					Uncorrected Data	
	Civil Cases		Criminal Cases		Civil Cases	Criminal Cases
	Fraction Conservative (1)	Fraction Liberal (2)	Fraction Conservative (3)	Fraction Liberal (4)	Fraction Conservative (5)	Fraction Conservative (6)
Pres	.035*** (3.70)	-.037*** (4.03)	.063*** (3.92)	-.051** (3.47)	.035*** (3.86)	.056*** (4.22)
SenRep	.125** (2.79)	-.149*** (3.31)	.002 (0.03)	-.124 (1.53)	.072 (1.71)	-.076 (1.09)
YrAppt	-.0002 (0.63)	-.0005 (1.38)	-.0003 (1.01)	-.0003 (0.95)	.0003 (0.79)	-.0009*** (3.39)
Gender	-.006 (0.29)	.003 (0.16)	-.003 (0.15)	-.005 (0.21)	-.006 (0.26)	-.014 (0.71)
Black	-.019 (0.73)	.025 (1.09)	-.073* (2.28)	.054 (1.49)	-.028 (1.18)	-.057* (2.06)
District Court	-.003 (0.34)	-.004 (0.55)	.003 (0.30)	-.015 (1.37)	.002 (0.33)	-.001 (0.14)
Fraction Economic	-.188*** (3.30)	.255** (2.70)	-	-	-.090 (1.64)	-
Fraction Miscellaneous	-.002 (1.17)	.0008 (0.64)	-	-	-.049 (0.35)	-
Circuit Variables	***	***	***	***	***	***
Constant	.965 (1.28)	1.276 (1.82)	1.335* (2.05)	.837 (1.51)	-.020 (0.03)	2.414*** (4.76)
R^2	.22	.37	.24	.23	.18	.24
No. Observations	538	538	513	513	535	523

Notes: (1) All regressions are weighted; the weights are equal either to the judge's total votes in civil cases (equations (1)-(3)) or to his total votes in criminal cases (equations (4)-(6)).

(2) All regressions include 11 dummy circuit variables—circuits 1 to 11 with the D.C. circuit the omitted circuit variable.

(3) *significant at .05; **significant at .01; and ***significant at .001 level.

the tax category, in which 34 percent of the votes are conservative. In contrast, the fraction of conservative votes in criminal cases in the courts of appeals is .731, compared to .460 for civil cases.

Table 13 also includes two regression equations that use the original uncorrected Songer data. This allows us to determine whether our extensive coding and ideological corrections (see Appendix C), which eliminated 28 percent of the votes from the original sample, yield significantly different results from regressions based on the uncorrected data.[37] 64

The results in Table 13 are as follows. 65

(1) Consistent with our findings for the Supreme Court, we find that judges appointed by Republican Presidents (*Pres*) are significantly more likely to vote for conservative than for liberal outcomes (see equations (1)–(4)). This is not surprising because federal court of appeals judges have the same secure tenure as Supreme Court Justices, and so we can expect their utility function to contain a self-expression argument.

(2) As in the Supreme Court regressions, we find that the greater the fraction of Republican senators (*SenRep*) at the time of a judge's confirmation, the more likely the judge is to cast conservative votes and the less likely he is to cast liberal ones. This is true in both the civil and criminal regressions, but the effects are statistically significant only in the former.

(3) The judge-specific variables (*Gender*, *Black*, and *District Court*) are not significant in any regression, with the exception that black appellate judges are significantly less likely to vote conservatively in criminal cases (regression (4)).

(4) We find a significantly lower fraction of conservative votes (and higher fraction of liberal votes) in the economic (including labor) category but no significant effects of ideology in the miscellaneous ideology. Since economic cases account for about 75 percent, and civil liberties cases about 23 percent, of all civil cases, a lower fraction of conservative votes in the former category implies a higher fraction of conservative votes in the latter. We find similar results in Table 12 even when judges appointed by Republican and by Democratic Presidents are considered separately. We suspect that the reason for this puzzling difference is that a higher

37 We do not present regressions on mixed votes because they account on average for only 8 percent of votes cast and the only significant variable is year appointed. Both the "uncorrected" and "corrected" data exclude the votes of non-court of appeals judges, who sometimes sit on the court of appeals as visiting judges.

fraction of meritless appeals is brought by losing plaintiffs in civil rights cases. Since defendants are therefore more likely to prevail in these cases and since civil rights account for 71 percent of the cases in the civil liberties category, the result is a higher fraction of conservative votes in civil liberties cases than in economic cases.

(5) We find only small differences between regressions based on corrected versus uncorrected data. For example, in the regressions based on uncorrected data, judges appointed by Republican Presidents are significantly more likely to vote conservatively in both civil (equation (5)) and criminal (equation (6)) cases and the magnitude of these effects is roughly the same in both corrected-data and uncorrected-data regressions. In the civil regressions, the main difference between the two types of regression is that the fraction of Republican Senators at the time of appointment is no longer statistically significant in the uncorrected–data regression and that the R^2 (fraction of variance explained by the regression) is substantially lower, which suggests that the coding and ideology errors are randomly distributed across the different judges. That is, there is more noise in the uncorrected data, and so the model has less explanatory power.

66 There are only minor differences in the criminal regressions (compare equations (3) and (6)). In both, judges appointed by Republican Presidents vote more conservatively and black judges vote less conservatively. One difference is that more recent appointees vote significantly less conservatively in the regression based on the uncorrected data. Again, the R^2 is the same.

67 The effect of using the uncorrected data might be greater when narrower classes of case, with fewer data points, are studied, and this might have implications for the results in some of the studies listed in Appendix A. But we have not explored this issue.

68 In Table 14, we re-estimated the regressions in Table 13 restricting the sample to judges appointed since 1960. We did this in order to verify the results of the full sample, because as noted earlier a review of 40 cases indicated that the coders had greater difficulty in classifying the ideological direction of votes before than after 1960. As expected, we are indeed able to explain more of the variance in the later period. Thus, in the regression of the fraction of conservative votes in civil cases, the R^2 is .37 in the 1960–2002 period, compared to .22 for the 1925–2002 period. The corresponding figures for the criminal cases are .32 in the 1960–2002 period and .24 for the 1925–2002 period. In addition, the *t*-ratios for the *PRES*

Table 14. Regression Analysis of Court of Appeals Votes: 1960–2002

(t-statistics in parentheses)

Independent Variables	Dependent Variables					
					Uncorrected Data	
	Civil Cases		Criminal Cases		Civil	Criminal
	Fraction Conservative (1)	Fraction Liberal (2)	Fraction Conservative (3)	Fraction Liberal (4)	Fraction Conservative (5)	Fraction Conservative (6)
Pres	.055*** (4.24)	-.064*** (5.01)	.070*** (4.15)	-.057*** (3.77)	.048*** (3.86)	.060*** (4.09)
SenRep	.010 (0.09)	.048 (0.44)	.092 (0.60)	-.220 (1.59)	.008 (0.07)	-.049 (0.35)
YrAppt	.003*** (2.80)	-.003*** (4.00)	.00003 (0.03)	-.0006 (0.66)	.003*** (3.46)	-.0007 (0.77)
Gender	-.002 (0.09)	.002 (0.11)	.0009 (0.04)	- .007 (0.30)	-.008 (0.36)	-.006 (0.28)
Black	-.017 (0.80)	.031 (1.56)	-.067* (2.01)	.050 (1.31)	-.022 (1.05)	-.056 (1.91)
District Court	-.006 (0.56)	-.001 (0.14)	.011 (0.83)	-.018 (1.44)	.003 (0.30)	.008 (0.74
Fraction Economic	-.057 (0.73)	.143* (2.09)	-	-	-.019 (0.27)	-
Fraction Miscellaneous	-.002 (0.93)	.0006 (0.31)	-	-	-.090 (0.52)	-
Circuit Variables	***	***	***	***	***	***
Constant	-4.626** (2.57)	7.286*** (4.22)	.590 (0.29)	1.568 (0.84)	-5.017*** -(3.20)	2.096 (4.76)
R^2	.37	.43	.32	.31	.35	.31
No. Observations	355	355	346	346	351	348

Notes: (1) All regressions are weighted; the weights are equal either to the judge's total votes in civil cases (equations (1), (2) and (5)) or to his total votes in criminal cases (equations (3)(4) and (6)).

(2) All regressions include 11 dummy circuit variables—circuits 1 to 11 with the D.C. circuit is the left-out circuit variable.

(3) *significant at .05; **significant at .01; and ***significant at .001 level.

variable in the fraction-conservative and fraction-liberal regressions are typically about 25 percent higher in the 1960–2002 than in the 1925–2002 regressions.

69 We find no significant effect of the fraction of Republican senators variable in the 1960–2002 regressions, although nearly all coefficients have the predicted positive sign. In addition, the coefficient of the year-of-appointment variable is positive (negative) and highly significant in explaining the fraction of conservative (liberal) votes in civil cases (though not in criminal ones). That is, judges appointed more recently (among judges appointed since 1960) are more likely to cast conservative votes in civil cases and less likely to cast liberal ones. These results may reflect an increase in the number of ideologically committed conservative judges appointed by Republican Presidents beginning with Reagan. As we mentioned, he decided to give less weight to the preferences of home-state Senators, whose recommendations often reflect patronage rather than ideological concerns. His successors, both Democratic and Republican, have tended to adhere to the pattern he set, and the Presidency has been in Republican hands for 20 of the 28 years since Reagan's election in 1980.

70 We separated the 1960–2002 sample into judges appointed by Republican Presidents (181 judges) and judges appointed by Democratic Presidents (174). The "more committed conservative" hypothesis implies a positive and significant effect of the appointment year in the Republican but not the Democratic sample. Consistent with this hypothesis, the regression coefficient on the year-appointed variable in the fraction of conservative votes in civil cases is positive and highly significant (a *t*-ratio of 3.12) in the Republican sample but not significant (a *t*-ratio of 0.39) in the Democratic sample. Consistent with our earlier point that most criminal appeals are "losers," we do not find this effect in criminal cases.

71 Regressions (5) and (6) in Table 14 use the uncorrected data for the 1960–2002 period. The results for the corrected and uncorrected data are very similar. In both datasets, judges appointed by Republican Presidents are significantly more likely to vote conservatively in both civil and criminal cases. Two differences between the corrected and uncorrected results should be noted, however. The year-appointed variable in Table 14 has a positive and significant effect on the fraction of conservative votes in the corrected data but an insignificant effect in the uncorrected data, and the R^2's are nearly double in the regressions using the corrected data.

Table 15. Circuit Effects on Ideology of Judges' Votes

	Civil Cases						Criminal Cases					
	Fraction						Fraction					
Circuit	Conservative		Liberal		Mixed		Conservative		Liberal		Mixed	
1st	+	+	–	–				+				
2d			–		+	+					+	
3d								–		+		
4th		+		–				–				
5th	+	+	–	–								
6th		+						–		+		
7th	+	+			–	–	+	+	–		–	–
8th	+	+	–	–			+	+	–			
9th												
10th						–						
11th												
D.C.												

Notes: (1) Shaded columns denote 1960–2002 regressions and unshaded columns denote 1925–2002 regressions.

(2) The D.C. circuit is the excluded variable.

(3) A positive (negative) sign denotes a significant positive (negative) effect compared to the D.C. circuit.

(4) The absence of a sign for a circuit indicates that there is no significant difference between that circuit and the D.C. circuit.

C. Group Effects (Social Influence)

The circuit dummy variables are jointly significant in all regressions in Tables 13 and 14, indicating that there are significant (unexplained) differences among some circuits in the fraction of conservative and liberal votes. These results are summarized in Table 15 for both the 1925–2002 and 1960–2002 regressions. 72

Although there are no significant circuit effects in Table 15 for most circuits, there is a pronounced positive effect on the fraction of conservative votes in the Seventh and Eighth Circuits and smaller positive effects in the First and Fifth.[38] All four circuits are more conservative than one 73

38 Technically, the circuit dummies indicate the difference between each circuit and the D.C. Circuit, which is the excluded dummy variable. This implies that if seven circuits are not significantly different from the D.C. Circuit whereas four are, then the latter four are significantly different than the eight other regional circuits.

would expect on the basis of the judges' ideology as proxied by the party of the President who appointed them and by the fraction of Republican senators at the time of confirmation. Thus, it is not that these are the four most conservative circuits, but that they are more conservative than they "should be" on the basis of the presumed ideology of their judges, a factor that the regression corrects for. We have no explanation for this result.

74 Another reason to observe circuit effects is social influence, which we discussed with reference to the Supreme Court. We tested three possible social-influence hypotheses—a conformity hypothesis, a group-polarization hypothesis, and political-polarization effect—and found that only the third was consistent with the data (although the effect was only marginally significant in Table 8). We now test these hypotheses in the courts of appeals by examining the voting behavior of the current (as of 2002) active court of appeals judges, plus those who have taken senior status, retired, or resigned since 2000 and thus would have interacted extensively with the current active judges. We refer to this sample as "current" judges. The sample contains 156 judges, of whom 141 were appointed since 1980, 82 being appointed by Republican Presidents and 74 appointed by Democratic Presidents. The former group has an average tenure of 14.6 years and the latter 10.6 years. Restricting the analysis to this sample provides a more powerful test of our two social-influence hypotheses than either the 1925–2002 or 1960–2002 samples. The reason is that judges currently active in a circuit (plus other judges appointed after 1960 who were active as of 2000 but not 2002) by definition interact with each other, whereas many of the judges in the same circuit in the 1925–2002 and 1960–2002 samples did not overlap, given the length of time covered by each sample.

75 Table 16 re-estimates the regressions in Tables 13 and 14 but is limited to current judges and contains two alternative independent variables for social influence.[39] One is the fraction of (other) judges in each circuit who were appointed by Republican Presidents (*FrRep*);[40] the other is that

39 With regard to the other variables in Table 16—variables carried over from Tables 13 and 14—the results are similar to those for the 1960–2005 sample in Table 14. Thus, judges appointed by Republican Presidents are significantly more likely to vote conservatively and none of the other variables in Table 16 that were carried over from Table 14 is statistically significant.

40 Social influence refers to the possibility that *other* judges in a circuit will influence the votes of a particular judge in that circuit. For example, suppose there are 10 judges in a circuit, 3 appointed by Democratic Presidents and 7 by Republican Presidents. The fraction of other judges appointed by Republican Presidents in that circuit will either equal 7/9 or 6/9 depending on whether the judge in question was appointed by a Democratic or Republican President.

Table 16. Regression Analysis of Appellate Court Votes: Current Judges

(t-statistics in parentheses)

Independent Variables	Dependent Variables			
	Civil Cases		Criminal Cases	
	Fraction Conservative (1)	Fraction Conservative (2)	Fraction Conservative (3)	Fraction Conservative (4)
Pres	.104*** (4.08)	.087*** (3.11)	.111*** (3.94)	.080** (2.56)
SenRep	-.088 (0.45)	-.076 (0.38)	.365 (1.69)	.340 (1.49)
YrAppt	-.0009 (0.47)	-.0007 (0.32)	.0004 (0.22)	.0006 (0.38)
Gender	-.025 (0.83)	-.028 (0.90)	-.014 (0.48)	-.019 (0.60)
Black	.019 (0.56)	.031 (0.93)	-.007 (0.17)	.010 (0.18)
District Court	-.019 (0.87)	-.020 (0.88)	.016 (0.65)	.015 (0.57)
Fraction Economic	-.193 (1.95)	-.214* (2.09)	-	-
Fraction Miscellaneous	-.010 (1.35)	-.009 (1.22)	-	-
FrRep	.264*** (3.75)	-	.442*** (5.46)	-
FrRep_wtd	-	.189*** (2.91)	-	.342*** (4.74)
Constant	2.352 (0.60)	1.823 (0.45)	-.514 (0.15)	-.972 (0.29)
R^2	.24	.20	.36	.31
No. Observations	156	156	151	151

Notes: (1) All regressions are weighted by the judge's total votes in civil cases (equations (1)–(2) or criminal cases (equations (3)–(4)).

(2) *Significant at .05; **significant at .01: and ***significant at the .001 level (2).

fraction weighted by the number of years of a judge's service through 2002 (*FrRep_wtd*). Because the court of appeals judges almost always sit in panels of three judges randomly selected from the judges on the court (though a complicating factor, which we ignore, is that a number of the courts of appeals make extensive use of visiting judges, mainly senior judges), an increase in *FrRep* implies a higher probability that a panel will include two or more judges appointed by Republican Presidents.

76 Thus, of the eleven judges in the Seventh Circuit in the sample of current judges, Republican Presidents appointed eight and Democratic Presidents three. This implies that the probability that a judge appointed by a Republican President will sit on a panel with at least one or two other judges appointed by a Republican President is .933, while the probability that he will sit on a panel of two judges appointed by Democratic Presidents is only .067. In comparison, a judge appointed by a Democratic President in the Seventh Circuit has a .40 probability that he will sit on a panel with one or two other judges appointed by a Democratic President.[41] Group effects in the court of appeals thus are panel-composition effects. [42]

77 The conformity hypothesis is that an increase in the proportion of judges appointed by Republican Presidents will increase the likelihood that any judge in the circuit will cast a conservative vote and that a decrease in that proportion will increase the likelihood of a liberal vote. The group-polarization hypothesis that judges appointed by Republican Presidents will vote more conservatively in response to an increase in the fraction of the judges on their court appointed by Republican Presidents but that judges appointed by Democratic Presidents will not. The political-polarization hypothesis

41 More generally, we can calculate the probabilities of various panel compositions for a given judge as follows. Let N=the number of judges in the circuit; R=the number appointed by Republican Presidents and D=the number appointed by Democratic Presidents.

Panel Make-Up	Judge Appointed by Republican President	Judge Appointed by Democratic President
All R	(R-1)(R-2)/(N-1)(N-2)	0
2R & 1D	2(R-1)D]/(N-1)(N-2)	R(R-1)/(N-1)(N-2)
1R & 2D	D(D—1)/(N-1)(N-2)	2(D-1)R/(N-1)(N-2)
All D	0	(D-1)(D-2)/(N-1)(N-2)

42 *See* Cass R. Sunstein et al., *Are Judges Political? An Empirical Analysis of the Federal Judiciary* (2006).

is that an increase in the size of one of the blocs relative to another will cause the second to vote more antagonistically to the first. We test the first hypothesis by estimating a regression for all 156 judges in the sample. We test the second and third hypotheses by estimating separate regressions for judges appointed by Republican Presidents and judges appointed by Democratic Presidents.

78 The dependent variable in the first two regressions in Table 16 is the fraction of conservative votes in civil cases, and the dependent variable in the third and fourth regressions is the fraction of conservative votes in criminal cases. To simplify the table we have excluded regressions on the fraction of liberal votes because the effects and significance levels of the independent variables are very similar to those of the conservative votes, except of course for the sign. In contrast to our finding with respect to the Supreme Court, we find in our court of appeals sample a significant increase in the likelihood that a judge will vote conservatively in both civil and criminal cases the greater the fraction of other judges appointed by Republican Presidents, regardless of whether the judge in question was appointed by a Republican or a Democratic President.[43] So the conformity hypothesis is supported. The effect is greater in the case of judges appointed by Democratic Presidents than in the case of judges appointed by Republican Presidents. For in separate civil regressions (not reported in Table 16), the coefficients (*t*-ratios in parentheses) are .245 (2.68) and .322 (3.45) for judges appointed by Republican and by Democratic Presidents respectively, and in separate criminal regressions they are .382 (3.70) and .518 (4.64). These results are merely suggestive, however, because we cannot reject the null hypothesis that the effects are equal.

79 We can estimate the magnitude of the effect of marginally changing the fraction of court of appeals judges appointed by Republican and Democratic Presidents. Suppose in a circuit that has 6 judges appointed by Republican Presidents and 6 appointed by Democratic Presidents, one of the judges that had been appointed by a Democratic President is replaced by a judge appointed by a Republican President—i.e., the *FrRep* variable changes from .5 (6/12) to .5833 (7/12). The mean value of the fraction of conservative votes in civil cases for the average judge will increase from .52

43 Recall that votes in the courts of appeals are classified as conservative, mixed, or liberal; so an increase in conservative votes does not necessarily imply a decrease in liberal ones. We re-estimated the regressions in Table 16 using the fraction of liberal votes as the dependent variable and found that the greater FrRep and FrRep_wtd, the lower the fraction of liberal votes.

to .54 (.264 × (.5833 – .5)) in civil cases and from .74 to .78 in criminal cases (.442 × (.5833 – .5)). In a ten-year period, assuming an equal number of civil and criminal cases, the average judge would thus cast 20 more conservative votes in civil cases and 40 more conservative votes in criminal cases.

80 There is also some evidence of group polarization. Remember that an increase in the fraction of judges appointed by a Republican President increases the conservative voting of those judges, not just of the judges appointed by a Democratic President. In other words, the in-group becomes more extreme. There is thus a triple effect of a change in the ideological composition of a court when a member of the minority bloc on the court (say judges appointed by Democratic Presidents) is replaced by a member of the majority bloc: The majority becomes larger and therefore the court becomes more conservative irrespective of any group effects; the members of the majority become more conservative than they were when there were fewer of them; and the minority becomes more docile—more likely to go along with the majority than before. This triple whammy suggests that judicial confirmation battles will be most intense when the appointment would result in enlarging the majority bloc on the court of appeals at the expense of the minority.

81 So the conformity hypothesis is supported, but so is the group-polarization hypothesis, because the size of the "in group" (judges appointed by Republican Presidents, or judges appointed by Democratic Presidents) has an independent effect on the fraction of conservative (or liberal, as the case may be) votes.

82 The political-polarization effect, which we found supported (but the *t*-ratio was only marginally significant) by the Supreme Court data, is not supported by the court of appeals data. This is implied by the finding of a conformity effect in the court of appeals but not in the Supreme Court. Given the conformity effect, when one bloc of judges grows at the expense of the other (that is, holding the size of the court constant), the entire court is pushed in the ideological direction of the group that has grown, at least if that group is in the majority.

83 We offer the following possible economic explanation for the difference between the Supreme Court and the courts of appeals regarding the conformity effect. The workload of the courts of appeals is heavier than that of the Supreme Court, because the Supreme Court has a discretionary jurisdiction, which enables it to limit its caseload; the jurisdiction of the courts of appeals is almost entirely mandatory. Especially given leisure preference,

the heavier workload in the courts of appeals makes the cost of a dissent greater for courts of appeals judges than for Supreme Court Justices. The heavier workload also increases the benefits of decision according to precedent, which greatly reduces the time and effort involved in a decision; instead of having to analyze the case from the ground up, the court looks for a very similar previous case and decides the new case the same way. So we can expect decision in accordance with precedent to be more valued in the courts of appeals. That reduces the value of a dissent, because the majority vote will establish the precedent and the dissent will usually have no influence on the law. Because decision in accordance with precedent is less important in the Supreme Court, dissents have more influence because future Justices are less inhibited than courts of appeals judges would be about departing from a precedent in favor of a dissent. In addition, self-expression is a more powerful motivator in the Supreme Court because the Court is more powerful than a court of appeals.[44]

When a court of appeals is closely divided between liberal and conservative blocs, panels tend to be balanced and a draft of a dissent may swing one of the other judges over to the dissenter's side; and published dissents may signal support for like-minded judges not on the particular panel and provide ideas that may fructify in subsequent cases. The more one-sided the court, the less the value of dissenting. In the limit, in a court of say 10 conservative judges and 1 liberal one, the liberal's dissents would have virtually no impact on the law. Moreover, if he stuck to his liberal guns, consistency might require him to dissent so often that he would be overloaded with work. Hence the conformity effect. 84

5. CONCLUSION

The principal methodological contribution of this paper is the correction of a number of systematic errors in the ideological classification of Supreme 85

44 "The cases the Court hears tend to arouse strong emotions. And the Justices have a lighter workload than lower-court judges, are more in the public eye and therefore more concerned with projecting a coherent judicial philosophy, and are more likely to influence the law even when dissenting, because of the instability of Supreme Court precedent as a consequence of the greater stakes in the cases that the Court decides and the absence of review by a higher court." Posner, note 3 above, ch. 1. *See* also James F. Spriggs and Thomas G. Hansford, "Explaining the Overruling of U.S. Supreme Court Precedent," 63 *Journal of Politics* 1091 (2001), finding that the Supreme Court is more likely to overrule a prior non-unanimous decision than a prior unanimous one.

Court and court of appeals decisions—errors such as classifying all judicial votes for the plaintiff in an intellectual property case as a liberal outcome—in the Spaeth (1953 to 2000, Supreme Court) and Songer (1925 to 2002, courts of appeals) databases, plus errors in the Songer database in ideological classification of individual outcomes of cases, and in the same database, a number of coding errors. These errors led us to exclude about 28 percent of the votes in the courts of appeals of but fewer than 4 percent of the votes in the Supreme Court. The two databases have been used without correction in a large number of previous studies (see Appendix A); our corrected data enable more accurate statistical measurements and analyses. Another methodological contribution is the study of group effects in actual groups of persons rather than in a group contrived for experimental purposes.

86 We analyzed the Supreme Court and court of appeals data separately, using where feasible an informal economic model to explain some of our results. With regard to the Supreme Court we found that our ideology measure (the corrected version of the ideological measure in the Spaeth database) corresponds closely though not identically to what "everyone knows" is the ideological rank order of the Justices who served between 1937 and 2006. We also found, consistent with many other studies, that Justices appointed by Republican Presidents vote more conservatively than Justices appointed by Democratic Presidents, with the difference being most pronounced in civil-rights cases and least pronounced in privacy and judicial-power cases. We related this finding to the "self-expression" argument that we posit in the federal judicial utility function.

87 We used regression analysis to try to isolate the causes of various aspects of the judicial behavior of Supreme Court Justices, beginning with their ideological voting. We found, for example, that some though by no means all Justices become more conservative and others more liberal during their time on the Court. This "ideology drift" is consistent with the correlation between the appointing President's party and a Justice's ideology, because over time issues and party ideologies change. A challenge for further research is to determine whether it is the Justice's ideology that changes over time or that of the party of the appointing President, or perhaps the ideological character of the cases.

88 We find no dissent aversion on the part of Supreme Court Justices and therefore no tendency for members of a liberal or conservative minority on the Court to go along with the majority the larger that majority is. That is, we find no conformity effect. Nor do we find a group-polarization effect, though it is notable that we find a political-polarization effect among Justices appointed

by Democratic but not by Republican Presidents: The fewer of them there are, the more liberally they vote. This finding (although only marginally significant in the regression analysis) is consistent with the proposition that there is more ideological intensity or commitment among conservatives than among liberals, for the more committed a person is to a particular view the less likely he is to be influenced by other persons holding other views. An alternative interpretation, however, is that as the Court becomes more conservative, the majority produces more decisions that the liberal minority disagrees with.

89 Regarding court of appeals judges, we found among other things that the fraction of conservative votes cast is higher in the courts of appeals than in the Supreme Court, even for judges appointed by Democratic Presidents. We attribute the difference to a selection effect—the courts of appeals, which have a mandatory rather than a discretionary jurisdiction, decide a great many one-sided cases; the Supreme Court decides more evenly balanced cases because the one-sided ones tend not to present significant issues and the Court's decisional capacity is very limited relative to the number of lower-court decisions. The difference is especially pronounced in criminal cases. Most criminal appeals are subsidized and lack merit, so that even liberal judges usually vote to affirm; hence the study of ideological influences in the federal courts of appeals is better focused on civil than on all appeals. But the Supreme Court only agrees to hear criminal appeals that have substantial merit.

90 A related finding is that ideology matters more in the Supreme Court than in the court of appeals. To test this hypothesis, we compared the difference in the fraction of conservative (or liberal) votes of Republican and Democratic appointees in the Supreme Court and appellate courts in the civil liberties category. As expected, we found that the ratio of the fraction of conservative votes by judges appointed by Republican and Democratic respectively is between 15 and 20 percent higher in the Supreme Court than in the court of appeals. And if we classify Justices as conservatives, moderates, and liberals, we found that ratio of the fraction of conservative votes of conservative to liberal Justices was about 2.5 times higher than ratio of judges appointed by Republican and Democratic Presidents in the court of appeals.

91 Perhaps the most interesting finding in our court of appeals regressions is of both a conformity effect and group polarization. Thus there is a triple effect when, holding the size of a court of appeals constant, a judge appointed by a President of one party is replaced by a judge appointed by a President of the other party and the newly appointed judge is part of the majority bloc on the court. If, for example, the majority consists of judges appointed by Republican

Presidents, a more conservative judge will replace a less conservative one, the members of the majority bloc will vote more conservatively than when there were fewer of them, and the members of the minority will vote more conservatively than when there were more of them.

92 We speculate that the difference in conformist behavior between the Supreme Court and the courts of appeals is due to the stronger commitment of the courts of appeals to *stare decisis*, as a result of which a dissent (say by a liberal on a conservative panel) has less effect in those courts on the precedential effect of a decision. With fewer dissents, a conservative (liberal) minority will tend to vote more with the liberal (conservative) majority, or in other words to conform to the majority, which is the conformity effect that we find in the courts of appeals but not in the Supreme Court. We explain the different role of precedent in the two judicial tiers by reference to differences in costs and benefits resulting mainly from differences in workload pressures.

93 There is much additional work that could be done to refine our analysis. We suggest just two projects, in closing: The first would be to identify from media accounts court of appeals judges who have had good prospects for promotion to the Supreme Court, based on media speculation, and see whether they dissent more than their peers, or otherwise behave differently, in order to attract attention or otherwise enhance their promotion prospects. The second project would be to use the number of amicus curiae briefs filed in Supreme Court cases as proxies for the importance of case, which could be used as a variable to attempt to explain the likelihood of dissent, on the theory that the value of judicial self-expression through dissenting from a decision with which he disagrees is greater, the more important the case.

APPENDIX A—PREVIOUS STUDIES BASED ON THE SPAETH AND SONGER DATABASES

We have found 27 studies that are based on the Spaeth database, the Songer database, or both. Sixteen use the Spaeth database, eight the Songer database, and three both. The studies are: Stefanie A. Lindquist and Frank B. Cross, "Empirically Testing Dworkin's Chain Novel Theory: Studying the Path of Precedent," 80 *New York University Law Review* 1156 (2005); Sara C. Benesh, "The Contribution of 'Extra' Judges," 48 *Arizona Law Review* 301 (2006); A. Lindquist, Wendy L. Martinek, and Virginia A. Hettinger, "Splitting the Difference: Modeling Appellate Court Decisions with Mixed Outcomes," 41 *Law & Society Review* 429 (2007); Virginia A. Hettinger, Stefanie A. Lindquist, and Wendy L. Martinek, "Comparing Attitudinal and Strategic Accounts of Dissenting Behavior on the U.S. Court of Appeals," 48 *American Journal of Political Science* 123 (2004); Susan B. Haire, "Judicial Selection and Decision-making in the Ninth Circuit," 48 *Arizona Law Review* 267 (2006); Rorie Spill Solberg, Jolly A. Emrey, and Susan B. Haire, "Inter-Court Dynamics and the Development of Legal Policy: Citation Patterns in the Decisions of the U.S. Courts of Appeals," 34 *Policy Studies Journal* 277 (2006); Tajuana Massie, Susan W. Johnson, and Sara Margaret Gubala, "The Impact of Gender and Race in the Decisions of Judges on the United States Courts of Appeal," 2002, www.cas.sc.edu/poli/psrw/MassieJohnsonGubala.pdf; Kirk A. Randazzo, Richard W. Waterman, and Jeffrey A. Fine, "Statutory Constraint and the Federal Judiciary," 2004, www.allacademic.com//meta/p_mla_apa_research_citation/0/6/1/5/0/pages61507/p61507-1.php; A. Lindquist, Susan B. Haire, and Donald R. Songer, "Supreme Court Auditing of the U.S. Courts of Appeals: An Organizational Perspective," *Journal of Public Administration Research and Theory,* Jan. 11, 2007, http://jpart.oxfordjournals.org/cgi/reprint/mul022v1; Paul J. Wahlbeck, "The Development of a Legal Rule: The Federal Common Law of Public Nuisance," 32 *Law & Society Review* 613 (1998); Charles Cameron, Lee Epstein, Harold Spaeth, and Jeff Segal, "Ideological Values and the Votes of U.S. Supreme Court Justices Revisited," 57 *Journal of Politics* 812 (1995); Jeff Segal, Lee Epstein, Kevin Quinn, and Andrew D. Martin, "On the Perils of Drawing Inferences about Supreme Court Justices From Their First Few Years of Service," 91 *Judicature* 168 (2008); Jeff Segal, Lee Epstein, and Harold Spaeth, "The Norm of Consensus on the U.S. Supreme Court," 45 *American Journal of Political Science* 362

(2001); Lee Epstein, Jeff Segal, Valerie Hoekstra, and Harold Spaeth, "Do Political Preferences Change? A Longitudinal Study of U.S. Supreme Court Justices," 60 *Journal of Politics* 801 (1998); Jeff Segal and Albert Cover, "Ideological Values and the Votes of U.S. Supreme Court Justices," 83 *American Political Science Review* 557 (1989); Michael A. Bailey, "Bridging Institutions and Time: Creating Comparable Preference Estimates for Presidents, Senators, and Justices, 1946–2002," http://polmeth.wustl.edu/workingpapers.php?order=dateasc&title=2005&startdate=2005-01-01&enddate=2005-12-31; Lee Epstein, Andrew D. Martin, Kevin M. Quinn, and Jeffrey A. Segal, "Ideological Drift Among Supreme Court Justices: Who, When, and How Important?" 101 *Northwestern University Law Review* 1483(2007); Andrew D. Martin and Kevin M. Quinn. "Assessing Preference Change on the U.S. Supreme Court," 23 *Journal of Law, Economics, and Organization*. 365 (2007); Theodore W. Ruger, Pauline T. Kim, Andrew D. Martin, and Kevin M. Quinn, "The Supreme Court Forecasting Project: Legal and Political Science Approaches to Predicting Supreme Court Decision-Making," 104 *Columbia Law Review* 1150 (2004); Kevin M. Scott, "Understanding Judicial Hierarchy: Reversals and the Behavior of Intermediate Appellate Judges," 40 *Law & Society Review* 163 (2006); Frank B Cross and Stephanie A. Lindquist, "The Scientific Study of Judicial Activism," 91 *Minnesota Law Review* 1752 (2007); Stephanie A. Lindquist and David E. Klein, "The Influence of Jurisprudential Considerations on Supreme Court Decisionmaking: A Study of Conflict Cases," 40 *Law & Society Review* 135 (2006); Rorie Solberg and Stephanie A. Lindquist, "Activism, Ideology, and Federalism: Judicial Behavior in Constitutional Challenges before the Rehnquist Court, 1986–2000," 3 *Journal of Empirical Legal Studies* 237 (2006); Leigh Anne Williams, Note, "Measuring Internal Influence on the Rehnquist Court: An Analysis of Non-Majority Opinion Joining Behavior," 68 *Ohio State Law Journal* 679 (2007); Susan B. Haire, Stephanie A. Lindquist, and Donald R. Songer, "Appellate Court Supervision in the Federal Judiciary: A Hierarchical Perspective," 37 *Law & Society Review* 143 (2003); Kevin M. Scott, "Supreme Court Reversals of the Ninth Circuit," 48 *Arizona Law Review* 341 (2006); Vanessa A. Baird, "The Effect of Politically Salient Decisions on the U.S. Supreme Court's Agenda," 66 *Journal of Politics* 755 (2004).

As noted in the main text of this article, in none of the papers is there any indication that the authors made any corrections in the databases.

APPENDIX B—THE ORIGINAL SPAETH AND SONGER DATABASES

I. The Spaeth Database

The U.S. Supreme Court Judicial Database was compiled by Harold J. Spaeth for the 1953–2000 terms and by Lee Epstein and Jeffrey A. Segal for the 1937–1952 and 2001–2006 terms. The database contains data for all Supreme Court decisions in the 1937 through 2006 terms in which at least one Justice wrote an opinion. The data include the Justices' votes in each of the cases plus the identification of the case plus the chronology of the litigation information, outcomes and issues, and information concerning opinions (e.g., whether majority, dissenting, or concurring).

There are three databases concerning the attributes of the Justices of, respectively, the Warren, Burger, and Rehnquist Courts, covering the period 1953–2000. There are separate observations for each Justice, indicating for example where he deviates from the majority in identifying issues or authorities.

II. The Songer Database

The data in the U.S. Courts of Appeals Database (the "Songer" database) include the history of a case, the participants, the issues involved, the resolution, the judges who decided the case, and each judge's vote on a maximum of two issues in the case. The database consists, for the years 1925–1960, of a random sample of 15 cases from each court each year and for the years 1961–2002 of a random sample of 30 cases from each court each year.

We merged the Songer database with what is known as the "Auburn" dataset,[45] which contains attribute data for the judges in the Songer database. Although the two databases were intended to be used together, there were some inconsistencies in the judge identification codes. We made the corrections suggested by the Songer documentation and made further corrections as we discovered errors while working with the data. (These corrections are separate from those discussed in Appendix B.) We continue to describe the combined databases as the Songer database.

45 *See* note 4 above.

APPENDIX C—THE CORRECTED DATABASES

I. The Spaeth Database

In the following types of case, we changed all judges' votes to "other" from conservative or liberal. In case types 411 and 444, a vote for the plaintiff on an issue of commercial speech (excluding attorneys) (411) had been coded as liberal, and likewise a vote in favor of requiring accountability in campaign spending (444). In case type 555 we made the same change because: in antitrust suits against unions a pro-competition vote had been coded as liberal even though some liberal judges would put union interests ahead of the competition interest enforced by antitrust law. In disputes between a union and a union member (563), a vote against the union member had been coded as liberal, but this too was an arbitrary classification, which we changed to other.

On issues pertaining to the propriety of federal judicial review of state court or federal administrative decisions, we changed all votes in favor of judicial power in case types 706, 712, 751, 755, 759, 855, 856, 862–864, 868, 869, and 899 from conservative or liberal to other. These case types involve judicial power with respect to obscenity (706), comity and civil procedure (712), determination that a writ was improvidently granted (751), remanding a case to determine the basis of a state court decision (755), miscellaneous no-merits votes (759), jurisdiction or authority of the Court of Claims (855), the Supreme Court's original jurisdiction (856), certification (862), resolution of circuit conflicts (863), objections to reason for denial of certiorari or appeal (864), the Act of State doctrine (868), miscellaneous judicial-administration issues (869), and miscellaneous exercises of judicial power (899). In none of these case types would it be possible without detailed examination of individual cases to determine the ideological direction of a vote in favor of the assertion of judicial power.

Despite the number of changes that we made in the Spaeth database, Table 2 indicates that the aggregate effect on ideological classification of Supreme Court Justices' votes was much less than in the courts of appeals.

II. The Songer Database

We made more extensive changes in the Songer (courts of appeals) database: besides ideological corrections, we changed case data to judge data and corrected coding errors that did not involve ideology.

Case data to judge data. The unit of analysis in the Songer database is the case rather than the individual judge, but our analysis required individual judge data. The Songer database permits two case types per sampled case. If the case types were in the same general case category (which is the type of category that we use in our analysis), we determined the overall ideological direction of the judge's vote. If the case types were in different general case categories, we treated the judge as voting in two cases. If they were in the same general category (for example, case type 1: federal murder (101); case type 2: state arson (123)), and a judge's narrow-category vote was conservative and his other vote liberal, his vote in the case as a whole was classified as mixed. But if the judge's narrow-category vote was liberal or conservative and the other mixed or other, or vice versa, his vote in the case as a whole was classified as liberal or conservative, respectively. (If the judge's first narrow-category vote was mixed and his second other, or vice versa, his vote in the case as a whole was classified as mixed.) If the two case types belonged to different general case categories (for example, case type 1: federal murder (101), which is in general category criminal; and case type 2: mandatory sterilization (506), which is in general category privacy), the same method employed for single case-type observations was used: each vote was treated as a separate vote in its own general category.

Nonideological coding errors. We used a computerized error-detection method to identify coding errors in the Songer database. We identified 5,818 errors in 3,197 of the 20,355 cases in the database. The types of error detected included, for example, duplication of case citation (90 cases with errors), two or more instances of the same judge code in a single case (41), erroneous detailed party codes (51), and inconsistent indication of the presence or absence of a federal district court in the procedural history of the case (37). In total, 270 classes of errors were detected. We were able to correct some errors, such as the assignment of the same code to both Otto Kerner Sr. and Otto Kerner Jr. or the use of multiple judge codes for the same judge. We removed all cases containing errors germane to our analytical work that we were not able to correct, such as cases that involved errors in the coding of judges' votes, but not cases involving errors in the designation of the bankruptcy status of the appellants, because such errors would be unlikely to affect our analyses. We removed a total of 1,317 cases, which reduced the total number of judge votes in our sample from 64,212 to 59,947.

Finally, we eliminated the votes of judges whom we were unable to identify (frequently coded as "9999" or "99999") and votes by district court judges sitting as visiting judges in the courts of appeals. These reduced the total number of votes in our sample from 59,947 to 55,041.

We have posted a comprehensive description of the coding errors in the Songer database, and the methodology by which we identified them, on the Judicial Behavior Website.[46]

Ideology corrections. All votes in case types 114–118, 134–138, and 154–158 were changed from liberal, conservative, or mixed to other. All votes in criminal cases for the defendant had been coded as liberal, but we changed votes in cases involving moral charges to other because they could include child pornography, an issue on which neither liberal nor conservative judges would be likely to be sympathetic to the defendant. Likewise with economic crimes (violations of government regulations of business and other white collar crime), in which a liberal judge would tend to favor the government rather than the defendant, and with crimes that either were not specified or were heterogeneous.

In sex discrimination unrelated to employment, brought by a man (235), votes for the plaintiff had been classified by the original coders as liberal, but the category could include cases in which a homosexual (or someone believed to be homosexual) had been harassed by another man, and in such a case, and also in cases in which a man alleges harassment by a woman, a liberal judge would often favor the plaintiff. For the same reasons we changed all votes in suits charging race or sex discrimination in employment (239) to other, as the case type includes claims of reverse discrimination, by whites and men against blacks and women.

In commercial speech cases (301), a vote for the broadest interpretation of First Amendment protection had been coded as liberal. We changed all votes in this case type to other because businesses are usually the plaintiffs in commercial speech cases. In obscenity cases (307), where again a vote for the broadest interpretation of First Amendment protection had been coded as liberal, we changed all votes to other because some liberals (especially feminists) disapprove of obscenity and few if any judges would be sympathetic to a First Amendment claim based on child pornography, which is classified under obscenity.

46 *See* note 13 above.

Case type 412 is claimed "denial of due process under the 'taking' clause of the Fifth Amendment," and a vote for the plaintiff was coded as liberal. Yet in case type 771—eminent domain disputes with government—a vote for the government was coded as liberal. Due process is not mentioned in the taking clause and takings and eminent domains are virtual synonyms, so case type 412 is mysterious and we thought it better to shift all votes in it to the other category.

Votes for plaintiffs in the general case category of labor relations (case types 600–699) were originally classified as liberal if the party on one side of the case was the government and on the other side a union or an individual. We changed all votes meeting these conditions to other. We made the same change in case types 710–713, which cover copyrights, patents, trademarks, trade secrets, and personal intellectual property. An intellectual property case often is brought by a large firm against a small firm or an individual, as when a giant pharmaceutical company sues the manufacturer of a generic drug or a large record company sues a file-sharing college student to make an example of him.

We made a similar reclassification of all votes in case types 773–774, which involve the government's seizure of property either as an incident to the enforcement of criminal statutes (773) or in civil cases (774). All votes for the government in these categories had been coded liberal, but because the party whose property is seized could be either wealthy or poor, the ideological classification was overbroad. We likewise changed all votes in case type 903 to other. This case type is described only as "attorneys (disbarment, etc.)." Votes for the attorney had been classified as liberal, but there is no reason to expect a liberal judge to favor a lawyer in a disbarment proceeding. Votes in all cases in types 905, 906, and 920 we changed to other too, as the issues in these cases—challenges to the authority of a magistrate or bankruptcy judge, and international law—do not lend themselves to being categorized on ideological lines. Finally, in case type 921, government regulation of immigration, we recoded the liberal votes to conservative and the conservative votes to liberal. A vote for government regulation had been coded as liberal, but a liberal judge would be likely to support the rights of the immigrant against the government rather than vice versa.