Gerrymanders and Theories of Lawmaking: A Study of Legislative Redistricting in Illinois

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Abstract

Redistricting politics in Illinois provide a novel opportunity for testing competing theories of lawmaking. With this in mind, we demonstrate that post-2000 Census redistricters in Illinois, dominated by Democrats, strategically reshuffled district demographic profiles in an attempt to convert relatively liberal Republican districts to conservative Democratic districts. Such reshufflings were intended to move party medians in the Illinois General Assembly’s lower and upper chambers in a more conservative direction while overall chamber medians were expected to remain stable. These finding are consistent with vote-buying theories of lawmaking and at odds with purely majoritarian and party cartel theories.
Introduction

Redistricting is a topic for which there are few neutral parties. In almost every state controversy arises following a decennial census over who, or which political party, has the privilege of drawing state legislative district lines that accommodate the distribution of a state’s population. Notwithstanding the requirement of equal district sizes (as dictated by Reynolds v. Sims (1964)), redistricters operating in the aftermath of a census can choose district lines in accordance with any number of objectives. Possibilities include insulating incumbent legislators against electoral challenges, and diluting or accentuating the electoral influence of different political or ethnic groups. Redistricting can also be used to alter the ideological composition of a legislature, and redistricters might try to shape the electorally-induced preferences of a legislature’s median voter or other relevant pivotal voters, presumably to influence downstream policy outputs.

We address this latter possibility by considering the recent state legislative redistricting process in Illinois. The process, which followed the release of Census 2000 and was controlled by a Democratic-dominated redistricting commission, culminated in an election in which the Democratic Party increased the size of its majority in the Illinois House and took control (from the Republican Party) of the state Senate and governor’s office.

The Illinois redistricting plan and in fact the many state legislative redistricting plans implemented across the country in the past several years offer numerous opportunities for research on lawmaking. In any state, the actions of redistricters shed light on their objectives. By uncovering these objectives, we can conduct indirect tests of theories of lawmaking in the same way that scholars of the U.S. Congress test theories of lawmaking using patterns in roll call votes, legislative output, and so forth.
The key to linking theories of lawmaking and redistricting is identifying the strategy employed by redistricters, in our case the strategy employed by the Democratic redistricters who produced the post-2000 map of Illinois General Assembly districts. The technique we propose is general, and our applying it to Illinois is largely a function of data availability and of Illinois’ dynamic political environment. Our technique allows us to characterize the relationship between district demographics and legislator ideologies in the General Assembly’s two chambers; then, upon establishing this relationship, we determine how legislator ideologies were predicted to change following redistricting.

Unlike many studies of redistricting, we do not concentrate exclusively on partisan balances within a legislature. Rather, once we understand how Illinois redistricters attempted to influence the distribution of legislator ideology when forming a district map, we then link the strategy used by these officials to the organization of legislative politics in Illinois. Given that various theories of lawmaking have strong implications for the behavior that we should expect to see exhibited by redistricters, we can use observed redistricting behaviors to help us understand which theory accurately characterizes legislative politics in Illinois.

It is appropriate, we believe, to focus on state rather than Congressional redistrictings as a data source for testing competing theories of lawmaking. Redistricters of state legislative district maps operate independently of one another: for any potential redistricting plan in a given state, there is a plausible relationship between the plan and changes in the state’s legislature, which then translates into policy outputs. Importantly, this relationship is not contingent on the decisions of other state actors. For example, redistricters in Illinois presumably do not condition their behavior on anticipated redistricting in, say, New Mexico, and a redistricting map’s influence on the Illinois legislature is probably independent of the choices made by New Mexico
redistricters. A similar analytical strategy that focused on the U.S. Congress, where any change in lower or upper chamber composition is the product of redistricting strategies and elections in fifty states (which may or may not be coordinated), would not be fruitful. Hence we consider our use of state legislative redistricting data a new and potentially valuable method for theory testing.

Our findings indicate that the 2000 redistricting in Illinois was not designed to have a strong effect on the median Illinois Representative or Senator. Nonetheless, we show that there were notable shifts in expected post-redistricting Democratic and Republican Party medians in the Illinois House and especially in the state’s Senate. In particular, Democratic redistricters attempted to convert relatively liberal Republican districts to relatively conservative Democratic districts, thus shifting the distribution of Democrats and Republicans in a conservative direction.

Conventional metrics of gerrymandering indicate that this does not reflect simple seat maximization by Democratic redistricters. However, such a redistricting strategy is consistent with “vote-buying” theories of lawmaking that allow for side-payments between members in exchange for votes. The strategy is not consistent with the implications of purely majoritarian or strong party theories, and Cox and McCubbins’s party cartel theory in particular.

We now briefly discuss how our work contributes to existing literature on redistricting, we consider competing theories of lawmaking, and we provide a description of the politics of the post-2000 Census state legislative redistricting process in Illinois. We then discuss data collection and statistical methods. Next we offer a brief discussion of racial redistricting in Illinois, we discuss possible policy motives of redistricters, and then we present our main results. We conclude with a discussion of the implications of our results for research on parties in legislatures.
Previous Research

A wide body of research examines how parties have tried to enhance their fortunes through redistricting, focusing primarily on how redistricting influences partisan seat shares. Abramowitz (1983) and Campagna and Grofman (1990), for example, show how parties that control redistricting processes tend to experience higher swing ratios than out parties in elections following redistricting.\footnote{A “swing ratio” refers to the rate at which a party’s aggregate votes in legislative elections translate into aggregate seats in the legislature.} Gilligan and Matsusaka (1999) develop a formal model of the efficient partisan gerrymander, and empirically demonstrate that the amount of partisan bias in a redistricting plan is positively related to the size of the voting population but negatively related to the number of legislative seats up for grabs. At a more micro-level, Cain’s (1985) study of the 1980 redistricting in California identified cases in which Democrats (who controlled the redistricting process) systematically converted marginally Republican districts to Democratic districts.\footnote{Basehart and Comer (1991) in their survey of fifteen state legislatures find that only in the most “highly partisan” state legislatures does partisan control of the redistricting process yield obvious seat gains for the redistricting party. Glazer, Grofman, and Robbins (1987) find that, following the 1970s redistrictings, the expected number of districts won by each party was not significantly different than that experienced prior to redistricting. Niemi and Jackman (1991) and Niemi and Abramowitz (1994) also directly challenge Abramowitz’s earlier redistricting studies in arguing that party swing ratios are not consistently related to redistricting politics.}

While it seems plausible that benefits would accrue to those parties in control of redistricting, not all scholars are convinced that these benefits manifest themselves in increased seat shares.\footnote{While it seems plausible that benefits would accrue to those parties in control of redistricting, not all scholars are convinced that these benefits manifest themselves in increased seat shares. Basehart and Comer (1991) in their survey of fifteen state legislatures find that only in the most “highly partisan” state legislatures does partisan control of the redistricting process yield obvious seat gains for the redistricting party. Glazer, Grofman, and Robbins (1987) find that, following the 1970s redistrictings, the expected number of districts won by each party was not significantly different than that experienced prior to redistricting. Niemi and Jackman (1991) and Niemi and Abramowitz (1994) also directly challenge Abramowitz’s earlier redistricting studies in arguing that party swing ratios are not consistently related to redistricting politics.}
The contradictory views in the literature highlight the possibility that any gains following from control of a redistricting process might manifest themselves in a more subtle form than partisan seat share switches. This is one motivation for our investigating the way in which redistricting is likely to affect the ideologies, or ideal points, of elected legislators as opposed to their partisan affiliations. Focusing on ideologies (i.e., preferences) transcends the conventional swing ratio debate.

In spirit, then, our analytical strategy is most consistent with recent scholarship that identifies how variations in district demographics influence legislators’ roll call voting. Sharpe and Garand (2001), for example, identify how an increase in a legislator’s African-American constituency contributes to liberal movements in his/her roll call-based ideal point; Cameron, Epstein, and O’Halloran (1996) argue that African-American substantive representation can be maximized by concentrating African-Americans into districts that are less than 50% majority African-American in the South and spreading them evenly throughout congressional districts in non-southern states; and, Epstein and O’Halloran (1999) demonstrate with a study of the South Carolina Senate that packing African-Americans into the maximum number of majority-minority districts can produce conservative legislative medians. From a theoretical standpoint, Shotts (2002) develops a formal model of gerrymandering that identifies how demographic manipulation can influence the preferences of elected representatives and subsequent legislative policy outputs. Taken together, these findings contribute to the argument that racial

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2 Gelman and King (1994) provide a review of these various findings in their analysis of the determinants of bias and responsiveness in state legislative redistrictings. More recently, Cox and Katz (2002) provide a detailed assessment of the existing literature in this area in their work on the representational effects of Baker v. Carr.

3 This point is underscored in McDonald’s (2004) recent synthesis of the state legislative redistricting literature.

4 This seemingly perverse finding follows from the fact that packing African-Americans into a few districts implies that there will be fewer African-American constituents to distribute to other districts so as to influence more legislators’ ideologies in a liberal direction.

5 In further work, Shotts develops models that analyze the electoral (2001) and policy (2003) effects of gerrymanders that are based explicitly on race.
redistricting contributes to partisan redistricting, which in turn leads to downstream changes in policy.\textsuperscript{6}

In summary, a sizeable literature has emerged that articulates how constituency manipulation can affect legislators’ preferences and, presumably, downstream legislative output. Our approach builds on this literature by expanding the scope of analysis to encompass a much wider range of demographic variables, all of which are readily available to redistricters (and academics) in census data. In so doing we advance a new approach for indirectly testing partisan and nonpartisan theories of lawmaking that speaks directly to the ongoing debate over the role of parties in legislatures.

\textbf{Studying Redistricting to Test Theories of Lawmaking}

A casual glance at the literature in recent years demonstrates that as theories of legislative politics have become more sophisticated, scholars have recognized the need for novel and indirect tests of these theories that do not primarily rely on observed roll-call voting behavior.\textsuperscript{7} Recent contributions to this literature have focused on roll rates (Cox and McCubbins 2002), voting cutpoints (Krehbiel, Meirowitz, and Woon 2005), committee assignments (Krehbiel 1993, Krehbiel and Wiseman 2001), and historical events (Jenkins 1999).

It is in this tradition that we advocate the use of redistricting data as a new avenue for theory testing. By stepping outside of the legislature and identifying how one party tried to influence legislative composition and the distribution of legislator preferences through redistricting, we can infer its expectations regarding the conduct of legislative politics, which informs us about how parties interact with their members once they are elected. We begin our

\textsuperscript{6} Such game-theoretic treatments of racial redistricting have been criticized by Lublin (1999) and Lublin and Voss (2003). Methodological concerns aside, however, these critics agree (Lublin (1997), Lublin and Voss (1998)) that racial redistricting has nontrivial consequences for policy preferences.
analysis by considering majoritarian, strong party, and “vote-buying” theories of legislative politics.

In employing the term majoritarian, we refer to those theories that assume that legislators vote in manners consistent with their policy preferences and that the policy agenda is not constrained by any actor except (perhaps) the legislative median. Strong party theories, in contrast, refer to those theories in which certain members of the legislature (e.g., party leaders) can compel members to vote in particular ways and/or possess certain procedural advantages over other legislators. Our analysis of strong party theories focuses particularly on Cox and McCubbins’s party cartel theory (2002, 2004). Our conception of vote-buying theories will be discussed further below.

Majoritarian Theories. Consistent with Black (1958), we consider a purely majoritarian model of lawmaking, where legislators have single-peaked preferences over a one-dimensional policy space and all policy matters are considered under open amendment rules. Hence, for any status quo policy that comes up for consideration, the new policy outcome associated with that status quo will be located at the legislative median voter’s ideal point.

If parties are policy motivated, with Democratic and Republican leaders preferring left-leaning and right-leaning policies, respectively, and if legislative politics is conducted according to a majoritarian model, the party in control of redistricting will seek to move the chamber’s median voter towards its policy interests. In the context of Illinois, the Democratic Party would want to redistrict to ensure that chamber medians in the 2003-04 General Assembly (i.e., post-redistricting) were more left-leaning than they were in the 2001-02 General Assembly (pre-

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7 On this point, see Groseclose and Snyder (2003), Krehbiel (1999, 2003), McCarty, Poole and Rosenthal (2001), and Snyder and Groseclose (2000).
redistricting). Hence, a purely majoritarian model would predict the following hypothesis for both the Illinois House and the Senate:

\[ H_{\text{majoritarian}} : \text{New Chamber Median} < \text{Old Chamber Median} , \]

where “New” refers to post-redistricting and “Old,” pre-redistricting.

Party Cartel Theory. In contrast to majoritarian theories, Cox and McCubbins (2002, 2004) argue that parties in the U.S. House have an active role in legislative policymaking. More specifically, they propose a model wherein the majority party leadership, and the majority party median more explicitly, decides what issues come up for votes. Similar to the majoritarian model, if a bill does come up for a vote, it is considered under an open amendment procedure, causing the corresponding final policy to be located at the median voter’s ideal point. Hence, the majority party can ensure that some of its more favored policies do not converge to the chamber median by exercising negative agenda control and keeping them off of the agenda.

Cox and McCubbins demonstrate that the scope of the majority party’s agenda setting power is positively related to the distance between the majority party median and the chamber median. One might expect, then, that policy-motivated partisan redistricters, Democrats in the case of Illinois, would try to structure a district plan so that the subsequent legislature endows the majority party with a greater level of agenda-setting power than what it experienced in prior assemblies and that new policies are generally more left-leaning than in the previous assembly. This implies that a pre-redistricting and post-redistricting legislature would differ in three ways. First, the new chamber median should be more left-leaning than the previous median; second, the new Democratic Party median should be more left-leaning than the previous Democratic median; and third, the distance between the Democratic Party median and the chamber median should be greater than the distance between these two pivotal members in the previous General Assembly.
Taken together, these changes would ensure that the scope of the majority party’s agenda setting power is greater and that outcomes are more left-leaning (due to a more left-leaning chamber and Democratic party median) in the new General Assembly than in the old.\(^8\) Formally:

\[
\begin{align*}
H_{cartel}^1 & : \text{New Chamber Median} < \text{Old Chamber Median} \\
H_{cartel}^2 & : \text{New Majority Party Median} < \text{Old Majority Party Median} \\
H_{cartel}^3 & : |\text{New Majority Party Median} - \text{New Chamber Median}| > |\text{Old Majority Party Median} - \text{Old Chamber Median}|
\end{align*}
\]

*Vote-Buying:* Between these two theoretical extremes, majoritarian and party cartel, an alternative theory of legislative vote-buying (Snyder 1991) provides for a legislature to be governed by the preferences of the median voter but allows parties to play a more active role as vote “recruiters.” More specifically, if we assume that legislators’ preferences are defined over policy and side-payments provided to them by coalition leaders in exchange for their votes, it is natural to represent legislator \(i\)’s preferences as the following:

\[
U_i = -(x_i - x)^2 + b,
\]

where \(x_i\) is legislator \(i\)’s scalar ideal point, \(x\) is the policy under consideration, and \(b \geq 0\) is the amount of bribes that the legislator receives from a vote-recruiter (e.g., a lobbyist, party leader) who prefers a new policy over the status quo and who is willing to dispense favors to legislators to entice them to vote for his most-preferred outcome.\(^9\) Hence, a given legislator \(i\) will vote for the new policy \(a\) over the status quo \(q\) if the following holds:

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\(^8\) The locations of status quo policies that leaders seek to influence are highly relevant to this hypothesis. Cox and McCubbins (2002, p. 112) assume that the status quo in period \((t)\) is identical to the status quo at the end of period \((t-1)\) plus an exogenous shock that is realized prior to \((t)\). Or more formally: \(S_{Qt} = S_{Qt-1} + \varepsilon_t\). Whereas Cox and McCubbins do not make explicit assumptions about the distribution of \(\varepsilon_t\), we make the assumption that \(\varepsilon_t \sim U[-|k|, k]\), where \(k > |D|\), and \(D\) is the location of the Democratic (majority) party median. Such an assumption implies that each new period presents sufficiently extreme status quo points that the majority party would like to keep off the floor agenda, and hence, the hypotheses derived above are appropriate.

\(^9\) A quadratic specification for a legislator’s utility is chosen for analytical convenience and is not crucial.
If the relevant vote-buyer in the General Assembly is the Democratic party leader, it is obvious that, if the status-quo policy is right-of-center, then for any left-leaning policy, $a$, advocated by the Democratic leadership, the vote-buyer will purchase the votes of all members who have ideal points between \( \left[ \frac{a + q}{2}, x_m \right] \) where $x_m$ is the median voter’s ideal point.\(^{10}\)

Furthermore, the total amount of bribes paid out is increasing in the distance between the left-leaning policy $a$ and the chamber median.

To the extent that a Democratic redistricter seeks to influence policy outcomes, the most straightforward vote-buying implication for changes in the composition of a legislature is identical to that based on pure majoritarianism. To minimize potential costs associated with vote-buying, a Democratic redistricter will seek to minimize the distance between the chamber median and the generic left-leaning policy $a$. Hence, one would expect that in the new legislature, the new chamber median would be more left-leaning than the old. Furthermore, if one assumes that the votes of members of the vote-recruiter’s party are less expensive to “buy” than are members of the opposing party, then the vote-buying theories have further implications for the predicted changes in legislator ideal points following redistricting.\(^{11}\)

In trying to minimize total bribes paid out, a vote-buyer might no longer seek to bribe all members between the status quo cutpoint \( (a+q)/2 \) and $x_m$, as some members to the right of $x_m$ might be less costly than some legislators in the interior of this interval, depending on their party

\(\begin{align*}
-(x_i - a)^2 + b &\geq -(x_i - q)^2 \\
\Rightarrow b &\geq 2x_i(q - a) + a^2 - q^2.
\end{align*}\)

\(^{10}\) The Illinois legislature has no supermajority requirements analogous to a filibuster in the U.S. Senate. Hence, consideration of the median voter as the relevant pivotal voter is appropriate.

\(^{11}\) Formally, one might assume that a legislator’s utility preferences over policy and bribes can be expressed as the following: $U_i = -(x_i - x)^2 + ab$, where $\alpha > 1$ if the legislator is of the same party as the vote-buyer, and $0 \leq \alpha \leq 1$ if the legislator is of the opposing party as the vote-buyer.
affiliations. In other words, a partisan gerrymanderer would be concerned not only with the location of the median voter but also about the party affiliation of members around the median and would seek to convert as many members between the left-leaning policy, \( a \), and the median voter to his party. Hence, a Democratic gerrymanderer would be most interested in converting those members on the left-hand tail of the distribution of the Republican Party to the Democratic Party, leading to rightward shifts in both party medians. Taken together, the vote-buying model would yield the following three predictions regarding the new Illinois House and Senate following redistricting:

\[
H_{\text{vote-buying}}^1 : \text{New Chamber Median} < \text{Old Chamber Median} \\
H_{\text{vote-buying}}^2 : \text{New Democratic Median} > \text{Old Democratic Median} \\
H_{\text{vote-buying}}^3 : \text{New Republican Median} > \text{Old Republican Median}.
\]

Summary. Having extracted a number of competing hypotheses, two caveats are in order. First, our hypotheses focus on redistricters who are interested primarily in legislative policy outputs that can be ordered on a left-to-right, one-dimensional ideological spectrum. That is, we do not consider the possibility that there are distributive perks, apart from general policy consequences, that come with a party acquiring majority status. In light of the focus within contemporary Congressional studies on parties as legislative coalitions organized around policy choices, we consider this view appropriate.

Second, a potential concern with our approach is that the theories we consider address legislative interactions that occur in one discrete time period, e.g., a legislative session. As such, extracting temporal implications about the goals of partisan redistricters in influencing legislative composition through redistricting obviously transcends the direct implications of these theories. That being said, the theories are sufficiently explicit that we can identify variables correlated with increases in majority party utility. Hence, the hypotheses we present are valid implications
for the goals of redistricters if a legislature operates in a manner analogous to a majoritarian, party cartel, or legislative vote-buying model.

[Table 1 about here]

Our hypotheses are summarized in Table 1, where the top row identifies the theory under consideration and the left-hand column identifies a summary statistic predicted to change in a post-redistricting legislature. While the competing theories share some predictions, such as the predicted change in the legislative median, they do have contrasting predictions that allow us to conduct a discriminating test. For example, rightward movements in the location of the Democratic Party median would be inconsistent with a party cartel model but would be consistent with vote-buying theories.

**The Post-2000 Redistricting Process in Illinois**

On September 5, 2001 Illinois Secretary of State Jesse White reached into a replica of Abraham Lincoln’s stovepipe hat and pulled out an envelope. The name “Michael Bilandic” was revealed and at that moment the Legislative Redistricting Commission of Illinois lost its bipartisan status. The addition of Bilandic as the final member of the Commission tilted its composition toward the Democratic Party, and the General Assembly redistricting plan eventually produced by the nine-member, Democratically-controlled, Commission paved the way for profound changes in the Illinois state legislature.\(^{12}\)

The 1970 Illinois Constitution establishes a formal timeline for adopting a new state legislative redistricting policy following a decennial census (see Wheeler (2002) for details). The default authority for redistricting is the General Assembly, which has until June 30 following the census to adopt a new plan. If no plan is agreed to by such date, an eight-member

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\(^{12}\) Prior to the drawing of Bilandic’s name, the Commission consisted of four Democrats and four Republicans. Bilandic was formerly mayor of Chicago and a Democratic justice on the Illinois State Supreme Court.
bipartisan panel, called the Legislative Redistricting Commission, has until the following August 30 to propose a plan that receives at least minimal majority support (five members) on the panel. If this deadline is not met, the Illinois Supreme Court nominates two individuals, of different political parties, to be the potential tie-breaking vote on the Commission. The actual tie-breaker is selected via lottery (or pulling from the proverbial hat) by September 5, and a final plan must be filed by the Legislative Redistricting Commission with the Illinois Secretary of State by October 5. The Commission operates by majority rule; thus, a five to four advantage of one party over another can have drastic consequences.\textsuperscript{13} At the time of redistricting Democrats held a six-seat majority in the House, 62-56, but were underdogs in the Senate, 27-32.\textsuperscript{14}

Population growth and demographic shifts between 1990 and 2000 provided a variety of opportunities for politically biased redistricting. During the last decade of the 20\textsuperscript{th} Century, Illinois’ total population increased by almost nine percent, and because of unequal population growth across the state districts in 2001 ranged from approximately 80,000 to almost 190,000 residents. Furthermore, most of Illinois’ population growth had occurred in suburban regions, leading to several urban districts, particularly those that were majority African-American, being far from parity with the rest of the state (Wheeler 2002, p. 7).

Controlling the redistricting process ostensibly gave the Democrats the tools necessary to expand their control of the House and possibly take control of the Senate. A new majority could conceivably be gained in both chambers simply by restructuring districts so that incumbent

\textsuperscript{13} With the exception of the redistricting following the ratification of the 1970 constitution, the Illinois legislature has never determined the plan for redistricting following the census. Gridlock has always ensued.

\textsuperscript{14} Although lawsuits were filed by the parties in state and federal courts to contest the contingency that the Legislative Redistricting Commission tie-breaker might be decided by lottery, the courts failed to side with either party. A case filed by Democrats in the Illinois Supreme Court early in 2001 failed to provide them with relief, and on September 28, 2001 a federal court formally ruled in a Republican-filed case that the lottery procedure was constitutional.
Republicans had to face each other in primary contests. Such a threat to Republican legislators prompted Republicans to file state and federal lawsuits arguing that the Democratic plan was invalid on grounds ranging from district compactness to allegations of racial gerrymandering that inhibited minority representation. All such lawsuits, as of May 2002, were decided in favor of the Democrats and their plan. Despite the claim of one legislator (Cowlishaw 2001), that “[T]he process [was] arbitrary, abhorrently partisan, and a matter of raw power rather than fairness for Illinois citizens,” the Democratic plan as approved by the Legislative Redistricting Commission would stand as law, and it governed the 2002 general election.

Data Requirements for Studying the Effects of Districting on Legislative Composition

To understand how the redistricting plan that followed the 2000 Census was expected to affect the ideological composition of the Illinois General Assembly, we first need to consider how legislator ideologies map into pre-redistricting district demographics. Once we establish a pattern between district demographics and legislator preferences, we can focus on the composition of General Assembly districts post-redistricting and estimate how changes in district demographics were expected to map into legislator preferences in 2002. We then consider the implications of such mappings for expected changes in the legislative and party medians.

Before we begin such analysis, however, it is worth confronting the most likely alternative hypothesis that explains the motives of the Democratic redistricters, that they were simply trying to maximize Democratic seats in the Illinois legislature. While it is difficult to test this competing hypothesis within the framework that we propose, we can offer some evidence that raises questions as to whether Democrats were solely interested in maximizing seats. By focusing on the bias in the electoral system which captures “how much larger or smaller a party’s

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15 The initial Democratic redistricting proposal saw 14 Senate and 20 House Republicans put in districts with fellow incumbent Republicans (Vock 2001).
seat share is than its vote share would warrant” (Cox and Katz 2002, 31-34), we can assess whether the Democratic plan greatly distorted the electoral tendencies of Illinois to facilitate election of their members. Simply put, a seat-maximizing redistricter would presumably produce a redistricting plan that provides for a relatively large measure of bias. Consideration of the bias statistics in the House and Senate following redistricting offers little support for this claim.

In the 2000 elections, the last election before redistricting, Democrats competing for contested House seats won 56.1% of the vote yet won only 52.1% of the contested seats. Hence, prior to redistricting, there was a 4 point pro-Republican bias in the House electoral system. After redistricting however, we see that Democrats won 54.1% of the House votes for contested seats, and captured 56.7% of the contested seats. Hence, while there was a 2.6 point pro-Democratic bias in the system following redistricting, it was not as large as the pro-Republican bias prior to redistricting.

Consideration of the Senate yields similar results. In the elections following redistricting, Democrats won 46.9% of the ballots cast in contested races yet only won 42.8% of the contested seats. It appears, therefore, that there was an anti-Democratic bias of nearly 4 points in the Illinois Senate redistricting plan. Conventional wisdom in Illinois in 2002 held that the Democrats were most interested in the Senate since they already controlled the House. This suggests that, at the very least, Democratic seat-maximizers would have sought a pro-Democratic bias in the post-redistricting Senate. That they appear not to have done this, and in light of the fact that the Redistricting Commission did not flip the seat share bias in the House in way that complete offset that Republican bias, suggests that the behavior of Democrats on the Commission is not obviously consistent with seat-maximizing. Hence we find it even more
worthwhile to consider how else the Democratic redistricting plan might have facilitated Democratic policy goals independent of seat shares.

Our data on Illinois General Assembly district demographics are drawn from manipulations of publicly available census data at the block group level. Block groups are the smallest units of aggregation for which the census publishes data gleaned from long-form questionnaires sent in 2000 to approximately one in six U.S. households. While, in accordance with Public Law 94-171, the census reports various racial demographics for Illinois state legislative districts that existed in 2000, these data do not include many other demographic variables tabulated at the block group level. For instance, census income figures culled from long-form questionnaires are published in what the U.S. Census Bureau calls Summary File 3; Summary File 3 does not, however, contain income figures for state legislative districts.

Thus, to generate income and age demographics for our Illinois General Assembly districts (118 in the House, 59 in the Senate) we overlay electronic maps of Illinois block groups and pre-redistricting House districts. We then aggregate block group demographics to the House district level by area; in other words, if 75% of a given Illinois block group was in House District 1, we assume that 75% of the block group’s total income was earned in this district, that 75% of the block group’s older residents are in this district, and so forth (e.g., Herron and Theodos 2004). The number of Illinois Block Groups (9850) is much larger than 118, and thus the majority of block groups in our analysis lie completely inside single Illinois House districts. We carry out a similar overlay of block groups and post-redistricting House districts. Because Illinois state legislative districts are set up so that two House districts together constitute one Senate

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16 Inclusion of the electoral returns and outcomes from the uncontested seats does not change our qualitative findings for the House and the Senate. Furthermore, the incidence of uncontested elections was not statistically different before and after redistricting.
district, e.g., House Districts 1 and 2 comprise Senate district 1, we need not have a separate
electronic overlay for Senate districts.

Our political variables are drawn from several sources. Data on electoral outcomes and
vote shares are from 2002 and 2004 editions of the *Almanac of Illinois Politics* (Van Dyke-
Brown 2002, 2004). These volumes provide detailed House and Senate district information on
party vote shares and campaign expenditures. To form measures of the ideologies of Illinois
legislators we turn to the NOMINATE scaling algorithm (Poole and Rosenthal 1997). More
specifically, we scale the roll call votes cast in the 92nd Illinois General Assembly for those
House members and Senators who were elected in 2000; this procedure creates ideal point
estimates that are analogous to Congressional NOMINATE scores. In estimating NOMINATE
scores for Illinois House and Senate members, we drop so-called “hurrah” votes that had fewer
than 2.5% of voters supporting a minority position.

To infer how the Illinois House might have changed vis-à-vis the Senate, we need to
estimate all House and Senate NOMINATE scores in a common space. This requires that we
identify and analyze a collection of votes that occurred in both the House and Senate on the same
legislative matters (so-called joint votes), in addition to those measures that were only voted on
in the House or the Senate (House-only and Senate-only votes, respectively). Fortunately, the
Illinois General Assembly is able to accommodate our data requirements in that there were 158
non-hurrah joint votes in the 92nd General Assembly. Combining these with 491 non-hurrah,

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17 Technically, these measures are WNOMINATE scores, but we, like many, refer to these as NOMINATE scores.
18 For those districts whose legislators were replaced after January, 2001 (House: 31, 39, 61, 62, 66, 67, 90, and 97;
Senate: 3, 7, 22, 44, 45, 53, and 56), we use in our NOMINATE algorithm the replacing legislator except in the few
cases (House: 62 and 66; Senate 3, 7, 22, 53, and 56) where the replacing legislator took office immediately before
the 92nd General Assembly concluded.
19 To identify vote types, we used the following approach. All roll call votes associated with a House bill that was
never voted on in the Senate are House-only votes; similarly, all roll call votes associated with a Senate bill that was
never voted on in the House are Senate-only votes. Suppose, however, that a given House bill was voted on in the
Senate (a Senate bill voted on in the House is analogous). In this case, we treat all but the final House vote on the
House-only votes and 68 non-hurrah, Senate-only votes allows us to generate common space ideal point estimates for all members of the Illinois General Assembly in 2000. For the purposes of scaling, we treat the 92nd House and Senate as a single legislative chamber and, without loss of generality, normalize our scores so that negative scores are associated with what we consider liberal voting records (usually these are Democratic).20

Figures 1a-c present histograms of common space NOMINATE scores for House members, and Figures 2a-c are analogous histograms for the Senate. Note the left-leaning scores of (most) Democrats and the right-leaning scores of Republicans. Also, House scores have more variance than Senate scores, and this is intuitive in that Senate districts are larger than House districts. In addition, we see that the House has a good deal of inter-party heterogeneity in comparison to the Senate, with a very internally heterogeneous Democratic Party in contrast to a relatively homogenous Republican Party.

Aside: Evidence of Sophisticated Racial Redistricting

In trying to assess how Democratic redistricters sought to change the ideological composition of the Illinois legislature, we rely on two core assumptions. First, we assume that redistricters are knowledgeable about district demographics (e.g., a district’s median age, income, etc.). Second, we assume that they possess sufficient competence to reorganize district demographics so as to influence the election outcome and/or the induced preferences of elected legislators. To see whether such assumptions are plausible, we focus briefly on one demographic hypothetical bill as House-only votes. And, we treat all but the final Senate vote on the bill as Senate-only votes. However, the final House and Senate votes on our hypothetical bill that originated in the House are treated as a single joint vote. For each of our joint votes, we verified that the relevant final House and Senate votes both led to passage; if not, then the House and Senate votes are treated as House-only and Senate-only. This eliminates the possibility of final House and Senate votes on a given House bill being on difference pieces of legislation if, say, the Senate modified a bill passed in the House but the House did not vote on the amended bill after the Senate passed it. 20 Members of the House are by definition said to abstain on Senate-only votes, members of the Senate abstain on House-only votes, and all members of the House plus Senate chamber can vote on joint votes. (Of course, individual House and Senate members can also abstain on roll call votes on which they could have participated.)
feature that has received substantial attention in the redistricting literature: race. By considering the pre-and post-redistricting racial demographics of Illinois General Assembly districts and identifying how redistricting changes could advantage one political party over the other, we provide a coarse validity test for uncovering strategic machinations behind demographic reshuffling on the part of Democratic redistricters.

Figure 3 presents a histogram of the percentage of African-American residents in Illinois House districts in 2000, prior to redistricting (Senate results are similar); there were seventeen districts that were majority African-American. Moreover, as demonstrated in Figure 4, ten of these districts were more than seventy percent African-American. From a strategic Democratic perspective, these heavily minority districts contain “wasted” minority residents who could be pivotal in the election of a Democratic legislator if located in a district with a tight Democratic-Republican split.

This point is evident in Figure 4, which presents a histogram of the percentage African-American residents in House districts immediately after redistricting. With respect to absolute numbers of majority-minority districts, there was evidently little change from the pre-redistricting situation; under the new districting plan, there were eighteen African-American-majority House districts. A notable change occurred, however, with respect to minority population density: almost all of the new African-American majority districts (fourteen) were between sixty and seventy percent African American. In contrast, the pre-redistricting scheme had almost all African-American majority House districts being greater than 65% African-American. Hence, while redistricting did not alter the number of African-American-majority districts from what it was following the 1990 census, it shuffled African-Americans between
districts for both chambers so as to maintain African-American majority status while not falling below a specific cutpoint in population density—sixty percent.\footnote{The redistricting picture for Latino residents is substantively similar to that for African-Americans with respect to population shuffling from more to less dense areas.}

The partisan effects of these and other racial gerrymanders were notably pro-Democratic. Twenty-eight of the twenty-nine House districts and eleven of the twelve Senate districts that were minority-majority districts under 2002 districts plan elected Democratic legislators.\footnote{In this context, “minority-majority” refers to any district that is at least fifty percent African-American, Latino, or a combination of African-American and Latino.}

Building on results of Cameron, Epstein and O’Halloran (1996) and others, we would expect that these racial gerrymanders would also contribute to the election of more liberal-leaning legislators in other districts. The extent to which this is a pervasive pattern when we consider the rearrangement of other demographic features across districts, and how it affects the overall composition of the legislature is where we focus our attention next.

**Converting Liberal Republicans to Conservative Democrats**

We begin our analysis by estimating a linear regression model for our scaled, common space NOMINATE scores, with results presented in Table 2.\footnote{Since our collection of legislative districts has a natural spatial component—each Illinois Senate district contains exactly two House districts—we also estimated our regression model with a spatial lag. Our spatial weight matrix treats House district \(i\) and House district \(j\) as neighbors if both districts \(i\) and \(j\) are in the same Senate district, and it treats House district \(i\) and Senate district \(j\) as neighbors if \(i\) is contained in \(j\). Test results (available from the authors) show spatial effects at the boundary of statistical significance, i.e., typical p-values between 0.05 and 0.10. Since estimated regression coefficients are highly similar regardless of whether we include a spatial lag, we present non-spatial results.}

All of our NOMINATE scores lie in the interior of the NOMINATE policy space, so we do not have to use censored regression models.\footnote{The explicit specification chosen for Table 2 followed from the consideration of several potential covariates and selecting the model that provided the greatest fit for scaled legislator preferences. Results from these alternative specifications are available from the authors.} Recall that low NOMINATE represent liberal preferences; thus, the negative (and statistically significant) estimate of African-American implies that the more heavily African-American a General Assembly district, the more left-leaning is the district’s legislator. The
Latino estimate in Table 2 has a similar interpretation. Table 2 also reveals that urban districts tend to produce liberal legislators, as do districts with many young residents. These results are intuitive.

Drawing on these findings, we now estimate how the Democratic redistricting plan sought to change the ideological composition of the Illinois House and Senate. As noted earlier, the Democrats maintained control of the House and won control of the Senate following the 2002 elections. New party breakdowns were 66-52 and 32-26 in favor of Democrats in the House and the Senate, respectively (with one Independent in the Senate). Table 3a presents descriptive statistics of fitted NOMINATE scores for members elected in 2000, projected from the results of Table 2, which provide us with a picture of how the Democratic redistricters might have believed district demographics map into legislator ideologies. Note that House Republicans appear more homogenous than the Democrats, with fitted Republican NOMINATE scores having a standard deviation of 0.143 in contrast to the Democrats with 0.334. This is not particularly surprising given the distributions of actual Democratic and Republican NOMINATE scores as shown in Figures 3b and 3c.

The remainder of Table 3 presents descriptive statistics for House member predicted NOMINATE scores 2002 (panel B), an analysis of the predicted differences in our variables of interest between the 2000 and 2002 General Assemblies (panel C), as well as bootstrap confidence intervals (panel D) for differences between these quantities. We define differences as 2002 values minus 2000 values so positive differences in the locations of the chamber and party medians connote politically rightward movement. With respect to the difference between the

---

25 For both the House and the Senate, the standard deviation of the chamber and party means are simply the standard deviations of the predicted mean NOMINATE scores as generated by mapping the coefficients from Table 2 above onto 2000 district data.
majority party and chamber medians, a positive difference connotes an expansion in the interval between these two pivotal actors between the 2000 and 2002 General Assemblies.

Consulting panel C of Table 3, several points are evident. First, the House median was predicted to move slightly leftward (become more liberal) in the 2002 General Assembly, which is consistent with all three theories of lawmaking. Second, the Democratic Party median was predicted to move leftward, while the Republican Party median was predicted to move rightward, which is somewhat consistent with both vote-buying and party cartel theories. Troublesome for party cartel theory, however, is that the difference between the majority party median and the chamber median is predicted to decrease in the 2002 General Assembly. Hence, while the Democratic Party median was predicted to move leftward, the range of policies that the Democratic leadership could keep from floor consideration would be narrower than prior to redistricting. That being said, the extent to which these changes are significant is described in Panel D. The value of zero is contained in both 95% and 90% bootstrapped confidence intervals for all quantities (meaning that there is no compelling evidence that there was change in these quantities between the 2000 and 2002 General Assemblies). Given the modest changes in the overall composition of the legislature however (only 3% of the chamber changed parties) it is not surprising that these changes are not significant by conventional standards.

To address whether greater legislative turnover might generate more significant changes, one needs only consider predicted changes in the Senate, which are presented in Table 4 (panels A-D), and follow from more than 10% of the chamber changing party labels as of 2002. Similar to the results for the House, we see that the Senate median was predicted to move leftward, the Republican median was predicted to move rightward, and that the distance between the Democratic Party median and Senate median was predicted to contract in the new Senate.
Unlike the House, however, the Democratic Party median was also predicted to move rightward, and from a statistical standpoint, many of the predicted Senate changes are significant by conventional standards. In particular, the predicted rightward movement of Democratic Party medians and the contraction of the distance between the Democratic median and the senate median are significant, as evident by the bootstrapped confidence intervals in Panel D. The change in the overall Senate median, similar to the House median, is of marginal significance.

Taken together, these findings indicate that Democratic redistricters were content to leave the chamber medians relatively stable but attempted to produce a shift in both Democratic and Republican party medians toward the right. Hence, while we fail to either confirm or refute pure majoritarian theories, our results support several implications of vote-buying models, while contradicting the implications of party cartel theory. Given the purported stability of the overall chamber medians, the shifts in party medians suggest that while Democrats gained membership due in part to the post-2000 redistricting, they did not gain members who were expected to be particularly left-leaning. That is, by picking off the most moderate (left-leaning) members of the Republican Party, the Democrats effectively fattened up their ranks with legislators who were Republicans in everything but name. A quick glance of several legislative races supports this perspective.

For example, one of the most hotly contested Senate races in 2002 occurred in an affluent northern suburb of Chicago (Northbrook) in Senate district 29, where incumbent Republican Kathleen Parker found herself running against Susan Garret, a Democrat. Both parties donated huge amounts of cash to the race, with the Republicans contributing over $650,000 to Parker’s re-election efforts and the Democrats contributing nearly $695,000 to Garret’s campaign. In spite of the monies and media attention, Parker was defeated by Garret, 56% to 44%. Consistent
with our argument, it is interesting to note that Parker was the most liberal Republican senator in 2000, with a predicted NOMINATE score of 0.214. Furthermore, given the district demographics following redistricting, Garret was predicted to have a NOMINATE score of 0.217—making her one of the most conservative Democratic senators in the Illinois General Assembly.

Similar to the Parker Garret race, the race for the 47th Senate seat between Republican Laura Kent Donahue and Democrat John M. Sullivan also experienced very tight election returns (51.5% to 48.5%, with Sullivan winning). Also similar to the Parker-Garret race, the outgoing senator (Donahue) was among the most centrist Republicans, with a predicted NOMINATE score of 0.290, and the senator that replaced her was expected to be among the most conservative Democrats, with a projected NOMINATE of 0.324. Consideration of these and other races paints a picture of liberal Republican districts in both chambers being systematically targeted for removal and replacement by conservative Democratic legislators. While such a strategy is not obviously consistent with the party cartel theory, it is completely consistent with a model of legislative vote-buying.

Further consideration of Illinois’ political system lends additional support to the claim that vote-buying occurs in the legislature. Unlike the U.S. Congress, political parties in Illinois contribute nontrivial amounts of hard money directly to candidates’ campaigns, and large amounts of cash are funneled through leadership campaign committees directly into candidates’ campaign war chests. In the 1996 Senate race for the 58th District, for example, 77% of the $1.34 million spent in the race by the candidates came from party leadership committees (Redfield 1998, p.3). Hence, potential vote-recruiters have resources with which to buy votes, and these resources are more valuable to members of their own party than the competing party.
(It seems implausible that the Democratic Party would contribute to Republican legislators’ campaigns to reward them for voting with the Democrats on salient votes.) To the extent that campaign dollars insulate incumbents from potential challengers, such funds could provide an exceptional carrot (and stick) for recruiting votes on measures important to the party.\textsuperscript{26} Such a scenario provides an interesting counterpoint to the U.S. Congress where parties do not have access to analogous resources, and it suggests that further discussion of the role of parties in the electoral arena, and how it affects legislative organization and party discipline, is worthwhile.

\textbf{After the Fact: Were the Redistricters Successful?}

Our conclusions regarding the goals of the redistricters rests profoundly on whether we have correctly accounted for the mapping between district demographics and legislator ideologies. Simply put, if the specification of the regression model in Table 2 is poor, then our estimates for members’ predicted NOMINATEs will be wrong, and the inferences we draw regarding predicted shifts in party and chamber medians between General Assemblies will likely be flawed. That being said, consideration of the relationships between legislators’ predicted NOMINATE scores for the 93\textsuperscript{rd} General Assembly and their actual NOMINATE scores from that General Assembly allows us to assess whether our method for predicting changes in the ideological composition of the legislature following redistricting has face validity.

Drawing on roll call data from the 2003-2004 legislative session, we scaled common space NOMINATE scores for the 93\textsuperscript{rd} General Assembly in an analogous manner to those calculated for the 92\textsuperscript{nd} Assembly. While it is not possible to actually compare relevant medians

\textsuperscript{26} One potential concern with this argument is that if vote-buying is occurring then the NOMINATE scores are likely tainted by this influence, precisely in the area of the legislature that is most relevant to this exercise (Snyder and Groseclose 2000, McCarty, Poole and Rosenthal 2001). The extent to which such pressure constitutes a flaw is an empirical question that depends on how many votes were being “bought.” If very few are being bought, then the cardinal ratings of NOMINATE should serve as reasonably accurate measures of legislator preferences for the purposes of our analysis. The fact that parties exhibit a good deal of intra-party heterogeneity leads us to believe that a sizeable number of votes are not the subject of such pressure.
across time (i.e., compare pre- and post-redistricting House medians) without strong identification assumptions, we can nonetheless see how legislators’ actual NOMINATE scores in the 93rd General Assembly were related to their predicted scores as projected from the estimates in Table 2.

As a brief illustration of these comparisons, consider the two races described briefly above: the Parker-Garret race for the 29th Senate seat, and the Donahue-Sullivan race for the 47th Senate seat. As noted, given the new demographics of Garret’s district, our model predicts that she would be one of the most conservative Democratic senators in the 93rd General Assembly. Her actual NOMINATE score for the 2003-2004 session placed her as the third-most conservative Democratic Senator. With respect to John Sullivan, our model predicted that he would be the 2nd most conservative Democratic Senator in the 93rd General Assembly. In reality, his NOMINATE score for the 2003-2004 made him the most conservative Democratic Senator in Illinois. Hence, for these theoretically pivotal races, we find that the ordinal rankings of our predicted NOMINATEs for the 93rd General Assembly are quite similar to members’ actual rankings based on roll calls cast. More broadly then, it seems that our inferences regarding the predicted changes in chamber and party medians are very plausible; this offers further strength to the claim that Democratic redistricters appeared to rearrange districts with a vote-buying model of lawmaking in mind.

**Conclusion**

Conventional wisdom dictates that those in control of legislative redistricting draw up new district maps to benefit their political interests. Moving beyond the relationship between election returns and partisan seat shares, we have focused on the recent redistrictings for the Illinois General Assembly with the goal of identifying whether the Democratic Party in Illinois
tried to generate a legislature that was more favorable to its policy interests than the previous General Assembly was. Our linking district demographics to election outcomes and legislator ideologies has allowed us to create “before” and anticipated “after” snapshots of the General Assembly, and the results that emerged speak to questions of the efficacy of redistricting politics as well as to broader questions on the nature of parties in government.

In answering whether Illinois Democrats tried to rearrange districts to enhance their electoral fortunes, one would have to respond affirmatively. The patterns of racial redistricting we identified point to demographic manipulation consistent with partisan gerrymandering. In terms of whether the Democrats were generally successful at creating a more Democratic-friendly legislature, the answer depends on the theoretical perspective one embraces.

While Democratic redistricters did not obviously seek to change the location of the House and Senate median voters, the evidence suggests that the district map they created was intended to contribute to rightward shifts in Senate Republican and Democratic Party medians, with weaker evidence of such movement in the House. Such shifts, combined with no changes in the chamber medians, must have followed from Democrats picking off the more moderate and left-leaning Republicans in the House and Senate. Hence, Democrats sought to elect right-of-center Democrats who looked ideologically similar to those Republicans they were to replace. Such efforts are inconsistent with strong party theories yet consistent with vote-buying models of legislative politics. Hence, while it may not be the case that parties in Illinois have no influence in legislative politics (i.e., purely majoritarian theories), our results indicate that the parties’ influence might be somewhat less than that of a Leviathan as articulated by scholars such as Cox and McCubbins. More broadly speaking, our results suggest that any influence that parties might
have over legislative politics seems intimately tied to their influence over members’ electoral fortunes.

We conjecture that variation in the strength of party organizations should translate into different goals for partisan redistricters, which should in turn translate into different consequences for legislative composition following redistricting. Finding such variation in different states and legislative systems, broadly construed, would support the validity of our technique as well as enhance our understanding of the connections between the role of parties in the electoral arena and legislative organization.
References


Figure 1a. NOMINATE Scores for Pre-Redistricting Illinois House

Figure 1b. NOMINATE Scores of Pre-Redistricting Illinois House Democrats

Figure 1c. NOMINATE Scores of Pre-Redistricting Illinois House Republicans
Figure 2a. NOMINATE Scores for Pre-Redistricting Illinois Senate

Figure 2b. NOMINATE Scores of Pre-Redistricting Illinois Senate Democrats

Figure 2c. NOMINATE Scores of Pre-Redistricting Illinois Senate Republicans
Figure 3. Demographics of Illinois House Districts 2000: African-American Residents

Figure 4. Demographics of Illinois House Districts 2002: African-American Residents
Table 1: Summary of Hypotheses from Competing Theories

<table>
<thead>
<tr>
<th>Post-Redistricting Variable</th>
<th>Majoritarian</th>
<th>Party Cartel</th>
<th>Vote-Buying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber Median</td>
<td>New &lt; Old</td>
<td>New &lt; Old</td>
<td>New &lt; Old</td>
</tr>
<tr>
<td>Democratic (Maj.) Party Median</td>
<td>No Prediction</td>
<td>New &lt; Old</td>
<td>New &gt; Old</td>
</tr>
<tr>
<td>Republican (Min.) Party Median</td>
<td>No Prediction</td>
<td>No Prediction</td>
<td>New &gt; Old</td>
</tr>
<tr>
<td></td>
<td>Maj. Party Median-Chamber Median</td>
<td>No Prediction</td>
<td>New &gt; Old</td>
</tr>
</tbody>
</table>

Note: “Old” refers to pre-redistricting. The hypotheses assume that redistricters are dominated by Democrats and that legislator ideal points are aligned so that politically left preferences are captured in small numbers, politically right preferences in large numbers.
Table 2. District-level Determinants of Legislator NOMINATE Scores (Pre-Redistricting)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>8.64**</td>
</tr>
<tr>
<td></td>
<td>(3.04)</td>
</tr>
<tr>
<td>% Black</td>
<td>-0.67*</td>
</tr>
<tr>
<td></td>
<td>(0.288)</td>
</tr>
<tr>
<td>% Latino</td>
<td>-0.94*</td>
</tr>
<tr>
<td></td>
<td>(0.396)</td>
</tr>
<tr>
<td>% Middle Income Bracket</td>
<td>2.79*</td>
</tr>
<tr>
<td></td>
<td>(1.18)</td>
</tr>
<tr>
<td>% Top Income Bracket</td>
<td>1.02*</td>
</tr>
<tr>
<td></td>
<td>(0.459)</td>
</tr>
<tr>
<td>% Urban</td>
<td>-10.70**</td>
</tr>
<tr>
<td></td>
<td>(3.21)</td>
</tr>
<tr>
<td>% Farm</td>
<td>-7.45</td>
</tr>
<tr>
<td></td>
<td>(6.93)</td>
</tr>
<tr>
<td>% Ages 1-17</td>
<td>-29.90**</td>
</tr>
<tr>
<td></td>
<td>(10.3)</td>
</tr>
<tr>
<td>% Age 65+</td>
<td>-9.68</td>
</tr>
<tr>
<td></td>
<td>(8.12)</td>
</tr>
<tr>
<td>% Urban x % Age 1-17</td>
<td>34.00**</td>
</tr>
<tr>
<td></td>
<td>(10.6)</td>
</tr>
<tr>
<td>% Urban x % Age 65+</td>
<td>10.40</td>
</tr>
<tr>
<td></td>
<td>(8.54)</td>
</tr>
<tr>
<td>Chicago</td>
<td>0.13*</td>
</tr>
<tr>
<td></td>
<td>(0.670)</td>
</tr>
<tr>
<td>R²</td>
<td>0.44</td>
</tr>
<tr>
<td>F</td>
<td>11.88***</td>
</tr>
</tbody>
</table>

Note: all models have 177 observations; estimated standard errors in parentheses; 
* p<0.05; ** p<0.01; *** p<0.001;
Table 3a. Descriptive Statistics of Predicted House NOMINATE Scores, 2000

<table>
<thead>
<tr>
<th>Legislators</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>0.0663</td>
<td>0.192</td>
<td>0.335</td>
<td>-0.732</td>
<td>0.630</td>
</tr>
<tr>
<td>Democrats</td>
<td>-0.124</td>
<td>-0.0546</td>
<td>0.334</td>
<td>-0.732</td>
<td>0.450</td>
</tr>
<tr>
<td>Republicans</td>
<td>0.277</td>
<td>0.276</td>
<td>0.143</td>
<td>-0.0651</td>
<td>0.630</td>
</tr>
</tbody>
</table>

Predicted NOMINATES calculated via fitted values using 2000 district data and regression results from Table 1 above.

Table 3b. Descriptive Statistics for Projected House NOMINATE Scores, 2002

<table>
<thead>
<tr>
<th>Legislators</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>0.0672</td>
<td>0.158</td>
<td>0.323</td>
<td>-0.701</td>
<td>0.663</td>
</tr>
<tr>
<td>Democrats</td>
<td>-0.109</td>
<td>-0.0790</td>
<td>0.323</td>
<td>-0.701</td>
<td>0.372</td>
</tr>
<tr>
<td>Republicans</td>
<td>0.291</td>
<td>0.297</td>
<td>0.163</td>
<td>-0.0716</td>
<td>0.663</td>
</tr>
</tbody>
</table>

Projected NOMINATES calculated via fitted values using 2002 district data and regression results from Table 1 above.

Table 3c. Predicted Differences in Variables of Interest Between General Assemblies

<table>
<thead>
<tr>
<th>Variable</th>
<th>Difference between New and Old</th>
<th>Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber Median</td>
<td>-0.034</td>
<td>Moves leftward</td>
</tr>
<tr>
<td>Democratic Median</td>
<td>-0.024</td>
<td>Moves leftward</td>
</tr>
<tr>
<td>Republican Median</td>
<td>0.021</td>
<td>Moves rightward</td>
</tr>
<tr>
<td></td>
<td>Democratic Median-Chamber Median</td>
<td>-0.0096</td>
</tr>
</tbody>
</table>

Table 3d. Confidence Intervals for Difference in Median House Member’s Ideal Point

<table>
<thead>
<tr>
<th>Variable</th>
<th>95% CI</th>
<th>90% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber Median</td>
<td>(-0.0543,0.0150)</td>
<td>(-0.0472,0.00942)</td>
</tr>
<tr>
<td>Dem. Median</td>
<td>(-0.0352,0.0572)</td>
<td>(-0.0265,0.0495)</td>
</tr>
<tr>
<td>Republican Median</td>
<td>(-0.0139,0.0498)</td>
<td>(-0.00896,0.0434)</td>
</tr>
<tr>
<td></td>
<td>Democratic Median-Chamber Median</td>
<td>(-0.0838,0.0237)</td>
</tr>
</tbody>
</table>
Table 4a. Descriptive Statistics of Predicted Senate NOMINATE Scores, 2000

<table>
<thead>
<tr>
<th>Legislators</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>0.0661</td>
<td>0.210</td>
<td>0.324</td>
<td>-0.720</td>
<td>0.537</td>
</tr>
<tr>
<td>Democrats</td>
<td>-0.171</td>
<td>-0.189</td>
<td>0.330</td>
<td>-0.720</td>
<td>0.374</td>
</tr>
<tr>
<td>Republicans</td>
<td>0.267</td>
<td>0.277</td>
<td>0.122</td>
<td>-0.0431</td>
<td>0.587</td>
</tr>
</tbody>
</table>

Predicted NOMINATES calculated via fitted values using 2000 district data and regression results from Table 1 above.

Table 4b. Descriptive Statistics for Projected Senate NOMINATE Scores, 2002

<table>
<thead>
<tr>
<th>Legislators</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>0.0724</td>
<td>0.202</td>
<td>0.316</td>
<td>-0.699</td>
<td>0.530</td>
</tr>
<tr>
<td>Democrats</td>
<td>-0.103</td>
<td>-0.0394</td>
<td>0.321</td>
<td>-0.699</td>
<td>0.356</td>
</tr>
<tr>
<td>Republicans</td>
<td>0.295</td>
<td>0.321</td>
<td>0.110</td>
<td>0.0440</td>
<td>0.530</td>
</tr>
</tbody>
</table>

Projected NOMINATES calculated via fitted values using 2002 district data and regression results from Table 1 above.

Table 4c. Predicted Differences in Variables of Interest Between General Assemblies

<table>
<thead>
<tr>
<th>Variable</th>
<th>Difference Between New and Old</th>
<th>Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber Median</td>
<td>-0.008</td>
<td>Moves leftward</td>
</tr>
<tr>
<td>Democratic Median</td>
<td>0.2284</td>
<td>Moves rightward</td>
</tr>
<tr>
<td>Republican Median</td>
<td>0.044</td>
<td>Moves rightward</td>
</tr>
<tr>
<td></td>
<td>Dem. Median-Chamber Median</td>
<td></td>
</tr>
</tbody>
</table>

Table 4d. Confidence Intervals for Difference in Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>95% CI</th>
<th>90% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chamber Median</td>
<td>(-0.0454,0.0361)</td>
<td>(-0.0386,0.0284)</td>
</tr>
<tr>
<td>Dem. Median</td>
<td>(0.0211,0.251)</td>
<td>(0.0317,0.228)</td>
</tr>
<tr>
<td>Republican Median</td>
<td>(-0.0104,0.0700)</td>
<td>(-0.00479,0.0623)</td>
</tr>
<tr>
<td></td>
<td>Dem. Median-Chamber Median</td>
<td></td>
</tr>
</tbody>
</table>