# Why Did a Majority of Californians Vote to Limit Their Own Power?

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# 1. Introduction

For much of the 20th Century, malapportionment of state senates was the norm. The year before *Baker v. Carr*, 28 states apportioned their lower houses on the basis of population and their upper houses on the basis of geography. Unequal representation, though, was not an accident of history; it was the people's choice. Half of these 28 states provided for representation of counties and towns in their original constitutions. The other states amended their constitutions to provide for representation of geography in the senates rather than population. Most of the states that adopted geographic representation did so through direct democracy. In the others, popularly elected legislatures chose to have senate districts that represent towns and counties.[1]

The most striking case is California. From 1930 to 1968, seats in the California state senate were apportioned on the basis of counties rather than persons. With 40 seats, 58 counties, and a restriction that no county could have more than one seat, the senate apportionment was approximately "one-county-one-vote." The California senate was by many measures the most malapportioned legislative body in the U.S.—the largest senate district contained more then 400 times as many people as the smallest district.

More troubling still, the people of California chose this scheme of geographic representation. In each of six elections over a forty-year span, solid majorities of voters soundly defeated ballot measures to implement one-person-one-vote and resoundingly affirmed ballot measures to create or implement one-county-one-vote. This was not a situation in which one group within the state legislature grabbed power from others. Rather, the legislature had become hopelessly deadlocked over apportionment in the 1920s and decided to let the people decide. Nor was the outcome a fluke of low turnout or of one generation binding another. The elections spanned five decades and each election returned nearly the same division of the electorate against one-person-one-vote. Intervention by the courts ended malapportionment of the senate in 1966.

[1]For an excellent, brief survey of apportionment see US Advisory Commission on Intergovernmental Relations, "Apportionment of State Legislatures," December, 1962. Thirty-six states apportioned both chambers of their legislatures on the basis of population in their original constitutions. Eight states (five of them among the original 13 colonies) based the representation of both chambers on geography. These states are worthy of separate study as they later opted to apportion legislative seats entirely on the basis of population or a mixed system, in which one chamber reflects population and another geography.

Why would the majority of voters put in place and keep in place a decidedly anti-majoritarian system? Why would key groups of voters limit their own representation?

These puzzles go beyond the narrow confines of California state politics in the middle of the 20th Century. V. O. Key observed similar phenomena arising over disfranchisement of blacks in the American South. Malapportionment, poll taxes, and literacy tests disfranchised many poor whites as well as blacks, yet poor whites reputedly supported these restrictions on the vote, both in legislatures and on ballot measures (Key, 1949, chapter 25). And, these puzzles strike the core of our understanding of the expansion of democracy throughout the world. Social theorists have long tried to comprehend the conditions under which democracy can flourish (Huntington, 1974; Skocpol, 1979). We are concerned not with the expansion of democracy, but with its limitations, and in particular with the conditions under which democracy, in this case direct democracy practiced through the initiative process, will produce apparently undemocratic outcomes.

The leading explanations for malapportionment in California and other states emphasize ideological divisions or conflicting visions of the public good—that is, one-dimensional politics. Liberal-conservative, urban-rural, racial, or regional divisions in a given state might lead some voters to choose the way that votes count in order to move the pivotal actor in the state government in a policy direction that they favor (Lee, 1960). Most of the literature on the policy consequences of malapportionment assumes the existence of a dominant liberal-conservative conflict, which is often highly correlated with an urban-rural conflict. The main hypothesis driving this research is that moving towards one-person-one-vote should tend to move policy in the "liberal" and "pro-urban" direction (Jacob, 1964; Dye, 1965; Hofferbert, 1966; Brady and Edmonds, 1967; Pulsipher and Weatherby, 1968; Fry and Winters, 1970; Bicker, 1971; Erikson, 1971, 1973; Hanson and Crew, 1973; Frederickson and Cho, 1974).[2]

In a variation on this one-dimensional theme, a majority of voters might choose virtual representation, lowering their own voting power in order to move public policy toward their most preferred outcome. Key suggests that exactly these forces were at work in the South.

[2]For example, Erikson (1973) begins his article: "When the American judiciary finally began to insist that state legislatures be apportioned on a strict on man-one vote basis in the 1960's, the change was seen in many quarters as a move that would have significant long-term policy implications. Specifically, reapportionment was supposed to shift the balance of political power in the state more in the favor of the then underrepresented urban areas, which would move state policy onto a somewhat more 'liberal,' progressive, or urban-oriented course" (p. 280).

"The groups on top, whatever their political orientation, feared that their opponents might recruit Negro support... The radical Democrats feared that the conservatives would appeal to the Negroes for support in the general election" (Key, 1949, p. 550).

We argue that apportionment is driven by another sort of politics—coalition or power politics. Our argument is consistent with Key's observations in the South that competition among factions led to malapportionment, but we do not ascribe the ideological foundation to politics that Key and others do. Rather, apportionment politics, at least in California, appears to reflect distributive concerns rather than ideology. A majority in California chose a senate apportionment in order to increase the likelihood that their representatives would be pivotal members of the winning coalitions that determined the distribution of public expenditures.

Power politics has long represented an alternative view of apportionment in the legal arena. Banzhaf (1966) critiqued *Baker v. Carr* on the grounds that equal votes do not necessarily translate into equal influence when politics involve the formation of coalitions to divide the dollar. Dixon (1968, esp. pp. 537-543) provides an excellent summary of this critique and contrasts this view with the more widely embraced partisan or ideological view of representation (see, chapters 17 through 19). The courts have embraced a principle of representation more akin to the spatial model or to a view of the legislature that ignores likely blocs and factions, and have ruled against the power politics formulation of Banzhaf and others (e.g., *Whitcomb v. Chavis*, 403 U. S. 124 (1971) *New York City Board of Estimate v. Morris*, 489 U.S. 697-699 (1988)). The power politics model of representation has, thus, remained a "theoretical one." We build on Banzhaf's critique and use the framework of power politics to understand the decision of the people to malapportion legislatures.

Two general features of power politics within legislatures are at work. First, if some members of the legislature are expected to vote in blocs—*e.g.*, all members representing the same county or city—then majority rule within legislatures tends to concentrate political power in the hands of the largest bloc.[3] Cooperative game theory solutions to "divide the dollar politics," such as the Shapley-Shubik index, predict that the largest bloc will tend to receive a disproportionate share of the public expenditures, even if it does not comprise

[3]For an example of such bloc voting, see Hyneman (19xx). He discusses how "down-state" representatives in the Illinois legislature viewed the bloc-like behavior of the Chicago delegation.

an overall majority. In California by the late 1920s, the representatives from Los Angeles county (or some subset of them) would almost certainly have formed the largest bloc. Second, bicameralism allows the "losing" blocs, which themselves constitute a majority of voters, a check on the largest bloc. By apportioning one chamber on population and the other on geography, the majority can reduce the power of the largest bloc, and may even produce a distribution of power that more accurately reflects the principle that "all men should have equal power."[4]

We consider several refinements of the power politics story. First, it seems clear that spatial politics and distributive politics are both present. There is some evidence that ideology as well as interests affected the 1920s apportionment votes across counties and within Los Angeles. Ideology could not have been the driving force, however. The numbers and alignments of voters across counties cut in a direction opposite to that predicted by spatial or ideological accounts. Second, the peculiar geography of the state's counties creates the opportunity for a strong Bay area voting bloc to assert itself on public spending measures. Many accounts of California politics emphasize a North-South split in the legislature as well as urban-rural differences, especially over questions such as water and power and highways and roads (Lee, 1960). One interpretation of the split is that two factions—Los Angeles and the San Francisco Bay area—are constantly struggling for dominance. We find slight evidence that the Bay Area constituted a solid bloc on on public works. Finally, there may be a status quo bias, even in divide the dollar politics.

We do not deny the relevance of ideological schisms in debates over apportionment. Divide-the-dollar politics, however, appears to be another essential ingredient. Moreover, as we discuss below, it leads to strikingly different normative implications about the design of electoral institutions. In particular, when coalition politics determine the distribution of public expenditures, a system with mixed representation and separation of powers across chambers of the legislature may result in fairer outcomes than one-person-one-vote. We turn to the positive predictions of the competing stories first, and return to the normative issues in the conclusion.

## 2. Background of the California Case

[4]Related arguments are made in Dixon (1968), in the context of multi-member districts, and in Banzhaf's (1966) discussion of the weaknesses of weighted voting schemes.

The California state constitution of 1879 stipulated that there be forty Senate and eighty Assembly seats and that the legislature draw the districts "as nearly equal in population as may be," with every decennial census. From 1880 to 1910, the legislature did their duty. Following the 1910 census, Los Angeles county received 8 of the 40 senate seats, San Francisco received 7, and Alameda recieved 4. The other 55 counties either held exactly one senate seat or were part of a senate seat. The 1920 census resulted in a legislative deadlock over redistricting. Los Angeles stood to gain at least 3 senate seats. The legislature could not agree on where those seats should come from. Eventually, the voters had to settle the matter in the 1926 general election.

Voters in the 1926 general election faced two starkly different propositions regarding the reapportionment of the Senate. Proposition 28 amended the state constitution so that state senate districts would be based counties, rather than persons or citizens.[5] Proposition 28 was called the "federal plan" because, like the U.S. Senate and House, it apportioned the California Senate on the basis of geography and the state Assembly on the basis of population. Proposition 20 would have kept one-person-one-vote and created a commission to oversee the drawing of boundaries; the commission would have drawn the district boundaries if the legislature were unable to reach agreement. Both propositions reached the ballot through the initiative process. Proposition 20, however, was also sponsored by the legislature and was drafted by a legislative commission on reapportionment.

Only 40 percent of the state's voters voted yes on Proposition 20. Fifty-five percent voted for Proposition 28. "One-county-one-vote" became the law of the land until the U.S. Supreme Court invalidated it in the mid 1960s.

Proposition 28 created a decidedly anti-majoritarian electoral system. "One-county-one-vote" resulted enormous discrepancies in representation between districts. According to the 1930 census, the most populous Senate district, Los Angeles, represented 2.4 million people, fully 40% of the state's population. The second most populous senate district, San Francisco, represented 656 thousand people, 10% of the state. The third most populous district, Alameda, represented 500 thousand people, 8% of the state. The median senate

[5]With 40 senate seats and 58 counties, some counties would have to be combined into senate seats. Proposition 28 requires that no more than 3 counties be in the same district and that the smallest counties be combined in order to account for the 18 surplus counties.

district had only 43,000 people, just .5% of the state. And the smallest district, comprising Alpine, Amador, and El Dorado counties, represented only 8,000 people. One-county-one-vote severely diluted the urban vote, especially in Los Angeles, San Francisco, and Alameda.

When viewed at the county level, the outcome of the 1926 election appears more puzzling still. Figures 1A and 1B graph the vote for Propositions 20 and 28, respectively, against county population (in log-scale). On both Propositions, Los Angeles clearly opposed the rest of the state. The most troubling election results come from San Francisco and Alameda. These counties gave clear majorities against Proposition 20 and for Proposition 28, even though they stood to lose many more seats under Proposition 28. The remaining counties strongly opposed one-person-one-vote and strongly favored one-county-one-vote, and there is no apparent association between population and vote on the propositions among the smaller counties.

[Figures 1A and 1B here]

One might think that the 1926 election outcome resulted from peculiarities surrounding that specific year. It was an off year and had lower than average turnout. Also, the top of the ticket featured a three-way gubernatorial race, in which the Upton Sinclair, the Socialist candidate, won a plurality of counties, but lost to the Progressive Republican C.C. Young, who polled especially well in Los Angeles.

However, over the next forty-five years the voters of California turned back one-person-one-vote in five separate elections. In 1928, 1948, 1960, and 1962, the electorate faced similar choices, and in all cases solid majorities voted to keep one-county-one-vote rather than move towards one-person-one-vote. In 1928, Proposition 1 instated the legislation that implemented the 1926 decision. It passed with 54 percent of the vote.[6] In 1948, Proposition 13 would have replaced one-county-one-vote with a labor-backed compromise that would have increased the number of seats in Los Angeles somewhat, but was far short of one-person-one-vote. This proposition lost in every county, though LA county gave it the most support. Proposition 15 in 1960 and proposition 23 in 1962 would have imposed senate

[6]Unlike the 1926 votes, a majority of voters in San Francisco opposed Proposition 1; otherwise, the patterns are remarkably similar to those of 1926.

apportionments that were closer to one-person-one-vote. Again, both lost, although by narrower margins than the previous propositions.

Population shifts between 1926 and 1962 produced several important changes in voting patterns. By 1962, the 10 southern counties had 60% of the state's population and only 10 of the 40 senate seats. Los Angeles' share of the state population remained a steady 40% between the 1930 and 1960 censuses. Population growth in the south meant that by 1960 Orange and San Diego counties deserved at least 2 senators each; support for one-person-one-vote grew accordingly. San Francisco and Alameda both shrank in relative terms, and their opposition to one-person-one-vote grew. By 1960, Alameda deserved 2 senators and San Francisco deserved betwee 1 and 2. Santa Clara (also in the Bay area) grew sufficiently that it deserved 2 senate seats. Nonetheless, Santa Clara's voters strongly opposed Proposition 15 in 1960 and proposition 23 in 1962.

Figures 2A and 2B graph the vote for one-person-one-vote in 1960 and 1962, respectively, against population. A majority of voters in Los Angeles county favored reapportionment of the senate, while Alameda and San Francisco counties strongly opposed the plans. Among the remaining counties there is a clear relationship between population and support for the initiatives. Support for reapportionment grows with county population, especially among the southern counties, and many of these counties stood to gain seats in the reapportioned senate.

[Figures 2A and 2B here]

The case poses several puzzles. Why did the median voter in the state prefer malapportionment? Why did majorities of voters in counties that stood to gain seats under one-person-one-vote oppose such an electoral institution?

A final puzzle concerns Los Angeles itself. LA voters determined their own fate. In 1926, a shift of 36,000 votes would have led to the defeat of Proposition 28. In LA alone, 103,000 people—40 percent—voted "yes" on 28. Had the county vote divided one-quarter for 28 and three-quarters against (similar to the division on Prop 20), one-county-one-vote would have failed statewide.

The last of these questions is the hardest to address, and we leave it till later The first two look to be clearly matters of power politics.

## 3. Model I: Spatial Politics

One view of the politics of disfranchisement conceives of legislative outcomes along a single "spatial" dimension, often defined in terms of differing views about the appropriate size and scope of government. What policies the government enacts turns on which districts' representatives (and hence which districts) are pivotal within the legislature. Legislative organization will influence the exact location of the pivot, but we often think of the pivot as a point at or near the median legislator's most-preferred position along the dimension.[7]

Electoral institutions determine which voters will be pivotal in future legislatures. One-person-one-vote makes the median of the legislature close to the median of the electorate as a whole. The translation is not exact, since it may depend somewhat on district boundaries. Representation of geographic units, such as towns or counties or states, might skew the median of the legislature. If for example, there are many counties with small populations that vote for conservatives and a few urban counties that vote for liberals, then, one-county-one-vote would create a legislature in which the median voter is conservative.

The most important feature of spatial politics as it relates to the choice of electoral institutions is that public policies are public goods. Legislative decisions affect different types of people differently, but all people of the same type are affected similarly, regardless of where they happen to live. To the extent that all urban voters or all liberal voters are affected similarly by a given law, they will have common interests.

Spatial politics create the potential for virtual representation. Certain types of voters might willingly dilute their own vote in order to pull the pivot point toward them. Suppose, for example, that rural voters are conservative, but urban liberals are numerous. Then urban conservatives might prefer an apportionment where rural areas are over-representated to one that requires one-person-one-vote. Although over-representation of rural areas reduces their own voting strength, it also decreases the representation of urban liberals, and may therefore make the legislature more conservative overall. This is exactly the sort of political alignment that V. O. Key argues led to electoral institutions that legalized disfranchisement in the South.

Much of the literature on reapportionment, in California and elsewhere, highlights the

[7]For an excellent survey of these ideas see Krehbiel (1998).

ideological divisions within urban areas and the common ground that some urban voters had with rural voters. At times this common ground had radical roots (Key, 1949); at times it allegedly came from conservative ideologies (Lee, 1960).

In the 1920s, politics were not divided along the same liberal-conservative lines as today. Nearly three quarters of the state's voters registered Republican, but the party split into two factions—conservative, pro-business Republicans, and reform, Progressive Republicans. The division between the two factions was clearly exhibited in the 1924 presidential election. The top two vote getters in the state were Calvin Coolidge with 57 percent of the vote and Robert LaFollette with 34 percent of the vote. Though LaFollette ran under the Socialist label in California; he was nationally identified as a Progressive and ran under the Socialist label as a matter of convenience. The Democratic ticket was a distant third, polling less than 20 percent of the vote statewide. The governorship alternated between conservative and progressive Republicans—a progressive won in 1918, a conservative won in 1922, and a progressive won again in 1926.

Populists—mainly social and moral conservatives with a strong agrarian bent—constituted another faction in the state, especially inside the Democratic party. A handful of ballot measures between 1920 and 1930 concern issues favored by populists. These include allowing Bibles in schools, continued prohibition of alcohol, and Sunday closings of businesses. The voting patterns on these measures reveal that southern California, including Los Angeles, held much more socially conservative attitudes than the northern part of the state. Alameda reflected the middle of the state's electorate. San Francisco gave the most opposition to these moral and populist issues. These issues, though, did not appear to find much expression through the parties and candidates. The main ideologial split in the state, then, appears to be between reform and business Republicans.

The New Deal realignment transformed California politics much as it did the rest of the nation. By 1960, Los Angeles and the Bay area were predominantly liberal. A conservative minority in LA and other urban counties reputedly voted with the less populous agricultural counties of the north and the Central Valley for malapportionment (Lee, 1960). Similar stories surround the politics of senate apportionment in particular and disfranchisement generally in many southern states.[8] Democratic cities in Florida sided with rural Democrats

[8]Key (1949, p. 541) notes that one of the leading conjectures about the adoption of constitutional

and against Republican cities to base senate representation on counties rather than persons (Havard and Beth, 1962, pp. 66-67).

There are both theoretical and empirical problems with the virtual representation argument. The theoretical argument is incomplete. In equilibrium, it is hard to find conditions under which a majority of voters would actually vote this way. Under one person one vote, median along the spatial dimension is pivotal. Apportioning the senate on the basis of counties will move the position of the pivotal vote away from median. Thus, a majority should oppose a proposed move to one-county-one-vote, or any plan not based on one-person-one-vote. Explanations that emphasize the split among urban voters neglect the fact that, if the urban conservatives and rural conservatives constitute a majority, then the urban conservatives are already in the majority on public policy and are made no better off by giving their votes away to rural conservatives.

Changing demographics of the state might create conditions under which some voters would choose virtual representation. US cities grew rapidly from the end of the 19th Century through the first three decades of this century. This shift upset the natural alignment of rural and urban Populists against urban Progressives. In order to bind future public policies, Populist majorities might have supported one-county-one-vote in order to prevent future public policies from moving in the Progressive direction.

Ultimately, it is an empirical matter whether spatial politics can account for the apportionment decisions of California voters. Two empirical matters are at issue. First, how would the ideological division of the legislature have differed under alternate geographic and popular representation? Would the difference have been substantial enough that voters would have noticed or cared? Second, does the direction of change of the legislature explain the vote on the initiatives? On both scores, the ideological explanation fails.

In order for voters to think in terms of the spatial consequences of these competing plans there must be a substantial difference in terms of spatial politics. A lengthy literature in the 1960s and 1970s examines the effects of apportionment on public policy outcomes. These studies found that changing to or from geographic representation had only a minor impact on the ideological slant of public laws, the partisan composition of legislatures, the level of

amendments to disfranchise blacks was that blacks held a pivotal position between urban Republicans and rural and urban Democrats.

public expenditures, and the distribution of resources to urban and rural areas. Bicker (1971) provides a critical survey of these studies, noting conceptual and theoretical difficulties, but his survey reveals little association between changes in apportionment and public policies passed by legislatures or the party composition of the legislatures.

In the California senate there is some evidence that representation of counties produced a markedly different ideological divide than one-person-one-vote would have. We contrast two benchmarks—the median of all voters statewide, and the median county. To locate the median voter statewide we examine the presidential vote. For 1926 we use the presidential election of 1924, which pitted a progressive (LaFollette) against a business Republican (Coolidge). For the later period we use the average vote in the four presidential elections between 1960 and 1972.

Figures 3A and 3B graph the presidential vote-shares against population (in the log-scale) for 1926 and 1960, respectively. The upper horizontal line in each figure corresponds to the median voter in the state—*i.e.*, the outcome under one-person-one-vote. The lower horizontal line in each figure corresponds to the median county in the state—*i.e.*, the outcome under one-county-one-vote.

[Figures 3A and 3B here]

In the 1920s, the median legislator would have clearly been more Progressive under one-person-one-vote. The difference between the two horizontal lines equals 8 percentage points in the presidential vote. By this measure, one-county-one-vote swung the median voter in the senate by eight members: from the senators of Mendocino, San Bernardino, Humboldt or Stanislaus to the representatives of Imperial, Kings, or Sutter counties. However, in the 1960s, one-person-one-vote and one-county-one-vote did not offer a distinctly different alternatives, at least not as measured by partisanship. The median voter was no different from the median county: under both schemes the median voter resides in Los Angeles county.

The second empirical question is whether the ideological division of the vote can explain the division of the vote on ballot measures to reapportion the state senate. The predictions from the ideological model fit many smaller counties, but they predict different divisions on most of the counties. In 1924, four southern counties—Orange, Ventura, Santa Barbara,

and Riverside—should have supported one-person-one-vote as intensely as Los Angeles did. Nine other counties should have also supported Proposition 20. Proposition 28 moved the median voter in the legislature (represented by the lower line) away from them. On election day, however, only LA county gave a majority of its votes for Proposition 20.

In the 1960's, a one-dimensional spatial model works even less well. Los Angeles should have been indifferent between one-county-one-vote and one-person-one-vote, since the county lies between the cut lines. LA, in fact, gave the highest support to Propositions 15 in 1960 and 23 in 1962. Nineteen counties, largely from northern California should have supported one-person-one-vote, as it would have moved the median slightly in the liberal direction; the remaining counties, mainly from the south and central parts of the state should have opposed the initiatives. The correlations run the opposite way: the south gave the reapportionment measures more support than the north.

Perhaps the biggest problem with the ideological model is that it cannot account for the behavior of the three most populous counties. Los Angeles is not pitted against the Bay in such a way that the Bay should always oppose one-person-one-vote. In 1924, Alameda votes for the conservative Republicans, as does Los Angeles, while San Francisco aligns with the Progressives. However, on the propositions, Alameda votes with San Francisco, and against the ideological leaning it reveals in the presidential election. In the 1960s, Alameda and San Francisco vote consistently to the left of Los Angeles in presidential (and other) elections. However, if these two bay area counties wished to move the median in the senate toward their political ideologies, the voters of San Francisco and Alameda should have sided with Los Angeles and against one-county-one-vote.

## 4. Model II: Power Politics

We believe that apportionment battles in California, and possibly elsewhere, are driven by power politics and the distribution of public expenditures. According to this argument counties may be treated as voting blocs that can form coalitions with other counties to divide the public dollar. Counties in a winning coalition would divide the dollar; counties out of these coalitions would get nothing. Unlike the spatial argument, laws and policies are not pure public goods: they are divisible and the preferences of county residents over the outcomes of the legislative process are tied to geography. Water projects and highways

and roads are particularly good examples. Spending on a specific bridge or road benefit the residents of the counties in which that project is constructed. Such projects might have spillover effects on neighboring counties, but residents of similar sized areas that happen to be far away do not benefit.

To the extent that the Supreme Court has examined the notion of political power, it has reasoned about it proportionally. Every representative has one vote in the legislature, so coalition power is equal among representatives. Unequal numbers of voters in districts, therefore, creates unequal political influence of voters on public policy decisions. (See Whitcomb v. Chavis.) If this were true, then San Francisco and Alameda voters should have sided with Los Angeles, because all three counties saw their representation (legislators per person) decline significantly as as result of one-county-one-vote following the 1926 election.

This atomistic view of representatives ignores blocs or factions within the legislature. The historical record contains clear evidence of county blocs on reapportionment within the California legislature. In the political battles leading up to the reapportionment initiatives in 1926, all San Francisco and Alameda representatives but one voted on the opposite side of all Los Angeles representatives. The division was not partisan: all were Republicans. Our observation that the distributional politics with bloc voting fits the voting behavior of Californians reasonably well suggests that the theory behind the Court's reasoning may be problematic, and may lead to accumulation of power by the largest faction.

We assume county bloc voting, especially on apportionment and distributive politics where geography plays a role. On apportionment the counties clearly have a common interest. On public works, the assumption seems reasonable because public works are local expenditures. A highway or harbor project benefits significant numbers of people within a county directly and an entire county's economy indirectly (through growth and tax revenue), but such projects do not benefit voters in similar sized counties that are far away.

Coalition formation in divide-the-dollar-politics tends to concentrate power in the largest faction, even if it is a minority faction. Power indices from cooperative game theory make this feature of majority rule within legislatures more precise. There are a large number of power indices in cooperative game theory. In general, they show that the largest bloc of voters (or faction) receives disproportionate power. Here we calculate the Shapley-Shubik index of voting power for a hypothetical case and for the circumstances surrounding the

1926 election (Shapley and Shubik, 1954). The Shapley-Shubik index calculates the percent of possible minimal winning coalitions in which each legislator could cast the decisive vote (taking order into account). The largest faction has the highest likelihood of being pivotal (or of blocking others from being pivotal) and, thus, the highest power. As a rough substantive interpretation, suppose that the legislature has many different items on which it can appropriate money. Legislators can form different coalitions on each of the items, on each item the pivotal player gets all of the money, and coalitions form at random. The total power index, then, measures the fraction of total public expenditures that each legislator would get for his or her constituents.

Consider a hypothetical state with 5 regions, $A$, $B$, $C$, $D$, and $E$. Suppose regions $B$, $C$, $D$ and $E$ each contain the same fraction of the state's population, 1/7th, while region $A$ contains three times as many people as any of the other regions, that is, 3/7th of the total population. Next, suppose the state has a unicameral legislature with seven representatives, one from each of the small regions and three from the large region—so, the legislative apportionment satisfies one-person-one-vote. Finally, suppose the legislators from the same region have common interests, and always form coalitions and vote as a bloc. Bloc $A$ then has has 42.8% of the votes, and the others each have 14.3%. If coalitions form at random, then bloc $A$ will be pivotal in fully 60% of the possible minimal winning coalitions. Thus, according to the Shapley-Shubik index, bloc $A$ has 60% of the power (and region $A$ is therefore expected to receive 60% of public expenditures). Each of the other legislators is pivotal 10% of the time, and therefore each has a smaller share of power than they have of seats.[9]

Bicameralism with geographic representation in one chamber can check the accumulation of power by region $A$. Suppose, for example, that the legislature consists of two chambers of roughly equal size. Suppose further that the coalition formation process can be viewed as a random process involving both chambers simultaneously. Two sorts of power now exist—power to pass bills and the power to block them. To pass a bill requires a majority in each

[9]The calculations go as follows. Legislators or blocs join coalitions in a random order. A legislator or bloc's power equals the fraction of all possible orders in which the legislator or bloc is pivotal—*i.e.*, the addition of that legislator or bloc turns the coalition from a losing coalition into a minimal winning coalition. There are five positions in which a legislator or bloc can appear. Bloc $A$ is pivotal if it is in the second, third, or fourth position. There are $3 \times (4!/5!) = 3/5$ ways that this can happen. The other legislators share the remaining power equally.

chamber, while blocking requires a majority in just one. Finally, suppose again that all members elected from the same region form coalitions and vote as a bloc (regardless of their chamber).

If both chambers are apportioned according to population, then all regions have the same power as in the unicameral case. Again, $A$ receives 60% of the power. If, however, one chamber is apportioned on the basis of population (as above) and one chamber is apportioned on the basis of region, then bloc $A$ will have less power. Suppose that the chamber apportioned on the basis of region has 5 members, one for each region. The ability of $A$ to pass a bill depends now on the number and order of votes cast by the other regions in both chambers. We assume that if a region commits itself in one chamber, its votes in the other chamber are also committed. In this situation, $A$ is the pivotal bloc in creating a minimal winning coalition 40% of the time and, thus, it has 40% of the power. The other regions have 15% of the power each.

In this example, the distribution of the blocking power turns out to be equal to the distribution of passing power. This need not always be the case, however. Differences between these two sorts of power deserve special note. Most local expenditure programs involve passage of new appropriations. Some policies, however, involve changing formulas for expenditures that are recurring. Such formulas are commonly used to set road and highway expenditures. The power to block proposals may create a "status quo" bias in such programs.

This example also has an interesting normative twist: one-person-one-vote does not necessarily produce fairer distributions of the government resources than a mix of one-person-one-vote and one-county-one-vote. We return to this in the conclusion.

Finally, the example demonstrates a more general political lesson, which we build on below. If put to a vote, a majority of voters in this hypothetical state—those in areas $B$, $C$, $D$, and $E$—would prefer to have one-county-one-vote to one-person-one-vote.

Theoretically, then, it is possible that California voters decided to apportion the senate on the basis of population because LA's power was too great and, by limiting that one county, all other counties were improved. The public debate over propositions 20 and 28 certainly isolates LA. For example, proponents of one-county-one-vote argued that Proposition 20

reached the ballot only because it received the requisite signatures in LA.[10] Again, this is an empirical matter. We divide it into three parts: (1) the effects of apportionment on the distribution of power, (2) the consequences for the distribution of public expenditures, and (3) the relationship between the potential benefits and the vote.

Turning to the first question, how would alternative apportionment schemes have changed the coalition power of the counties? To assess the effects of geographic and popular representation on voters' power, we must contrast two hypothetical situations: the distribution of power under one-person-one-vote and the distribution of power under one-county-one-vote. Bicameralism complicates the calculation. The complication, though, is real. The historical record documents that people did not view the senate apportionment in isolation from the apportionment of the assembly. Rather, the public discourse treated the federal plan as a way of "balancing" people against place, as the LA Times opined in 1928.[11]

Table 1 presents the distributions of seats and power for three different apportionment scenarios in the 1920s: the existing distribution (1911), the distribution that would result if Proposition 20 passed, and the distribution that would result if Proposition 28 passed. In both cases, the power index is for the bicameral legislature, calculated in the same fashion as in the example above, with counties voting as blocs.[12] This may not be true generally, but it likely characterizes preferences on expenditure programs, such as highways and water projects, which usually involve the transfer of funds to counties. We further assume that with respect to coalition formation the bicameral legislature operates as a single, "joint chamber." The differences between the power to block and the power to pass are very small, so we present passage power.

[10] Ballot pamphlet, xxx.

[11] The ballot pamphlets describe the measures in these terms. The pro-20/anti-28 forces describe the plan in terms of fair representation. The anti-20/pro-28 forces describe the scheme in terms of fair representation of areas.

[12] More precisely, we assume there are 20 geographically defined blocs. The blocs are: Los Angeles county, San Francisco county, and Alameda county, plus 17 small ones. Changing the number of small blocs does not affect the calculations appreciably, nor does it affect the substantive lesson.

Table 1
Values of the Shapley-Shubik Index for the California Senate, 1926

(i) Under the 1911 Distribution of Seats, (ii) Under One-Person-One-Vote (Prop. 20), and (iii) Under One-County-One-Vote (Prop. 28)

| | | | 1911 Distrib | | Proposition 20 | | Proposition 28 | |
|---|---|---|---|---|---|---|---|---|
| County | 1930 Popul | Pop % | Senate Seats | Power | Senate Seats | Power | Senate Seats | Power |
| Los Angeles | 2,425,700 | 41% | 8 | .215 | 15 | .610 | 1 | .305 |
| San Francisco | 656,200 | 11 | 7 | .179 | 5 | .065 | 1 | .043 |
| Alameda | 497,200 | 8 | 4 | .100 | 3 | .063 | 1 | .041 |
| Rest of State* | 2,509,040 | 41 | 21 | .506 | 1 | .266 | 1 | .610 |

*Others: There are 55 other counties, distributed into the remaining seats. No legislative districts spanned county boundaries. Population equals the total population of the counties. The next largest county in 1930 is San Diego with 3 percent of the seats; its power index is 3 percent also.

One caveat concerning the calculations is in order. The power calculations differ somewhat depending on the assumption about the ways that coalitions form across chambers. We calculate these values the same way as in the hypothetical model. Calculations under alternative assumptions suggest that the relative power of the mid-sized counties is somewhat sensitive. Specifically, alternative calculations suggest that San Francisco and Alameda may actually have higher power under Proposition 28 than under Proposition 20. However, the power indices of LA and the smaller counties change little under the alternative schemes. This suggests that the predictions about San Francisco and Alameda are somewhat ambiguous, and further refinement of the bicameral coalition model is in order.

Even still, Table 1 carries several important predictions about the politics of senate apportionment in the 1920s.

First, one-person-one-vote indeed concentrates power. Following the 1910 census, LA received 8 seats. The 1930 census showed that LA county's senate representation should double, so that the county would hold 40 percent of the seats in both chambers of the legislature under one-person-one-vote. LA's political power, however, would have more than doubled. In 1911, with a quarter of the seats, LA county received a quarter of the power. Under Proposition 20, with forty percent of the seats LA county would have received sixty

percent of the power. One-county-one-vote, however, is not a fix all. That scheme gave LA voters less than proportionate power.

Finally, the Shapley-Shubik power index suggests a clear order of preferences on Propositions 20 and 28 for the voters in different counties in California. If power alone matters, Los Angeles should strongly support Proposition 20 and oppose Proposition 28. All other counties should strongly oppose Proposition 20 and support Proposition 28. Of the remaining counties, San Francisco and Alameda are most ambivalent. They stood to lose power under either plan.

The demographics of the state changed dramatically over the succeeding three decades. Los Angeles county remained by far the most populous county in the state. But San Francisco and Alameda shrunk relative to the rest of the state and were surpassed in share of the state population by Orange, San Diego, Santa Clara and San Bernardino counties. The power calculations of the counties changed accordingly.

Second, the table carries several clear predictions about the changing distribution of state money. The power index can be taken as a prediction of the share of state revenues received by the counties. Even under Proposition 28, LA stood to gain a larger fraction of the state's money than it had in the 1920s (.215 versus .305). LA was badly underrepresented in the 1920s, because the legislature failed to reapportion seats following the 1920 census. The county grew so fast between 1911 and 1930 that its representation in the Assembly doubled following the next apportionment. However, on a per capita basis, malapportionment of the senate meant that Los Angeles was to receive significantly less money than the rest of the state. With 41 percent of the population, LA is predicted to receive only 31 percent of the revenues.

San Francisco and Alameda are expected to lose power and revenues under either scheme. Again, there is some ambiguity in the predictions about whether these two counties would lose relatively more under Prop. 28 or under Prop. 20. According to the calculations in the table, under Prop. 20, San Francisco's expected share of the state funds is predicted to drop from 20 percent to 7 percent and Alameda's expected share of state funds is predicted to drop from 10 percent to 6 percent. Moreover, both counties are expected to receive less per capita than citizens elsewhere in the state. With 11 percent of the population, San Francisco's expected share of revenues is only 7 percent; with 8 percent of the population,

Alameda's expected share of revenues is only 6 percent.

Alternatively, if San Francisco, Alameda, and other bay area counties act as a bloc, then their power might have been greater under Proposition 28 than under Proposition 20. For example, if all counties that touch the bay vote as a bloc, then their shapley value under Prop. 28 would be 23, and their shapley value under Prop. 20 would be 19.

All of the small counties are expected to gain from one-county-one-vote, both in their share of state money and in their per capita revenues.

Third, Propositions 20 and 28 indeed pit LA against the rest of the state. Contrasting the power indices under the two schemes, Los Angeles county receives substantially less power under Prop. 28 than under Prop. 20. All other counties but San Francisco and Alameda definitely gain. There is some ambiguity about the predictions concerning San Francisco and Alameda. A further feature of Proposition 20 tilted the San Francisco and Alameda legislators against this one-person-one-vote measure. Proposition 20 would have created a

Table 2 presents the balance of power that voters faced in 1960 and 1962.

Table 2
Values of the Shapley-Shubik Index for the California Senate, 1960
(i) Under One-County-One-Vote, and
(ii) Under One-Person-One-Vote (Prop. 15)

| | | | 1-County-1-Vote | | 1-Person-1-Vote | |
|---|---|---|---|---|---|---|
| County | 1960 Popul | Pct | Assembly Seats | Power | Assembly Seats | Power |
| Los Angeles | 6,038,771 | 38% | 31 | .280 | 31 | .560 |
| Orange | 703,925 | 4 | 3 | .024 | 4 | .035 |
| San Diego | 1,033,011 | 7 | 5 | .033 | 5 | .040 |
| San Bernardino | 503,591 | 3 | 2 | .021 | 3 | .025 |
| San Francisco | 740,316 | 5 | 5 | .033 | 4 | .035 |
| Alameda | 908,209 | 6 | 5 | .033 | 5 | .040 |
| Santa Clara | 642,315 | 4 | 3 | .024 | 3 | .025 |
| Others* | 5,277,709 | 33 | 36 | .552 | 35 | .220 |

*Others: There are 51 other counties, distributed into the remaining seats. No legislative districts spanned county boundaries. Population equals the average population for the counties.

Apportionment of senate seats to counties clearly hurt Los Angeles and benefited the smaller counties. LA's power index was .56 under one-person-one-vote, but only .28 under one-county one-vote. The collective power of the smaller counties is approximately a mirror image.

As in the 1920s, the mid-sized are predicted to fare slightly worse under one-county one-vote, receiving power scores that were about 10% less than under one-person one-vote. The calculations are also sensitive to the structure of bloc voting. For example, the bay-area counties would be sligthly better off under one-county-one-vote if a solid bay-area bloc formed.

This leads naturally to our second empirical question about distributional politics and apportionment: what evidence is there that counties would have received different levels of state expenditures under alternative apportionment plans?

A basic conjecture of the power politics story is that it mainly concerns the appropriation of state money. Atlas, Gilligan, and Matsusaka (1996) find evidence that smaller states receive disproportionately more money net of taxes thanks to their disproportionate representation in the U.S. Senate. McCubbins and Schwartz (1988) argue that the reapportionment of the U.S. House in the 1960s shifted the distribution of federal expenditures in the direction of areas that were underrepresented before Baker v. Carr.

State transfers to counties provide clear evidence that apportionment of the California senate altered the distribution of money in the California. To measure state expenditures in the counties we calculate the per capita intergovernmental revenue that flowed from the state to the county governments.

What did these transfers look like at the three critical moments-in 1926, before the introduction of one-county-one-vote; in 1962, the time of the last initiative on one-person-one-vote; and in 1977, after the state had reapportioned.

In 1926, the state legislature was badly in need of reapportionment. The district boundaries crafted in 1911 remained in effect, even though Los Angeles county's share of the state's population had doubled. At this time we expect that LA was underrepresented in the legislature. Proposition 28 made that county's underrepresentation permanent. Figure 4A graphs the per capita intergovernmental transfers from the state to the counties, averaged over the years 1926 to 1928, against population (in the logarithmic scale). There is

a strong negative relationship between county size and per capita state funds received, a reflection of the suppression of large counties' power. When we predict intergovernmental revenues with two variables, population and degree of underrepresentation, we find that both have strong effects. Even holding population constant less well represented counties received disproportionately less money.

The same pattern of disbursement of funds characterized the succeeding forty year span. Though the scale of the government had changed (because of growth of income and inflation), the same pattern of expenditures held in 1962 as held in 1926. This is shown in Figure 4B. In essence, one-county-one-vote created and sustained the malapportionment of state money. The introduction of one-person-one-vote, through court intervention in 1966, eliminated the disparities. Figure 4C graphs per capita intergovernmental transfers from the state to the counties as of 1977 against population. The imposition of one-person-one-vote, at least in the short-term, eliminated the long-standing inequities in the distribution of state funds across counties. Los Angeles even received slightly more than its fair share of the pie. Los Angeles lost population relative to the rest of the state during this period. Between 1962 and 1977, LA county lost population, dropping from 38 percent of the state to 34 percent. Even still, LA gained in its share of state money, which rose from 34 percent in 1962 to 37 percent in 1975. The county went from the one of the lowest (ranked 50th) in per capita state revenues received in 1962 to well above average (ranked 23rd).

[Figures 4A-4C here]

The third part of the case for distributional politics is that the distribution of state funds and the population of the counties explain the vote on apportionment measures. In the broadest terms this claim holds true. The power politics story predicts that on all of the propositions, Los Angeles county should strongly favor one-person-one-vote and almost all other counties should strongly oppose it. Orange and San Diego counties should also favor one-person-one-vote in the 1960s. Orange does support one-person-one-vote, and, though it is more supportive than almost all other counties and than it was in past elections, San Diego county returns a majority against.

Here we consider whether distributive issues predict the votes on apportionment, turning first to the politics of the 1920s. We expect that the more a county benefited from the existing

balance of political power, the less they supported one-person-one-vote. Reapportionment on the basis of population, especially if it were overseen by a commission as required by Proposition 20, would have significantly lowered representation of the smaller counties and significantly raised the representation and power of Los Angeles. San Francisco and Alameda were somewhat more ambivalent.

Table 3 presents regression results in which we predict the percentages voting yes on Propositions 20 and 28 with state government transfers to counties and with government transfers, population, and percent voting Republican in the 1924 Presidential vote. Government transfers are per capita transfers from the state to the county governments, excluding transfers to cities within the county (because complete data are not available). The average per-capita transfer is approximately $8 in 1926. We omit San Francisco county from the analysis because the city and county coincide and it is impossible to distinguish transfers to the city from transfers to the county. Republican presidential vote reflects the support for conservative, business principles over progressive principles.

Table 3
Explaining the Votes in 1926

| Variable | % Yes on Prop 20 | | % Yes on Prop 28 | |
|---|---|---|---|---|
| Govt Transfers | -10.5 | -.63 | 5.79 | .44 |
| | (2.38) | (.73) | (1.28) | (.62) |
| Population (millions) | — | 29.5 | — | -14.3 |
| | | (1.3) | | (1.1) |
| Repub. Vote Share | — | .06 | — | -.16 |
| | | (.13) | | (.11) |
| Constant | — | 21.2 | — | 70.9 |
| | | (10.6) | | (9.1) |
| N | 56 | 56 | 56 | 56 |
| R-squared | .26 | .96 | .27 | .90 |

Notes: Standard errors in parentheses. Regressions are weighted by population. San Francisco excluded.

The first and third columns show a strong, negative association between per-capita government transfers and support for one-person-one-vote. An additional dollar per capita

meant 10 percentage points less support for Proposition 20 and 5 percentage points more support for Proposition 28.

The second and fourth columns examine the indepenent effects of government transfers, population, and party. With all three variables in the regression, only population matters. County population correlates strongly with government transfers, so it is hard to tease out the independent effects of these two variables. Republicanism – a measure of ideology – matters little.

Further evidence of the importance of distributional politics is found in the votes on other propositions. Twenty-two other items were on the ballot in 1926. The divisions on these votes hold some clues about the basis for voters' preferences about apportionment. Four measures (Propositions 8, 10, 18, and 24) pertained to public works. Of particular interest, Proposition 8 proposed to distribute state highway money to two districts (northern California and southern California) of equal population; governing boards within the districts would determine the distribution of funds to counties. Southern California voters favored the initiative. Five measures pertain to ideological issues, largely Populist versus Progressive. These include the repeal of Prohibition, allowing Bibles in Schools, allowing Betting, extending the Suffrage through absentee ballots, and the introduction of a Non-Party Primary. Nine items concerned taxes; four items concerned judges; three items addressed other administrative questions of the government.

On only five of the 26 propositions not about apportionment, did Alameda and San Francisco vote against Los Angeles, and on only two issues did Los Angeles vote against the rest of the state. Both of these measures (numbers 4 and 8) involved expenditure of highway funds, which at the time were the second largest state expenditure category. At the county-level, the correlations between Proposition 8 and Propositions 20 and 28 are the highest in the data, and are in the range of .8.

Apportionment votes in the 1960s show very similar patterns. Again, if the distributive politics story is correct, we expect that less populous counties and counties whose voters received a disproportionate share of state revenues would express greater opposition to one-person-one-vote, at least as it was expressed in Proposition 15 in 1960. If, on the other hand, the ideological story explains the politics of apportionment, then more liberal and Democratic areas should vote for Proposition 15 in 1960.

Table 4 displays the results of regressions of the percent voting yes on Proposition 15 in 1960 on government transfers and on government transfers, population, and Democratic Presidential vote. Government transfers are, again, measured per-capita; the average is approximately $130 per person in 1962. Democratic presidential vote equals the average of the 1956, 1960, 1964, and 1968 presidential election returns for each county in the state.

Table 4
Explaining the Votes in 1960

| Variable | % Yes on Prop 15 | |
|---|---|---|
| Govt Transfers | -.42 | -.08 |
| | (.12) | (.04) |
| Population (millions) | — | 5.6 |
| | | (.30) |
| Repub. Vote Share | — | -1.2 |
| | | (.14) |
| Constant | 89.1 | 90.3 |
| | (15.5) | (9.3) |
| N | 57 | 57 |
| R-squared | .18 | .92 |

Notes: Standard errors in parentheses. Regressions are weighted by population.

As in 1926, the higher per-capita transfers under current regime, the lower the support for a more equitable apportionment scheme. When population is included, it picks up almost all of the variation. However, there is still some effect of per-capita government transfers.

The regression contains even stronger evidence against the ideology story than the results for the 1920s. There is a strong effect of partisanship in the 1960s votes, but it goes in the opposite direction of that usually presumed. After controlling for population, conservative areas supported prop 15 more than liberal areas.

## 5. Extensions

Several extensions of the power politics model that we present are needed to fully account for the politics of apportionment. While the power politics argument accounts for the broad

outline of the vote across counties, it might simplify coalitional politics too much, missing potential cross-county factions as reputedly underlie the the North-South split in the state. Perhaps more importantly, it cannot explain within county divisions.

One feature of California's geography may have further shaped the distribution of political power under the federal plan and likely affected voting behavior across the counties. The size of counties varies dramatically within the state. Figure 1 is a map of the state's senate districts and county boundaries in 1911. The map shows a very high concentration of geographically small counties in the bay area and north-central part of the state.

The counties of the southern third of the state have very large land areas and larger than average populations than the rest of the state. According to the 1930 census reports, the 9 southern counties other than LA have average an population of 100,000 people. The 46 northern and central counties other than San Francisco and Alameda have an average population of 40,000 people. The average population of the southern Senate districts, excluding LA, created in the aftermath of Prop 28 is 100,000 people. The average population of the non-southern Senate districts, excluding San Francisco and Alameda, is 56,000 people. The southern voters in small counties looked to lose votes to the non-southern voters in small counties.

Moreover, the county structure holds a much higher potential for bloc voting by the counties in the Bay area counties than by the counties in the south. The emergence of such a bloc would have given San Francisco and Alameda disproportionate political power under the federal plan, because that plan would have made the bay area counties the largest faction, even though Los Angeles county still had a larger population.

Southern California consists of 10 counties: Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, and Ventura. These counties are geographically widely dispersed. Only Los Angeles contains a major city. Possible spillovers from public projects in LA, like highways and water works, were minimal in the 1920s. A one-hundred mile radius around the city of Los Angeles includes most of Orange and Ventura counties, and small parts Kern, Riverside, and San Bernadino. At best a six county bloc could have formed in the south.

The highest density of counties in the state surrounds the San Francisco bay. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma

all touch the bay. The economies of all of these counties have been closely linked since the Gold Rush. The distances between them are small, and public works in one county often affect the neighboring counties. For example, the Golden Gate and Bay Bridges were built during the 1930s with state money; they connect Marin and San Francisco counties and San Francisco and Alameda counties. The next circle of counties, lying almost entirely within a radius of just 100 miles from San Francisco, includes Sacramento, San Joaquin, Santa Cruz, Stanislaus, and Yolo counties. These fourteen counties, if they could act in concert, stood to become the major voting bloc in California politics under the federal plan.

Such North-South divisions are commonly discussed in the literature and public discussions about apportionment in California. The data that we have assembled to date do not support such an argument. The revenue data provide no evidence for a Bay area coalition. The regressions show no additional significant boost in revenues for the Bay Area due to one-county-one-vote. Our failure to find such a coalition might reflect measurement problems. The voting data show no evidence that Bay area counties voted more strongly in favor of one-county-one-vote than one would expect from their population and their preferences on revenue programs.

The more fundamental issue for understanding the politics of apportionment is not the potential for cross-county coalitions but the existence of divisions within counties, especially within Los Angeles. LA county voters themselves could have turned back Proposition 28 in 1928, but they did not.

There are two possible accounts. First, both ideology and distributional benefits are important and a non-trivial fraction of LA voters opted for virtual representation. Specifically, some voters may be willing to decrease their share of public expenditures in order to increase the influence of their particular view of the public good. If true, then ideological divisions, such as over Bibles, Progressivism, or Prohibition, should explain the vote within Los Angeles. Second, LA county itself might have been split into competing factions that benefited differently from public expenditure programs. Some of these factions might have benefited more from one-county-one-vote than from one-person-one-vote.

To assess whether ideological or factional splits could explain the division of LA county we examine the association between votes on 20 and 28 and the votes on 17 and 8 at the precinct level within Los Angeles county.

Voting patterns within the county are highly suggestive of a split within the county over the distribution of state money. In statewide data, the percent voting yes on Proposition 8 correlate +.51 with the percent voting yes on Proposition 20 and -.52 with the percent voting yes on Proposition 28. In precinct-level data within Los Angeles county, the percent voting yes on Proposition 8 correlates +.62 with the percent voting yes on Proposition 20 and -.34 with the percent voting yes on Proposition 28. These correlations are suggestive of a split over public works within LA county. Areas of the county that would have benefited from greater county control over state highway money through Proposition 8 also supported Proposition 20.

The divisions within the county run contrary to the idea that LA's Populist voters sought virtual representation. Proposition 17 correlated weakly with the apportionment votes within LA county. What is more, the relationship between the votes on Bibles in Schools and Prohibition and the votes on the Apportionment measures within LA county run in the opposite directions to the rest of the state. In order to sustain an ideological argument more conservative voters within LA county must support one-county-one-vote as strongly as more conservative voters outside of LA. They do not.

## 6. Implications

Our account of California's apportionment battles carries a very important, and we believe under appreciated, normative lesson. If factions or blocs can form within the legislature, one-person-one-vote does not necessarily result in fairer outcomes. The point is not new; it dates at least to Banzhaf's (1966) critique of *Baker v. Carr*. What is novel in our treatment is the explicit recognition that representation of geography in one chamber and people in another chamber can lead to fairer representation. The Shapley-Shubik index suggests that malapportionment of one chamber in a bicameral legislature can actually lead to a distribution of political power more in line with the distribution of votes or population.

This result, however, is not general. It depends on the distribution of votes and the potential for political blocs to form. Schisms within geographic areas or blocs that span geography will lead to different outcomes. Ultimately, we think the Court was right in rejecting Banzhaf's argument as too abstract to form the basis of a legal doctrine. However, the Court itself uses a "model" of legislative politics, a model in which every representative

has equal power and there are no voting blocs. This model is quite concrete but may have little basis in reality. Banzhaf's critique, then remains poignant today: the principle of one-person-one-vote may have less basis in political theory than is commonly assumed. Mixed representation, such as in the US House and Senate, may indeed produce more equitable outcomes. As political scientists, though, we wish to stay out of the thicket of legal reasoning.

Rather, we take from our analysis of apportionment in California a lesson for positive political science: Power politics is a sounder starting point for the study of apportionment than ideological or partisan politics. Specifically, coalition politics around the distribution of public monies explains the public's apparent preference for malapportionment in California. Ideological and partisan stories do not fit the pattern at all, and may even work against the forces favoring malapportionment.

Questions about the distribution of public money help explain not only who wants unequal representation but also when malapportionment may occur. Changing demographics in California precipitated a political crisis in the 1920s. Los Angeles had gotten "too big." The apportionment of 1910 produced a distribution of seats in the Assembly and Senate that gave voters not only equal votes but equal power. However in 1920, with by far the largest voting bloc, LA stood to gain disproportionate political power. One-county-one-vote limited LA's power and maintained the existing distribution of public expenditures. We suspect that this is a more general phenomenon: dramatic demographic changes can produce preferences for undemocratic solutions in order to maintain roughly equal power.

Our empirical analysis suggests, further, that political scientists researching apportionment may have assessed the politics of apportionment incorrectly. Most early studies focused on the effects of apportionment on the party or ideological composition of the legislatures and on the distribution of money to specific "liberal" programs, such as welfare. The coalition politics discovered here would not necessarily produce such changes. In stead, to assess the changes in power, researchers must carefully evaluate how power would have changed under various scenarios and whether the distribution of state and federal monies matches that pattern. We have shown that underrepresented areas received much less money per capita than they deserved under "one county, one vote." "One person, one vote" eliminated the inequity, and even gave LA slightly more than it may have deserved.

Finally, our study bears an important lesson about voters. Though we did not study

individuals, aggregates reflect, however indirectly, their reasoning and behavior. California did not choose what was fair, right, or even democratic. Malapportionment in California and we suspect elsewhere arose as a popular solution to a problem of representaive democracy, namely, the concentration of power in the hands of the largest faction. Rational voters chose malapportionment to maintain or raise their own power. Californians appear to have chosen the plan that gained them the greatest share of the state expenditures on pork barrel goods. For a majority of voters, that consistently meant one-county-one-vote for the senate mixed with one-person-one-vote for the assembly.

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