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Aggregating Conflict: The Impact of Municipal Boundaries on Electoral Politics

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Aggregating Conflict: The Impact of Municipal Boundaries on Electoral Politics

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## **Introduction**

Despite a voluminous research tradition on American local election rules concerning minority rights and representation, there have been few systematic analyses of municipal systems of representation. This study adopts techniques used in the comparative analysis of electoral systems in an effort to systematically investigate the determinants of electoral fragmentation in a large sample of city council elections. Electoral fragmentation is a measure of the degree to which electoral votes cast are distributed across the units competing to represent voters. These units are typically political parties or party coalitions, or as in the following, individual candidates running for office. Low fragmentation exists where vote shares are concentrated, resulting in large margins of victory, whereas high fragmentation reflects a more competitive political environment, often resulting in large shares of votes failing to reach the threshold of inclusion to elective office. Therefore, the dynamics of fragmentation are directly relevant to understanding the quality of representation provided by electoral systems.

Effective representation is dependent on the capacity for difference to be rendered in the public sphere, that is, a “fair chance” for members of a political community to elect representatives of their choice (Rush 1998). Exactly what this requires in terms of election law is an ongoing jurisprudential dilemma, but minimally we ought to expect that differences among voters will be faithfully reflected in a plurality of governing alternatives. Where differences exist, they require representation if meaningful choices are to be made. Where rival alternatives exist as solutions to collective problems, those alternatives ought to be presented in competition for representational space, which in turn will result in higher levels of electoral fragmentation.

Yet the goal of facilitating a potentially fragmented if representative political arena runs up against the conflicting objective of channeling political differences into a manageable scope of conflict, one that maximizes the proportion of “winners” in electoral competition. On the one hand, if multiple alternatives exist, they should be given fair consideration. On the other hand, if only one of the alternatives, that favored by the largest minority, achieves electoral victory, then the result is high disproportionality, that is, a majority of the alternatives presented are excluded from governing (Taagepera 1989). Ideally then, the fairest system of them all facilitates both the presentation of differences as potential solutions to shared problems, as well as the accommodation of that difference, channeling support to a representational alternative that is acceptable to all.

There has been little empirical research dedicated to understanding how population size impacts electoral fragmentation, although questions about the appropriate size of a political unit are at least as old as Plato's *Laws*. Most contemporary analyses suggest that while the size of political unit is certainly a limiting condition on political participation, community engagement and civic life, it is diversity, or pluralism in the composition of the unit, that acts as a catalyst for action (Dahl 1973); (Jacobs [1961] 1989; Finifter 1975); (Oliver 2000). By considering the impact of size and diversity on electoral fragmentation, it is possible to make assessments about the consequences of changes in electoral rules in municipal political systems. Using cities as the unit of analysis facilitates the study of effects of scale across a broad range of electoral populations, while incorporating comparative election systems models for municipal-level research facilitates a broader application of these tools for dealing with problems related to city composition and representation.

That at least one person in a unit of any size would volunteer to represent the views of associates is reasonable; the difficult question is how to determine the average number of people who would compete for representational space. With size, the number of communication channels in a community expands exponentially and problems with social coordination increase rapidly with additional members.

Yet simultaneously, more communication channels facilitate the emergence of sub-groups for collective action. Electoral fragmentation should thus expand rapidly after small group consensus breaks down and emergent groups seek to influence collective decisions. Electoral fragmentation would be unified in consensual populations, and remain so until competition for the seat arose. Without any further information, all that is known are the lower and upper bounds of the number of persons per seat in electoral competition: one person and every person. That is, a minimum of one person might compete for a seat (although conceptually the boundary is actually zero), or everyone could compete for it. As a best estimate, the geometric mean is a good candidate (Taagepera 2002). However, given that the opportunity to be an office holder never exceeds  $1/\text{population}$ , the probability of being the seat-holder under equal conditions drops quickly to approach zero near 100,000 ( $\log 5$ ). Therefore, it is plausible to imagine an upper constraint on fragmentation at some point where it will level out, regardless of further increases in size. The relationship between population and candidates per seat should be logistic, and the first hypothesis to be examined will be this proposed relationship between size and electoral fragmentation.

The size of an electorate is technically a function of the size and number of electoral districts as units of representation, although histories of settlement and geographic identity cement municipal boundaries across time and space. Past research indicates several institutional constraints that must be accounted for when exploring the relationship between size, diversity and fragmentation. Comparative institutionalists have focused largely on the broadest implications of electoral rules, namely how they affect party competition across countries (Cox 1997); (Duverger 1963); (Taagepera 1989).

In comparative election studies, the number of seats being contested, or district magnitude ( $M$ ) has been shown to be a significant institutional constraint on average levels of electoral fragmentation (Cox 1997; Sartori 1994; Taagepera 1989; Reed 1990). In single seat districts, fragmented competition tends to result in electoral domination by the largest component, such that the magnitude of one seat tends to condense fragmentation into a few competitive components (Duverger 1963). Extending this

tendency to multi-seat elections, the most influential research suggests that for any magnitude, the average level of electoral fragmentation will be  $M + 1$ , under the assumption that  $M+2$  and higher candidates will not enter or drop out, given their standing and relative (lack of) chances of success (Reed 1990; Cox 1997). This proposition will also be tested, with the caveat that candidate competition is not the same as party competition, particularly under conditions of municipal “nonpartisan” elections imposed by the California Constitution.

Such distinctions require a consideration how these electoral rules fit together to pattern fragmentation. Farrell and McAllister (2004) distinguish between candidate and party-centered electoral systems along several dimensions. The types of systems under consideration here come close to having the properties Farrell and McAllister associate with high candidate-centeredness, in that individual candidates have an incentive to fish for votes (and fragment the electorate) without restraints from parties or other collaborative organizations. These properties are 1) Unrestricted ballot access and 2) Nominal voting that can be pooled or transferred. Being non-partisan elections, there is no party leadership to vet candidates, limit the number of candidates, or control placement on ballots. And because these election systems do not provide for pooling (cumulative voting) or preference ranking of candidates (transferability), one can get elected with a smaller vote share the more people there are to divide it up (thus lowering the threshold of exclusion). Therefore California city elections are to be considered on the more centrifugal end of the election systems spectrum.

We also evaluate the impact of incumbency as a potential constraint on fragmentation, assuming that it functions similarly to the way in which party “occupancy” of a seat will reduce competition for it. Over a similar time period for which these data were collected, the Public Policy Institute of California reported that 80% of council incumbents and 86% of mayoral incumbents were re-elected to office (Hanjal 2002). This sample of elections shows comparable rates of re-election, ranging from 74-82%, depending

on election type and population. The low level of turnover in occupied seats suggests that fragmentation in “occupied” races will be lower compared to “open” competition

Local government research in this area has focused primarily on evaluating how descriptive representation (Pitkin 1984) is affected by the number of districts in a city and the translation of votes into seats, particularly in single-member district and multi-member at-large election systems (Engstrom 1994); (MacManus 1999); (Williams 1999). Since the passage of the 1965 Voting Rights Act, related judicial decisions, and amendments to the VRA in 1982, legal scholars and political scientists have produced a large body of work on sub-national election systems with regard to minority representation (Davidson 1994);(Rush 2001). A major controversy in this line of research is the possibility that at-large elections systems, where citizens elect a number of officials simultaneously in citywide elections, reduce or “dilute” the influence of small but concentrated minorities (Engstrom 1994; MacManus 1999; Teasely 1999); (Williams 1999).

Where vote dilution or “underrepresentation” has been documented, the primary judicial remedy has been to divide cities into districts that generate minority representation (by virtue of the composition of the district), or to implement a mixed system (MacManus 1999). But critics of single seat district elections point to problems of parochialism and regional division within district councils, disproportionality in electoral results, and low turnout in primary and run-off elections (Zimmerman 1999; Still 1991; Sharp 2003). These debates can be considered part of the larger discussion concerning the effects of district magnitude on electoral fragmentation and representation.

While this study does not consider the extent to which political minorities actually achieve optimal representation under different systems, there is a consideration of how the geography of affluence and municipal homogeneity is reflected in electoral fragmentation. Following research done in urban sociology and urban politics, we expect that homogenous cities will exhibit less fragmentation than cities encompassing greater potentially political differences. Diversity, both social and economic, has

been referred to the “ubiquitous principle” through which cities self-organize to solve collective problems (Jacobs [1961] 1989 :14). Oliver has also shown that neighborhood diversity contributes to higher levels of political participation (Oliver 1999). As an emergent property of social and political difference, electoral fragmentation should expand with increasing diversity.

To summarize, the following hypotheses are evaluated:

1. Electoral fragmentation will increase with the number of people being represented, up to some carrying capacity, after which it will level off.
2. Increasing district magnitude facilitates fragmentation as a conflict-accommodating mechanism, such that  $M+1$  candidates will compete for representational space.
3. Incumbency inhibits fragmentation through existing representation of the status quo and as a barrier to open competition for representational space.
4. Homogenous populations produce lower levels of electoral fragmentation as a result of proportionately less difference between members and fewer electoral solutions proposed.



## Analysis

Data for this study include approximately 900 city council elections from 393 of the 474 cities in the state of California. Data sources include vote tallies and institutional information gathered by the author from city clerks across the state that supplement election data from city elections archived at the Institute for Social Research, CSU, Sacramento. Data for all 38 of California's district election cities are included, and the sample mirrors all California cities in terms of population and socioeconomic composition. Each election is counted as a separate case for the analysis on institutional constraints, while cities are the unit of analysis in the sociodemographic section. All district election data are 1<sup>st</sup> order — there are no runoff or special elections. Demographic data were obtained from 1998 and 1999 supplements to the U.S. Census. Voter registration data was obtained from the California Secretary of State. Mapping shapefiles were obtained using U.S. Census TIGER files.

Election systems scholars have developed several methods of calculating electoral fragmentation as a product of both the number of components (candidates/parties) competing for representation, and their electoral strength in terms of vote share (Taagepera 2003). Here we use a widely known index of fragmentation, the Laakso-Taagepera Index, but candidates rather than parties are used. Electoral fragmentation is calculated using:

$$N_v = 1/\sum p^2 \quad (1)$$

where  $N$  = the "effective" number of candidates, equal to one over the sum of squared vote percentages ( $p$ ) for each candidate. The effect of squaring the vote share is to reduce the impact of those who receive small vote shares. Take the example of four candidates receiving the following vote shares in a city council election: 45%, 25%, 15% and 15%. Electoral fragmentation is thus  $N = 1/((.45*.45) + (.25*.25) + (.15*.15) + (.15*.15)) = 3.23$  effective candidates. Maximum fragmentation, where each candidate receives .25 of the vote share, would reflect the actual number of 4 candidates. Fragmentation *per seat* is calculated using  $N/M$ , that is,  $N$  divided by the district magnitude, which results in 1.62 candidates per seat in the

above election if two representatives are elected ( $N/M = 3.23/2$ ). This transformation allows for comparison between district and at-large systems when analyzing cities.

Figure 1A shows the total number of effective candidates in city council elections among populations under 10,000, from 10-30,000, 30-75,000 and those over 75,000. The effective number of candidates nearly doubles, from 7.27 candidates competing for office among populations of less than 10,000, to just over 13 effective candidates on average splitting votes among larger populations. While size appears to contribute to fragmentation, it does so incrementally; an eight-fold increase in population only doubled fragmentation. There are two possibly related forces at play that could limit further fragmentation. As suggested earlier, the likelihood of effectively campaigning for office is reduced as the ratio of representatives to population approaches zero. This may be interpreted as an increased ability to “free ride” on other potential representatives, or as a structural limitation on competition as the stakes, cost, and level of competitiveness increase in the big leagues. In addition, there may be upper limits on the number of alternatives that can be reasonably considered in any election cycle due to flows of information and issue-attention space.

In the first instance, we would expect to see fewer actual candidates running as a proportion of the population. In the second instance, we would expect to see the vote share condense onto fewer candidates even as their numbers increased. In these elections, we see both. Figure 1B shows the average ratio of effective to actual candidates across the same populations. The .92 figure in the upper left indicates that most people that run for council in small towns/districts receive an appreciable vote share; on average the vote share is condensed only 8% from equal distribution across candidates. By contrast, in populations over 75,000, the average distribution of votes is condensed to a point that the effective number of candidates is 80% of the actual number. Such increased condensation does not, however, account for there being only a doubling in electoral fragmentation between populations of 10,000 ( $7.27/.92 = 7.91$ ) when compared to populations over 75,000 ( $13.25/.78 = 17$ ). Therefore, we find that 1) more people

run for council in large populations, and that 2) even with greater condensation of vote shares they still produce 3) higher levels of electoral fragmentation.

(figures 1A and 1B here)

It is still possible that higher fragmentation results only from the higher district magnitudes in big cities. The typical charter city in California has a 5 seat council elected at-large through staggered two and three seat elections every two years. As cities get bigger, they usually turn to some form of district nomination or election. The largest city council in California is Los Angeles' 15 member council, and there are 38 other cities that elect members by district. The largest staggered at-large elections in this time period were for Santa Monica (4 seats) and Santa Rosa (5 seats).

A simple OLS model will enable a test of population effects while examining the impact of other variables of interest. Because at-large elections are used to represent a municipal political system and district elections are used to represent part of a system, there is something of an apples and oranges problem that must be confronted. Using a dummy variable for district election in the regression equation provides a way of considering whether, beyond the number of seats being contested and the populations of those areas, there is something else intrinsic to elections in an at-large or district environment that impacts electoral fragmentation.

Next, district magnitude will be included, ranging from 1 in district elections to 5 in Santa Rosa's at-large system. In addition, the impact of incumbency will be measured using a "saturation" measure equal the number of incumbents running divided by the district magnitude. This provides a measure of the percent of seats "open" ranging from 1 in saturated elections to 0 in fully open competition. Finally, the log of population is entered in order to straighten out the curve of the line visible in figure 1A. For ease of interpretation, the expected logistic relation is not modeled here (though it fits just as well) but will be considered later.

(figure 1c here)

Accounting for the impact of district magnitude and population reveals that there is nothing intrinsic to district elections vs at-large elections in terms of the levels of fragmentation produced; the coefficient of the district variable is small and not significant. District magnitude is by far the most powerful force shaping fragmentation. Increasing the magnitude by one seat increases fragmentation by nearly two (1.73) effective candidates. This is slightly higher than the expected  $M+1$  rule suggests, indicating enhanced fragmentation under such candidate-centered conditions. Without incumbency in the equation, the coefficient for district magnitude exceeds  $2M$ , as the probability of a seat being “unincumbered” increases with more seats. Controlling for incumbency, however, its independent impact is such that the presence of an incumbent reduces fragmentation by approximately one (-.87) effective candidate, congruent with the expectation that incumbency fills the status quo representational space, or otherwise inhibits challenges.

Finally, population does have a distinct and substantial impact on fragmentation. Specifically, a ten-fold increase in population produces an increase in fragmentation of 1.03 effective candidates, assuming a linear relationship. Together these constraints account for about 60% of the observed variance in electoral fragmentation. But it is unlikely that all these relationships, especially that of population and fragmentation, are linear. Figure 2 illustrates how the bulk of the observable data is bunched between city populations of 10,000 to 100,000 using  $N/M$  as a measure of fragmentation, which makes the linear model fit quite well.

(figure 2)

Using the overall  $N/M$  mean of  $2M$  as a centerpoint for fitting a logistic curve, and applying the assumptions that minimum  $N/M = 1$ , the maximum average value of  $N/M$  looks to be about 4 if it is

supposed that N/M would increase up to about the mean, and then start to show the effects of the carrying capacity. These assumptions and the empirical observations are combined for a fairly good fitting curve using the equation:

$$1 + [3/(1 + e^{-(\text{Size} - 5.354)})] = N/M \quad (3)$$

where e = the natural log base and 5.354 is the log of the population level at which N/M values begin to level out, around 225,000. While this pattern is at least visually plausible, the actual linear fit itself accounts for 23% of observed variance.

Having found evidence in support of our first three hypotheses, we move out of the institutional and into the sociocultural. Cities are where we are most likely to find the “other,” as increases in population are associated with increased social interaction with both the “unfamiliar” stranger and true “strangers” who do not fit our conventional expectations at all (Fischer 1984: 97). In political systems encompassing such difference, electoral fragmentation is expected to increase as common solutions to common problems emerge from diverse sources.

Figure 3 displays mean values for a set of demographic and political variables used to construct a diversity index, across city populations. The variables were chosen with relevant political cleavages in mind, and together the additive index has a scale (alpha) reliability of .76 using standardized ratios. The index is calculated to reflect homogeneity at either extreme, with mixed or diverse cities located around the index mean. As would be expected, the percentage of white residents declines as cities grow larger, ranging from 66% in towns of less than 10,000 to a minority (46%) in cities over 75,000. In the case of race, big cities are more diverse. However, the values of the other measures, and for the overall index, are steady across population shifts.

(figure 3)

The mean value of household income (displayed as ratio value) decreases only slightly in big cities, although the disparity surely increases. Similarly, both the percent of college graduates and the

percent of registered republicans taper off only marginally in big cities. The lack of correlation between city size and diversity index value supports the notion that the two are distinct, though it is in part a function of the way the scale is produced. The anticipation is a curvilinear relationship between index values and overall fragmentation, where the “low end” of the scale includes disenfranchised cities characterized by high levels of minority segregation, and low levels of education, income, and Republican sentiment. The other end of the scale is designed to include affluent enclaves where the elite do are likely to flock, and think together.

As figure 4 shows, the expected relationship only partially obtains. Specifically, while the highest levels of fragmentation do occur in “mixed” cities, there appears to be no lower boundary to fragmentation; many mixed cities exhibit fragmentation below 2 N/M. The limitation thus appears to operate like gravity, limiting the potential height of fragmentation, particularly in the most affluent, homogenous suburbs. Overall, however, “politics as normal” is the norm for cities of various composition, resulting in fragmentation below 2N/M. While qualified support has been found for hypothesis 4, other patterns of note emerge from figure 4 that point toward the need for possible geographic explanations.

(figure 4)

First, it is obvious that many cities on the lower end of the index exhibit high levels of fragmentation, even though they lack the balancing of characteristics that tend to maximize political participation and electoral competition. Moreover, what would explain such a pronounced difference in fragmentation between two cities like Compton and East Palo Alto, both of which share characteristics of being bastions of urban segregation and relative deprivation? It is possible that the difference has to do with their relative locations within larger metropolitan contexts. Another distinctively geographic

pattern emerges when we consider where the most electorally fragmented cities are located. In addition to central cities being hyperfragmented, others tend to be cities peripheral to major metropolitan areas. They tend to be boundary or edge cities. To provide an example of the political geography of fragmentation, figures 5 and 6 map out the city-wide variations in diversity and electoral fragmentation for Southern California.

(figures 5 and 6)

First let us turn to the comparison of Compton and East Palo Alto, which is in the San Francisco Bay Area. Both cities have 5 seat councils, though Compton elects in districts. Part of the difference can be explained by the fact that Palo Alto has about four times the population of Compton, and had only 60% of seats covered by incumbents for the time period. However, these factors do not account for the total imbalance. Figure 5 shows that Compton is embedded within a cluster of cities of similar or mixed means. By contrast, East Palo Alto is nestled in between some of the most affluent communities in the United States. It is adjacent to Atherton, labeled in figure 4 as the 3<sup>rd</sup> most affluent and homogenous city in the sample. Is it possible that such stark contrast between neighboring communities raises the level of political discourse and thus fragmentation in cities that struggle to sustain themselves? More extensive research on these phenomena would be needed to understand the dynamics at work.

The case of the coastal and periphery cities in Southern California is a little more straightforward. In addition to the hyperfragmented Los Angeles landscape, due primarily to its having the smallest proportional council in the U.S. at 15 representatives for about 4 million people, we see that it is the periphery cities that tend to also have high fragmentation; Fontana and Ontario in the Inland Empire, Ventura at the northernmost point of the Los Angeles MSA, and even the periphery cities of periphery cities in High Desert. This geographic pattern points not to mixed diversity, but to growth as a facilitator of fragmentation. While established, affluent suburbs appear capable of protecting themselves and

enjoying relative isolation (the peninsula in L.A., Poway and Carlsbad in San Diego), many cities undergoing development are apparently giving rise to pro and anti-growth coalitions prepared for electoral battle. Again, these are specific research propositions that, while supported in research on growth initiatives, require more systematic confirmation (Gerber 2003).

Finally, it is noteworthy that so many of the highly fragmented cities are coastal cities. However, this pattern fits our hypothesis on diversity in another dimension. While it is true that these tend to be relatively affluent communities, places like Oceanside, Hermosa and San Clemente also tend to be relatively balanced politically. While there are large percentages of Republicans, coastal cities are also home to the largest percentages of registered independents. Moreover, both groups tend to have the resources to participate in electoral politics in these relatively small cities.

### **Conclusion**

The institutional factors examined above tend to produce a “natural” base of 2M for these types of elections. Overall, electoral fragmentation expands an average of nearly two effective candidates for each seat added to an electoral contest under these systems. The removal of incumbency constraints on these contests increases fragmentation by another candidate. Together, these constraints account for roughly 60% of the variance observed. Of course, whatever elements of reform that might be considered, not all groups will be affected the same. In particular, African American populations, concentrated in large cities, and often segregated within those cities, are invariably more affected by changes in electoral rules concerning district magnitude and electoral territory than are other populations. The same is true for any geographically concentrated population, whether it is along racial, economic, or other cleavages. More generally, given the complex relationship between fragmentation and representation, some groups will always benefit from reform while others will benefit from the status quo.



Reducing the number of seats in units of representation clearly reduces fragmentation, but it may do so by artificially suppressing the expression of difference. Furthermore, the use of primaries and runoff elections needlessly wastes the electorate's political energies. Allowing voters to rank their preferences in multi-member districts would likely reduce competition by encouraging slate coordination on the part of candidates; yet minority candidates who would otherwise not have a chance in at-large elections would also benefit if that minority concentrated their votes, which is decreasingly accepted as a justification of the creation of minority-majority districts (Still 1995); (Teasely 1999); (Zimmerman 1999).

These at-large systems, with the 2M average and non-partisan requirements, do appear to produce a "slate rule" whereby groups or slates of M candidates compete in a coordinated effort for those M votes in a sort of sub-party system (Davidson 1988). Anecdotal review of local campaign advertising and strategies in Southern California and the Bay Area supports this proposition. This sort of strategy would still be supported under a preferential system (Still 1995). Of course, slating has potential negative consequences; groups can nominate token or moderate minority representatives, they may co-opt minority agendas through closed nomination processes and exclusive appointment procedures once in office, or stall substantive reforms under the guise of "good government." While preference voting has been criticized for encouraging fragmentation and voter confusion, there is little evidence that supports its worst opponents' claims, and it clearly maximizes each voter's chance at fair representation, if that is a remedy that is sought (Zimmerman 1999). Preferential voting could also be combined with a limit of M preferences (or top 3 preferences, etc.) to further constrain fragmentation.

Pure At-large elections may be difficult to justify in large cities, but with the proper ballot structure, some of the problems pointed to here and others associated with multi-member representation (minority underrepresentation, lack of accountability to neighborhood concerns, campaign expense) can be addressed. In broader perspective, the puzzle of district magnitude and electoral representation is part of the broader puzzle of size and self-government, the trade off that Dahl described where at "the

one extreme...the people vote but they do not rule; at the other they rule – but they have nothing to rule over (Dahl 1967:960).” Multiple two member districts in large cities could be made congruent with the optimal urban region populations of 50,000 to 200,000 that Dahl (1967) had suggested for purposes of self-government and self-organization. Cities of considerable size and diversity may find that districts are a necessary component, whether planned or not, for they “mediate between the indispensable, but inherently politically powerless, street neighborhoods, and the inherently powerful city as a whole. (Jacobs [1961] 1989: 121)”

These findings compliment the work of comparative urbanists who emphasize the need for city centers or districts to be big enough to be relevant for the city and small enough to support social cohesiveness and the identities that may seek political expression. There may not be a magic number for ideal city or district size, but the range of 50,000-200,000 has been shown to have attractive properties in several contexts. It is possible to acknowledge the importance of districts while at the same time seeking the benefits of multi-seat representation. Large multi-seat districts can be powerful enough to matter and still serve as centers for neighborhood coordination and decision-making. Better understanding of the dynamics of fragmentation can facilitate anticipation of needed electoral reforms for cities undergoing growth or other developmental transitions. Clearly no system is universally optimal, but it is possible to assess important structural trade offs when evaluating potential conflict within the metropolitan context.

Figure 1A

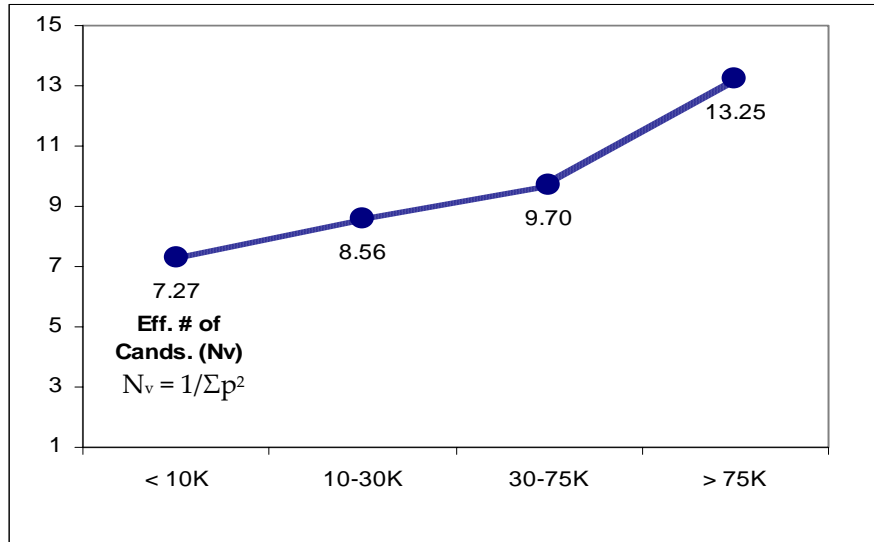


Figure1B

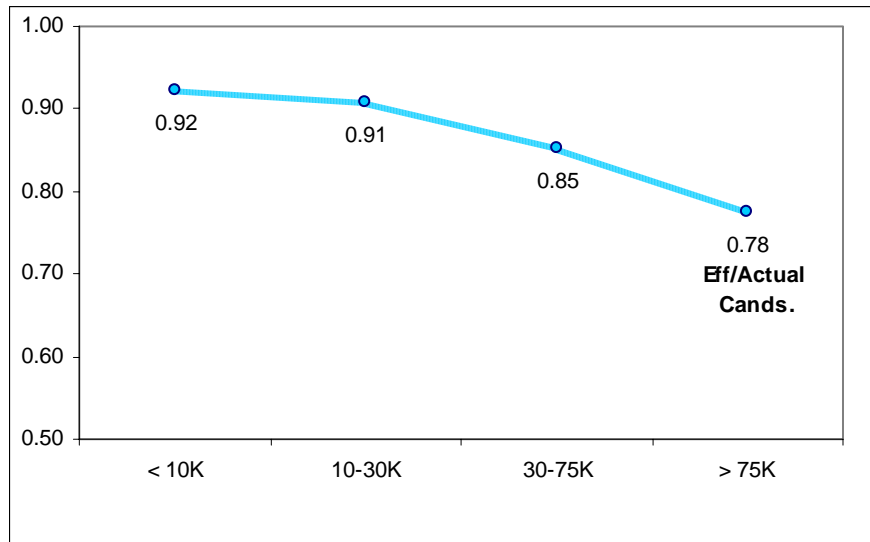


Figure 1C

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-3.282	.428		-7.659	.000
District Election	-.183	.161	-.038	-1.133	.258
# of Dsts (M)	1.726	.085	.690	20.420	.000
Incumbents/seats	-.865	.121	-.162	-7.143	.000
Log of Population	1.034	.084	.278	12.276	.000

Figure 2

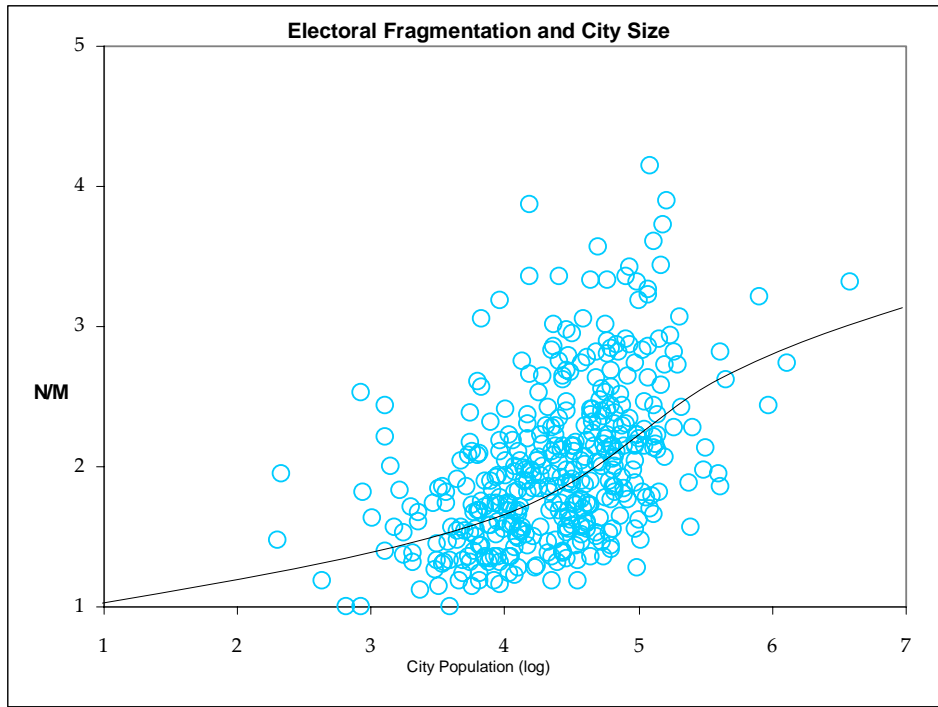


Figure 3

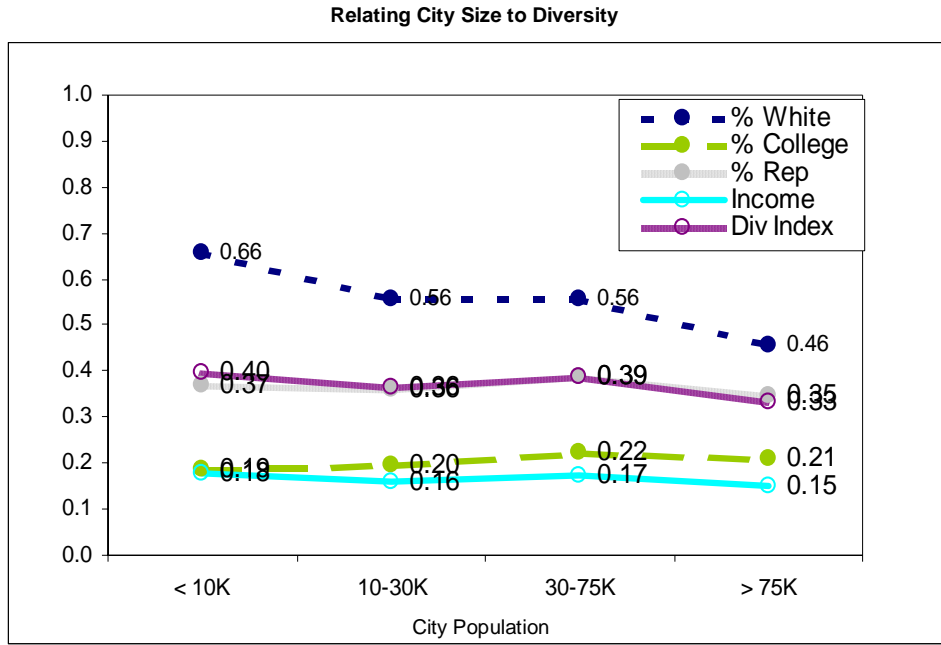
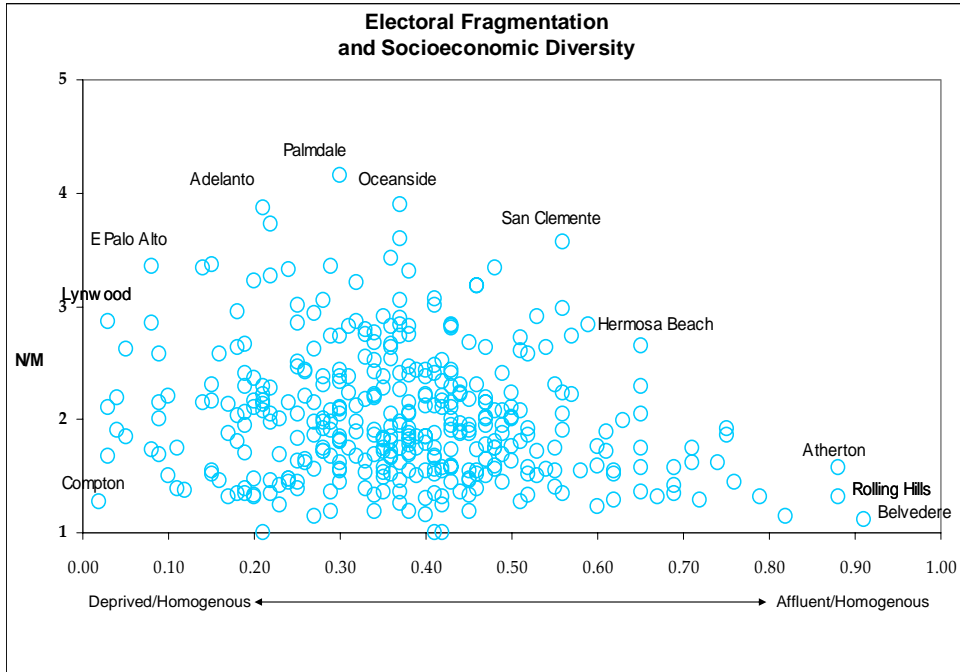


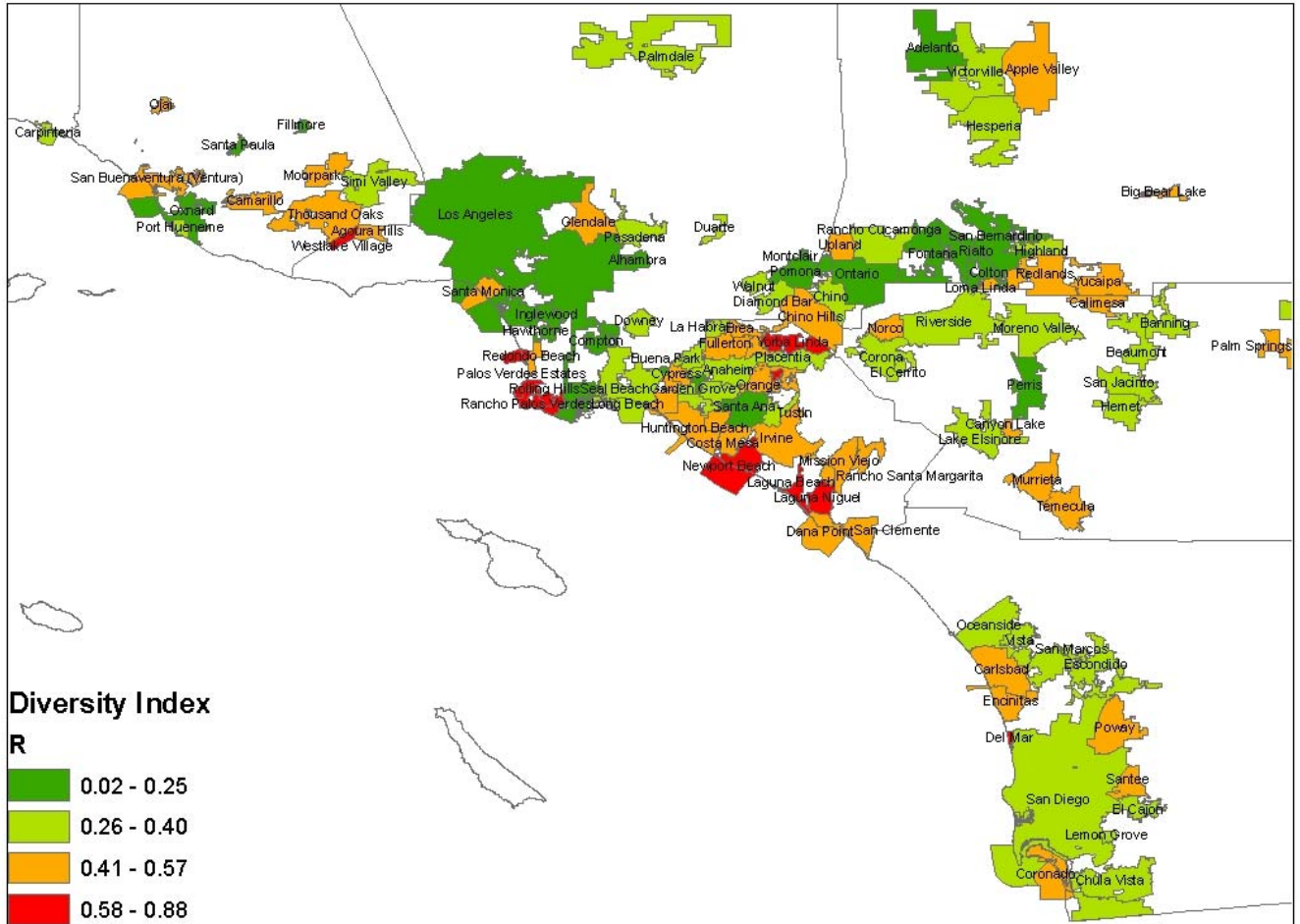
Figure 4



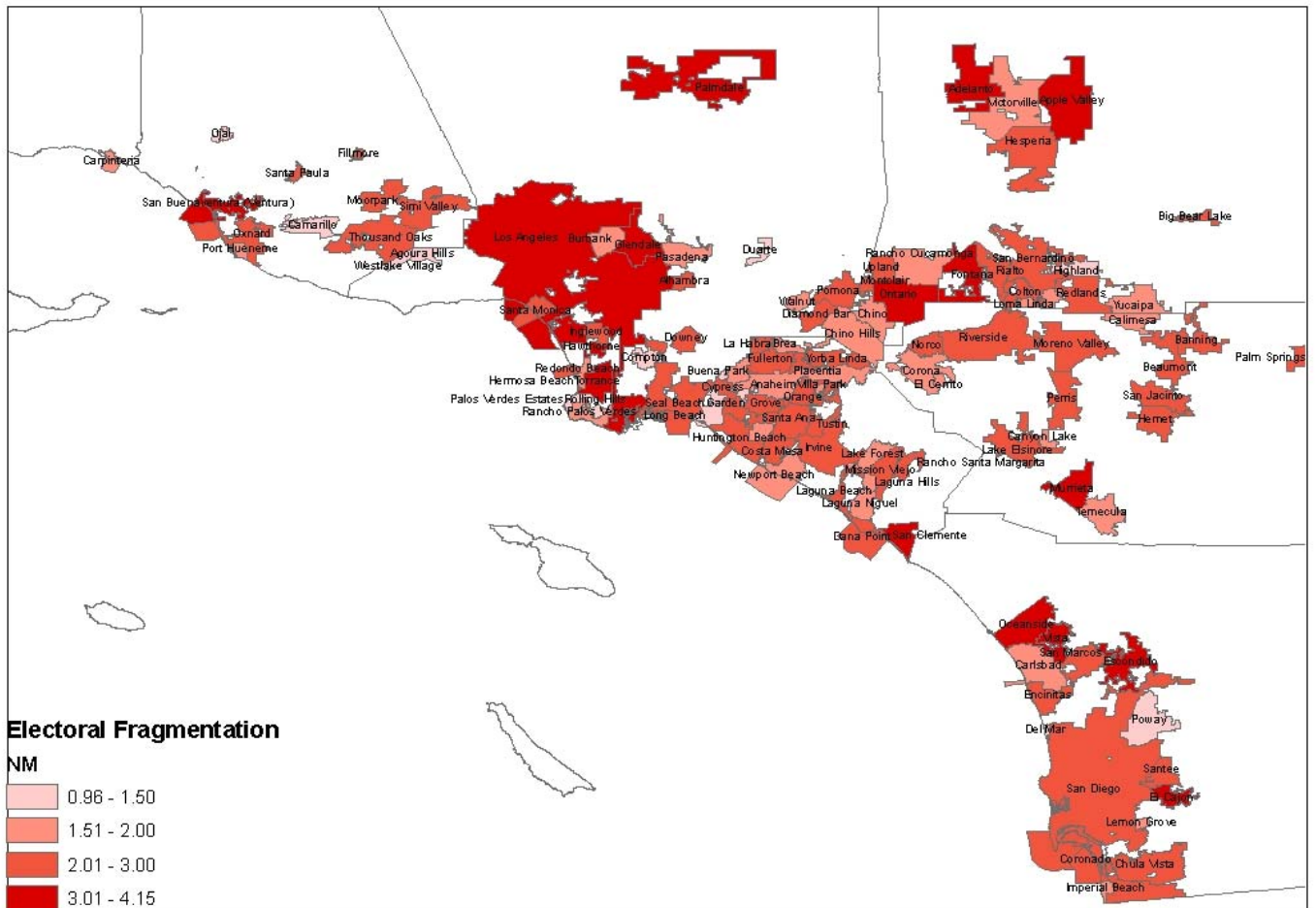


Figures 5 and 6

### Geography of Southern California Diversity Index



# Geography of Southern California Electoral Fragmentation



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