Defining 'Communities of Interest' in Redistricting

Through Initiative Voting

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Abstract: Scholars of redistricting often make reference to "communities of interest," either to describe what districts should look like, or to criticize blatant partisan gerrymanders. The term, however, suffers from a great deal of ambiguity, the lack of an objective measurement strategy, and the absence of a methodology for translating beliefs about communities of interest into districting plans. In this article, I suggest a novel approach to defining communities of interest: using the results from statewide initiatives votes to allow voters to essentially define their own communities of interest at the ballot box. Such a definition would be fundamentally political—as opposed to geographic, demographic, civic, or historical—but would not be rooted solely in partisanship. This approach would also satisfy two of the concerns addressed above. First, it recommends a specific, objective, affirmative basis for constructing districts, not merely a list of recommendations, prohibitions, or standards that need to be satisfied. Second, it would likely produce a narrow, highly constrained set of possible solutions, and as such, makes it extremely difficult to gerrymander.

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In the voluminous literature on redistricting, there is a conspicuous focus on what districts should not look like and considerably less attention to what districts should look like. The reasons for this are many: the audacity of certain partisan and incumbent-protection gerrymanders in recent decades, the purported (albeit disputed) linkages between districting schemes and polarization and uncompetitive elections (Abramowitz et al. 2006, McCarty et al. 2009), and most of all the Supreme Court's language in *Davis v. Bandemer,* essentially daring scholars to provide them with a workable standard for the detection of partisan gerrymanders.

In the twenty-five years since *Bandemer,* legal scholars and political scientists have taken up the Supreme Court's challenge, with scholars devising a variety of tools for detecting gerrymanders, including those measuring departures from compactness (e.g. Niemi et. al 1990, Chambers and Miller 2010), measuring partisan bias (Gelman and King 1994), inferring intent from the comparison of rival plans (Gronke and Wilson 1999), and inferring intent from the splitting and merging of recognizable geographic units (Grofman 1985; Stephanopoulos 2011). To date, the Supreme Court has not embraced any of these approaches, and in fact, support for the justiciability of partisan gerrymandering had declined by the time of *Vieth v. Jubilerer.* At this point, then, we seem no closer to eradicating partisan gerrymanders than we were twenty-five years ago.

However, even assuming we were to systematically banish all forms of partisan gerrymandering, we are left with a second, equally unresolved question: what type of districts *should* we draw? There seems to be a fairly strong popular consensus that districts should be aesthetically pleasing, but this preference seems to be expressed mostly in contraposition to the infamous ugliness of partisan gerrymanders. Compact, regularly-shaped districts would not seem to have any intrinsic value in democratic theory (Dixon 1996).[1] In fact, once gerrymandering is off the table, democratic theory fails to offer unambiguous wisdom in prescribing a suitable districting plan. Nonetheless, some proposals have been made to fill this vacuum.

One set of proposals argues that partisan voting patterns should be used for good rather than in the service of partisan or incumbent gerrymandering. Most commonly, scholars and reformers have suggested regulations that require the construction of politically competitive districts (Issacharoff 2002; Pildes 2006). An opposing view argues that, instead, partisan political data should be used to construct

[1] Persily (2005) and others note that even with respect to goals associated with compact districts, such as representative-constituent communication, compact districts are in fact neither a necessary nor a sufficient condition.

uncompetitive districts (Brunell 2008; Buchler 2005). Both of these solutions are conducive to the construction of compliance standards, although in either case, the number of possible district plans is large enough to simultaneously satisfy other principles.

The second set of proposals eschews partisan political data in favor of considerations pertaining to geography and intuitions about places that "belong together" in districts. Often this principle is captured by the term "communities of interest," a nebulous phrase that appears in many states' statutory and constitutional regulations of redistricting. Most commonly, "communities of interest" (hereafter, COI) is simply taken to mean that districting plans should not split cities, counties, and other political subdivisions. Certainly, a prohibition on splitting geographic entities does function successfully as a tonic to partisan gerrymandering. It does not, however, succeed as a first principle for designing a *desirable* districting plan.[2]

As others have noted, the political subdivision conception also does not necessarily match how a layperson might respond to the phrase "communities of interest" (Hanson 1966) Instead, the phrase seemingly begs the question, "which interests?" Are communities of interest defined by ideology, demographic traits, economic concerns, policy priorities, or some combination thereof? And more importantly, who decides and how?

In this article, I suggest a novel approach to defining communities of interest: using the results from statewide initiatives to allow voters to essentially define their own communities of interest at the ballot box. Such a definition would be fundamentally political—as opposed to geographic, demographic, civic, or historical—but would not be rooted solely in partisanship. This approach would also satisfy two of the concerns addressed above. First, it recommends a specific, objective, affirmative basis for constructing districts, not merely a list of recommendations, prohibitions, or standards that need to be satisfied. Second, it tends to produce a narrow, highly constrained set of possible solutions, and as such, makes it extremely difficult to gerrymander.

The remainder of the paper proceeds as follows: first, I discuss some of the conceptual problems associated with translating the concept of "communities of interest" into concrete redistricting standards. Second, I introduce the proposed method: a fairly straightforward factor analytic method

[2] Stephanopoulos (2011) argues that the courts could develop such a principle, in essence by universally applying the standard for racial communities of interest set forth in *Thornburgh v. Gingles.* This too, however, would be a test for, and possible remedy to, partisan gerrymandering, and a less suitable basis for constructing a districting plan from scratch.

that allows voters to speak with their votes. Third, I present an example of the method and hypothetical districting plans for the Ohio congressional delegation and the Ohio General Assembly (State Senate and House) drawn under this method, and analyze their political characteristics and the extent to which it satisfies a variety of legal and normative redistricting standards. Finally, I discuss ways in which the basic method presented here could be tailored or used in concert with other strategies in order to better achieve goals such as compact districts, the fostering of competition, or compliance with Voting Rights Act requirements.

Statement of the problem

The term "communities of interest" has a certain visceral appeal, but one which is unfortunately borne of ambiguity, if not a complete lack of substance. That ambiguity has two separate, and equally problematic, components: a conceptual ambiguity and an ambiguity in producing actionable guidelines for the creation of districting plans. Thirteen states use the phrase "communities of interest" (and four others paraphrase it) in their constitutional or statutory redistricting regulations (Levitt 2008) but all allow for a considerable amount of discretion on the part of the redistricting actors. Some states suggest a laundry list of factors with which one might define COI, some suggest one or two dominant considerations, and others are silent completely.[3]

The fact that Alabama's legislative guidelines list no fewer than thirteen ways in which one might define COI (see Footnote 3) speaks to the severity of the conceptual problem. While many of these inputs are correlated (e.g. race, economics, and partisanship), others are not even of the same type. In terms of the possible definitions of COI, we might think of a spectrum that differentiates definitions based on "territoriality" versus definitions based on "commonality." In the first type of definition, communities of interest might be defined through characteristics that are inherently more territorial, such as media markets and jurisdictional boundaries, which may have historical or cultural importance, and which also may speak to a sense of inter-dependence among members of the

[3] For example, Alabama's rules state that "a community of interest is defined as an area with recognized similarities of interests, including but not limited to racial, ethnic, geographic, governmental, regional, social, cultural, partisan, or historic interests; county, municipal, or voting precinct boundaries; and commonality of communications." Hawaii's regulations prioritize socioeconomic status, stating that "where practicable, submergence of an area in a larger district wherein substantially different socioeconomic interests predominate shall be avoided." Arizona's rules merely state that "district boundaries shall respect communities of interest to the extent practicable."

community. One might say that "these groups share interests because they are a community." In the second type of definition, communities of interest are made up of similar or like-minded areas, as defined through characteristics such as ideology, economic interests and socioeconomic status. One might say that "these groups form a community because of their shared interests."

Definitions on each end of this spectrum have different implications for the satisfaction of other principles and values associated with redistricting. For example, definitions at the "territoriality" end of the spectrum may produce more competitive districts by combining the urban and suburban components of a county, media market, or metropolitan area. Districts will almost by definition be more compact, or at the least, they will tend to respect existing boundaries and subdivisions.

On the other hand, definitions at the "commonality" end of the spectrum may tend to produce more coherent districts that may speak better to real political interests. Voters may *recognize* territorial divisions but prefer that their political representation speak to ideological, socioeconomic or group interests. Moreover, the historical and cultural divides associated with territorial divisions are not necessarily rational: enmity toward the group "on the other side of the mountains" may stem from centuries-old history, bigotry, or something as politically trivial as a sports rivalry. The fact that individuals recognize these divides and would accept them as a basis for demarcating districts does not mean that reifying them in the electoral system is normatively desirable. However, if we accept that COI ought to be defined based on commonality, we are still left with a pivotal question: which "interests" will be used to define which communities share interests and which do not?

In addition to the problem of defining communities of interest, there is a second major obstacle to producing a workable, COI-based procedure for the creation of districts. In the most general form, the problem is that regardless of the inputs used to define COI, the relationship between the numerical size of the COI, the geographic distribution of the COI, and the ideal district size, may or may not be conducive to the drawing of equipopulated districts, and there is no *a priori* basis to know this. To give the simplest possible example, imagine a state in which the western half of the state was entirely populated by voters with one coherent set of interests, and the eastern half was populated by an equal number of voters with a different but equally coherent set of interests. In this scenario, districting

solutions would be very simple for any even number of districts, but any odd number of districts would require one or more districts than combined "western" and "eastern" voters.[4]

The problem this observation raises is a subtle but important one. Except in the extraordinary circumstances in which the number of cognizable COI perfectly matches the number of districts required, and in which each community's size matches the ideal district size, drawing districts will require some relatively arbitrary decisions. Some communities will have to be split, others will have to be combined, and others will have to be placed in hodgepodge, "leftovers" districts. Assuming the most coherent solutions are selected, district-community congruence will tend to be inversely proportional to the absolute value of the difference between community size and ideal district size. This is a completely arbitrary basis for assigning representation.

In order, then, to create a desirable method for creating districts based on communities of interest, we must satisfy at least two criteria. First, it must define COI in a way that is objective and does not privilege any one specific input such as community size, partisanship, historical factors or geography. Second, it must suggest a basis for combining voters such that all voters have a reasonably equal opportunity to be combined with voters who share their interests. I argue that defining communities of interest through patterns of initiative voting satisfies both of these criteria. By moving away from an explicitly territorial definition, this method allows voters to define when geography matters, and when it is trumped by partisanship and ideology, economic interests, and socioeconomic or racial divisions.[5]

The method

In order to define communities of interest, I first factor analyze precinct-level voting data from ballot initiative elections to assess latent patterns in aggregate voting behavior throughout the state.

[4] The fact that "natural geography" can wreak havoc on attempts to create normatively desirable districting plans is in fact a problem that applies to other redistricting principles as well. For example, such coincidences affect whether drawing competitive districts (or for that matter, uncompetitive districts) strikes us as coherent or incoherent. In two neighboring metropolitan areas of 700,000 people, it would seem coherent to assign one Congressional district to each metropolitan area. If those districts, combining the urban, suburban and exurban sections of each metropolitan area, were consequently competitive, it would seem coherent. On the other hand, combining the two urban cores into one district, and the two sets of outlying areas into another district, which would result in two uncompetitive districts, would seem incoherent. Conversely, if we were dividing a single metropolitan area of 1.4 million into two districts, it would seem perfectly reasonable to assign the urban core to one district and the outlying areas to another district, and more dubious to create two districts that took a cross-section of the entire metropolitan area.

[5] The findings in Gelman et al. (2008), for example, would suggest that the centrality of socioeconomic status to a COI definition would be much greater in "red states" than in "blue states".

Second, voting precincts are classified based on the factor analysis results and these precinct types are mapped onto districting software to produce a visual representation of precinct types throughout a state. Finally, I draw districts such that a majority of each district's population comes from precincts of one single type.

To illustrate the method, I analyze precinct-level election results[6] from twelve statewide initiatives in the state of Ohio from 2004 to 2010. In addition to being a relatively large and diverse "bellwether" state, Ohio falls right at the median (13th out of the 24 initiative states) in the number of direct initiatives posed to the voters during this period. These include initiative votes that took place in the general elections of presidential election years, midterm years, odd-numbered years, and during primary elections.

Table 1: List of Initiatives/Referenda, Ohio 2004-2010

Initiative	Year	Description	Electoral Outcome
Issue 1	2004	Ban same sex marriage in state constitution	Passed 62-38
Issue 2	2006	Minimum wage increases	Passed 57-43
Issue 3	2006	Allow slot machines; proceeds for education	Failed 43-57
Issue 5	2006	Comprehensive smoking ban	Passed 59-41
Issue 1	2008	Earlier deadline for initiative filings	Passed 69-31
Issue 2	2008	Environmental protection bond issuance	Passed 69-31
Issue 3	2008	Property rights involving water issues	Passed 72-28
Issue 5	2008	Payday lending restrictions	Passed 64-36
Issue 1	2009	Compensation bonds for veterans	Passed 72-28
Issue 2	2009	Livestock care regulations	Passed 64-36
Issue 3	2009	Casinos to be located in multiple locations	Passed 53-47
Issue 1	2010	Third Frontier economic growth bonds	Passed 62-38

One immediate concern is that initiatives posed to the voters speak to the structure and priorities of the interest group community, not to the interests of the voters. Although the issues voted upon here inevitably reflect certain selection effects, there is also a clear variety in the initiative topics, including both economic and moral issues, policies that speak to rural and urban communities, "easy" and "hard" issues, and issues that differ in their salience. The full list of Ohio initiatives, descriptions, and the electoral outcomes are given in Table 1.[7]

[6] As necessary, precincts which were split or consolidated during this period are aggregated so that the list of precincts matches for all years.

[7] Three policies were excluded from the factor analysis. Issues 4 and 5 were competing directly with each other (only one could become law, and supporters of each explicitly informed voters to vote against the other one), so

To begin, the precinct-level data is factor analyzed using an oblique rotation (here, *promax*) solution that allows for the underlying factors to be correlated with each other (Fields 2005). I extract precinct-level factor scores (distributed normally with a mean of 0 and standard deviation of 1) for the statistically significant factors. The results, which are summarized in Table 2, indicate that, based on the identification of Eigenvalues exceeding 1.0, three factors can be extracted from the voting data on the twelve initiatives. The model statistics also indicate that the factor analytic model is quite appropriate for this dataset, and that multicollinearity is not a concern.

Table 2: Factor Analysis Results (Principal Components Analysis with Promax Rotation)

Initiative	**Factor 1**	**Factor 2**	**Factor 3**
Variance explained	35.54%	26.43%	11.12%
Eigenvalue	4.27	3.17	1.33
	Loadings	**Loadings**	**Loadings**
Issue 1, 2004: Same sex marriage	-0.82	0.01	0.33
Issue 2, 2006: Minimum wage	0.40	0.72	-0.32
Issue 3, 2006: Slot machines	0.29	0.83	0.09
Issue 5, 2006: Smoking ban	0.78	-0.23	0.33
Issue 1, 2008: Initiative filing	0.93	0.00	-0.02
Issue 2, 2008: Environmental bonds	0.06	-0.05	0.90
Issue 3, 2008: Water rights	0.65	-0.55	0.14
Issue 5, 2008: Payday lending	0.51	0.62	0.17
Issue 1, 2009: Veterans bonds	-0.46	0.56	0.19
Issue 2, 2009: Livestock regulation	0.25	0.72	0.29
Issue 3, 2009: Statewide casinos	0.53	-0.62	0.09
Issue 1, 2010: Econ. growth bonds	0.81	0.14	-0.16
Model Statistics: Kaiser Test of Sampling Adequacy: 0.80 Bartlett's Test of Sphericity: p<.001			

In examining the loadings of precinct-level initiative voting onto the factors extracted, none of the three factors clearly corresponds to what we might consider a general liberal-conservative

only Issue 5 was included. There were a total of three casino initiatives between 2008 and 2010, and two of them spoke only to the location of one casino in one geographic location, so the broader Issue 3 (2009) was included in the analysis.

spectrum, or to more specific patterns of ideology on social and economic issues.[8] The initiatives that load onto the first factor are disparate: they include social issues (gay marriage), economic issues (economic growth bonds), regional issues (water rights) and process issues (initiative filing rules). The same can be said for the second and third factors. Nonetheless, these factors are certainly not *unrelated* to partisanship and ideology: the scores for the first (r = .22) and second factors (r = .70) are positively correlated with precinct-level Democratic vote shares, while the third factor (r = -.52) is negatively correlated with Democratic voting.

In the next step, I classify each voting precinct according to the factor on which its score is most extreme (distant from zero) and the direction of that score.[9] This yields *2n* categories where *n* is the number of statistical significant factors extracted through the factor analysis. Table 3 describes the six categories in the Ohio data, and presents some descriptive statistics for the precincts that fall into each category under the three-factor solution.[10] For ease of illustration, I refer to the six precinct types by their map "colors" as noted in Table 3 and as shown in the maps of the online Appendix.

Table 3: Precinct Types

Most Extreme Factor Score	Map Color	Typical Characteristics	Race (White/Black)	Voting Index	Total Population
Positive, Factor 1	Blue	Inner-ring suburbs	80/11	D+1	1.6M
Negative, Factor 1	Green	Rural	95/2	R+5	2.4M
Positive, Factor 2	Purple	Central City	53/37	D+20	2.0M
Negative, Factor 2	Red	Small Town	93/2	R+12	1.8M
Positive, Factor 3	Yellow	Outer-ring suburbs	91/4	R+9	2.3M
Negative, Factor 3	Teal	Urban/College Towns	71/20	D+15	1.4M

[8] It is also worth noting that these factor scores cannot meaningfully be subjected to measurement criteria such as "construct validity". In essence, this is a chicken-and-egg problem. By suggesting things a priori that "should be correlated with COI types," we would be biasing our answer toward different priorities (geography/compactness, demographic similarity, or political similarity). However, split-halves analysis of the initiative data inspires confidence in the reliability of the factor scores: after randomly splitting the initiatives in half and running separate factor analyses, the separate models produced extracted three factor scores that correlated strongly with each other (all correlations r>.72).

[9] For a similar approach, see Chinni and Gimpel's (2010) classification of political cultures in U.S. counties. In the redistricting literature, Stephanopoulous (2012) has also used factor analysis to measure "spatial diversity," which is the intra-district geographic variation in political and social characteristics.

[10] A map of the distribution of categories across the state and in major metropolitan areas can be found (in color) in the online Appendix (Figure A-1). Because "Green," "Red," and "Yellow" precincts account for the vast majority of square mileage across the state, an appreciation of the distribution is difficult in gray-scale maps.

An objection might be made that this technique is prone to committing ecological fallacies, by inferring individual level preferences based on aggregate voting patterns. However, this technique seeks to identify characteristics of communities, not the preferences of individual voters. To the contrary, the vote choices of individual voters are not the latent variable being measured, but the indicators used to identify the latent variables that identify the community.

To the extent that the approach assumes a micro-level theory of the data generation process, it is that in communities where one set of interests is particularly salient, voters will vote more uniformly on ballot issues, which in turn will produce more extreme factor scores. In communities where that set of interests is less salient, voting will be more random and produce less extreme factor scores.

A second objection might be made that the directionality of factor scores implies that they represent preferences, not interests. In other words, some "interests" may be a salient in some communities and irrelevant in other communities, but would never inspire an "opposition." For example, banking interests might be salient in urban financial centers, but there would not necessarily be "anti-banking" communities. Admittedly, the technique here would not handle that data structure well. However, since the technique only extracts salient factors, and since the empirics here suggest that extracted factors are themselves complex and do not reflect narrow interests, this concern seems unfounded.

Turning to the six categories of precincts, several patterns emerge to suggest that these categories are politically and socially meaningful, but substantively richer than simple partisan voting data. First, we can see that these categories are related to both partisanship[11] and race: Republicans are most dominant in Red and Yellow precincts; Democratic strength and, relatedly, percentages of African-American voters, are highest in Purple and Teal precincts.[12] More generally, we can see strong associations between other socially salient features and precinct type. For example, nearly every college

[11] The voting index constructed here is based on statewide election results from Ohio in 2008 (Ansolabehere and Rodden 2011). In the spirit of the popular "Cook's PVI," this measure compares an individual precinct or group of precincts to the statewide average in terms of partisan performance. (Since Ohio is a highly competitive, "bellwether" state, this is functionally equivalent to the Cook PVI's comparison with the nationwide average). As such, it does not matter that 2008 was a Democratic "wave election," except to the extent that one believes that wave affected different parts of Ohio differently. It is for that reason I use performance in statewide elections, rather than the presidential election results, which were clearly driven by some combination of latent racism and divisive primary effects, particularly in Northeast Ohio and Appalachia.

[12] President Obama's performance, relative to the rest of the Democratic ticket, also varies significantly across precinct types. Obama outperformed other Democrats by 0.8% in Purple precinct and by 0.3% in Blue precincts, but underperformed the Democratic ticket in Teal (1.7%), Red (3.2%), Yellow (3.5%) and Green (7.1%) precincts.

community in the state, from the area surrounding Ohio State University to Oxford and Athens, is filled with Teal voting precincts. Purple precincts occur almost exclusively in central cities. Green and Red precincts cover the vast majority of square mileage in the state, including most rural counties and small towns. Blue and Yellow precincts are mostly in suburbia, with Blue precincts usually closer to the central city.

Based on these classifications, I drew maps for the Ohio Congressional delegation, the Ohio State Senate and the Ohio State House which would satisfy the following criteria: (1) Population equality consistent with one person, one vote case law; (2) Each district has a majority of its population living in precincts of a single type; and (3) Conditional on satisfying the first two criteria, districts would be as compact and respectful of county boundaries as practicable.[13]. These plans were otherwise drawn "politically blind," without regard for partisan data, the location of incumbent homes, the shape of current districts, and other political considerations. Figure 1, created in Dave's Redistricting App, Version 2.0 (Bradlee, 2011) illustrates portions of the Congressional and State House plans.[14]

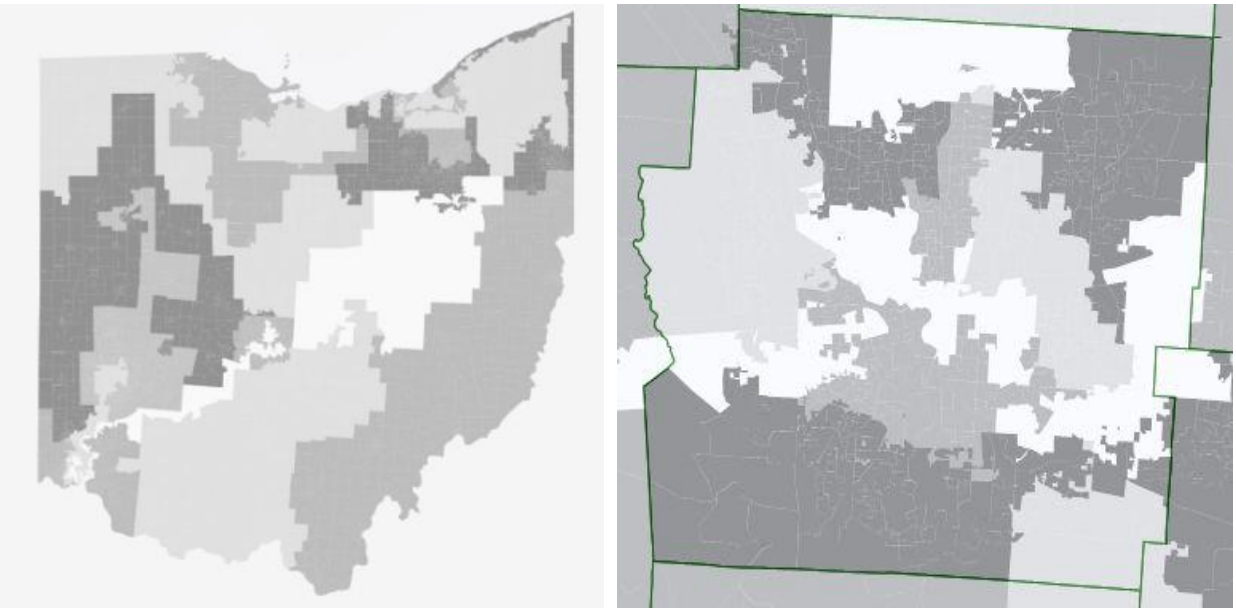

Figure 1: (Left) Statewide view of the congressional districting plan under the COI method; (right) view of the Franklin County section of the state house plan under the COI method.

[13] I ignored Ohio-specific redistricting regulations, such as Ohio's requirement that counties not be unnecessarily split in legislative redistricting plans. I also did not nest three House districts within each Senate district as is done in Ohio.

[14] Color images of the three plans (statewide and local close-ups) can be found in Figures A-2 through A-4.

Drawing plans that satisfied these criteria often posed significant challenges, especially in the Congressional plan, as evidenced by the Cleveland-to-Youngstown and Columbus-to-Cincinnati districts that were necessary to satisfy the majority-of-one-type requirement. Table 4 characterizes each of the three politically blind plans in terms of their competitiveness, compliance with VRA requirements, and respect for political jurisdictions, and how these plans compare with existing plans in these regards.

Table 4: Plan Statistics, Existing Plans versus Politically Blind COI Plans

	Congress			State Senate			State House		
	2000s	**2010s**	**COI**	**2000s**	**2010s**	**COI**	**2000s**	**2010s**	**COI**
Partisan Competition									
Safe GOP (R+5 or better)	6	8	5	15	15	12	35	46	39
Leans GOP (R+0 to R+4)	6	3	3	3	7	5	21	14	16
Leans Dem (D+0 to D+4)	0	1	2	5	0	3	11	4	12
Safe Dem (D+5 or better)	6	4	6	10	11	13	32	35	32
VRA Districts									
50% or more black	1	1	0	2	1	0	7	10	6
30-49% black	1	1	1	2	3	2	9	3	6
Geography									
Counties per district	6.28	7.81	8.31	3.27	3.33	5.15	1.63	1.64	2.26

Politically, Table 4 shows that drawing plans according to this method produces districts that exhibit partisan fairness and a moderate level of competition. In contrast to the current Congress and state House plans (and despite the common belief that Democrats are disadvantaged by geographic concentration), all three plans exhibit a partisan breakdown that reflects Ohio's status as a bellwether state. The Congressional plan produces six districts that would favor each party and the Senate plan splits the uncompetitive seats 13-12. The State House plan appears to favor the GOP slightly, but this is balanced by small Democratic advantages in the competitive seats.

The number of competitive seats drawn under this method remains roughly the same as under the current plans, equaling about one-quarter of all seats. Thus, while this method does not privilege competition as a priority the level of competition remains adequate, similar to what we observe under the partisan gerrymanders of the 2000's. Given that we might be concerned that grouping like-minded voters together would suppress competition, this is another laudable attribute of this method.

In terms of creating majority-minority districts (which in Ohio means black-majority districts), this method admittedly creates fewer such districts than exist in current plans. This is not surprising for two reasons. First of all, majority-minority districts often feature contrived shapes, so we wouldn't expect race-blind maps such as these to create many such districts unintentionally. Second of all, since the existing plans were drawn by Republicans, we might expect that the current plans maximize the number of black-majority seats for the sake of partisan advantage. However, these maps do not feature a complete dearth of majority-opportunity districts. While there are clearly fewer black-*majority* districts, there are many districts featuring a black population in the 30-49% range, a range in which some scholars have suggested black substantive representation is actually maximized (Cameron, Epstein and O'Halloran 1996). So while the plans generated by this method might not be VRA-compliant without modification, they do not egregiously dilute minority influence.

In geographic terms, I examine the number of counties in each district as a crude indicator of the extent to which districts respect existing political jurisdictions. As Table 4 illustrates, the plans split more counties than existing plans, but only by a small margin. Complying with the requirement that each district contains a majority of voters from one precinct type requires the creation of districts that are sometimes less respectful of compactness and geography, but not terribly so.

Beneficial Impacts

While the stated purpose of the method outlined here is to draw districts that respect meaningful communities of interest, the district plans drawn above indicate that these requirements also serve as a significant constraint on the ability to achieve other goals. In this section, I set out to draw districts that achieved other goals while still satisfying the majority-of-one-type requirement. Specifically, I attempt to draw Democratic and Republican partisan gerrymanders[15], a plan that maximizes the number of competitive seats, and a plan that maximizes the number of majority-minority districts.

[15] One might also ask the extent to which a bipartisan coalition could draw "bipartisan gerrymanders" under the constraints of this method. The short answer is that parties could quite easily divvy up seats between the two parties and create only a very small number of competitive seats. However, it should be noted that the effectiveness of (and by extension, the normative concern with) bipartisan gerrymanders stems from the fact that such districts are not only uncompetitive, but that they cater to the preferences and existing constituencies of incumbents. While the method described here would only weakly constrain the creation of uncompetitive districts, it would strongly constrain the ability of incumbents to "draw their own districts."

The most extreme plans achieved are summarized in Table 5. In terms of drawing partisan gerrymanders, it is most notable that in *no* case was it possible that a party would secure a majority of seats for itself, either in the Congressional delegation, or in either chamber of the legislature. (By contrast, it is trivially easy to draw a majority of strongly Republican districts or a majority of strongly Democratic districts in the absence of any constraints.) Given the number of redistricting plans that have resulted in more-or-less permanent majorities for one party in competitive states (e.g. the Florida congressional delegation, the Michigan and Pennsylvania Senates), this is a significant byproduct of the method espoused here.

In terms of maximizing competition, the plans in Table 5 illustrate that it is not impossible to create a relatively large number of competitive districts under the constraints of the method proposed here. Although respecting communities of interest and maximizing competitiveness are goals thought to be in heavy tension with each other, it was possible to make between 36% and 44% of the seats competitive for the Congressional, State House and State Senate plans. These totals compare favorably to the 24% to 33% of competitive seats observed in the current plans for those respective institutions.

Table 5: Plan Statistics, Purposive Redistricting Plans

	Congress	**State Senate**	**State House**
Republican Gerrymander			
Republican Seats	8	16	47
Competitive Seats	3	7	23
Democratic Seats	5	10	29
Democratic Gerrymander			
Republican Seats	4	12	36
Competitive Seats	4	5	19
Democratic Seats	8	16	44
Competition Maximization Plan			
Republican Seats	4	10	34
Competitive Seats	7	13	36
Democratic Seats	5	10	29
Minority Opportunity Districts Plan			
50% or more black	0	2	9
30-49% black	2	2	7

Finally, I illustrate that compliance with the Voting Rights Act can be achieved under the constraints of the proposed method. In the Congressional plan, drawing a district with a 50% black population proved virtually impossible, but two minority-influence districts could be drawn quite easily.[16] However, in the State House and State Senate plans, creating a number of majority-minority districts that met or exceeded the number that exist in current plans was not problematic. In fact, drawing such districts was often trivially easy and did not require the creation of convoluted district shapes.

Tailoring the Approach

While the method described above aspires to unite communities of interest, and can simultaneously address concerns over partisan gerrymandering, competition, and racial representation, the method also produced districts that might be seen by some as undesirable. Ensuring that each district contains a majority of communities from within a single type may produce a number of aesthetically "ugly" districts. While I have argued that compactness is, at best, a principle that pales in importance to other considerations, redistricting plans do tend to be judged on these merits. Moreover, this ugliness is sometimes the result of combining disparate communities who are classified as similar according to this method, but are still different in meaningful ways. The number of competitive districts, while certainly large enough to sustain competition in the state, might not be large enough to satisfy advocates of maximizing competition. Finally, many states (including Ohio) have explicit rules that govern the splitting of municipalities and counties, rules that would make implementation of the proposed method extremely difficult.

With these concerns in mind, I use this section to suggest a number of ways in which the basic method could be tailored to satisfy these or other concerns. The flexibility of this method, in fact, is arguably one of its strengths, not only in practical terms, but also in normative terms. Since we are merely "letting the data speak" and what we hear is subject to multiple interpretations, departures from the basic method do not necessarily imply a weakening of any principle.

[16] Moreover, it is not clear that the Voting Rights Act requires the drawing of a majority-minority congressional district based in Cleveland, given that the combination of population loss and reapportionment makes it virtually impossible to draw such a district entirely within Cuyahoga County. The 2011 Republican proposal drew the corresponding district into Summit County (Akron), raising the question of whether such a district meets the *Gingles* standard for compactness and coherence

One adjustment that might be made to the basic method is to change the standard for the percentage of voters in each district whose precincts are of a single type. Setting the threshold at 50% is somewhat arbitrary, and empirical evidence from the racial redistricting literature has demonstrated that the optimal size of the dominant group can be different over time, across regions, and depending on the identity of the group. By increasing the threshold above 50%, one could ensure that the maximum number of voters reside in a district with people of similar interests, an outcome which might minimize aggregate dissatisfaction (cf. Brunell 2008) with representation. Conversely, one could *decrease* the 50% threshold, and allow for plurality districts. This would dilute communities of interest but make it easier for districts to satisfy compactness requirements or achieve other goals.

A second variant would be to apply an analog of the *Gingles* standard for majority-minority districts to the creation of COI districts.[17] In other words, COI districts would be drawn where a majority of one type of voters can be amassed in a reasonably compact district. In areas where COI districts cannot be created without creating extremely non-compact districts, one could allow for the creation of "leftover" districts, which would be reasonably compact but less coherent from the conception advanced in this paper. Perhaps if one valued competitiveness as a secondary goal, these leftover districts could, by designation, be drawn as highly competitive districts.

That said, these variants, by increasing mapmakers' flexibility, would also undo some of the benefits of this method in terms of suppressing partisan gerrymandering. Reducing the threshold significantly below 50% or allowing for the arbitrary creation of non-COI districts would certainly increase the opportunities for partisan or bipartisan manipulation. The basic version of this method, insofar as it imposes heavy constraints on gerrymandering, may be the most appealing to those who see communities of interest not only as a primary good, but as a means of suppressing gerrymandering.

Conclusion

In some ways, this method outlined in this paper represents a compromise between the geography-centric districting preferred by advocates of compact, politically-neutral districts (some of whom adopt the term "communities of interest" regularly themselves) and the "self-constituting"

[17] The method described in this paper might also be used, more ambitiously, to make judgments about whether VRA districts should be required in the first place. The *Gingles* standard, in fact, suffers from many of the same problems identified in this paper: the lack of objective standards in assessing whether disparate communities constitute a community of interest. In *Shaw v. Reno*, for example, the validity of, or need for, the infamous "I-85 district" might be judged in part by the extent to which black communities in Charlotte and Greensboro fell into the same precinct type (that is, if North Carolina had initiative voting).

proportional representation advocated by more radical critiques of redistricting. In his typology of constituencies according to voluntariness, stability, and heterogeneity, Rehfeld (2005) argues that proportional representation systems are generically more voluntary, and that territorial constituencies are less voluntary. Ultimately, Rehfeld dismisses the importance of voluntariness and proposes a system of random districting in which constituencies are neither voluntary nor territorial. The method proposed here, in some ways, produces constituencies which are *both* voluntary and territorial (not as voluntary as PR systems, but more voluntary than other territorial systems).

In practice, it is possible that patterns of initiative voting will be highly polarized along partisan and ideological lines, and that initiative data will produce categories that merely reflect the standard conservative-liberal ideological spectrum, and in turn, a set of highly uncompetitive, ideologically homogeneous districts of the sort advocated by Brunell (2008) and Buchler (2005) but criticized by others. The examples presented here, while only from one state in a six-year period, call that conclusion into some doubt.[18] Rather than produce polarized districts, then, this method may increase the possibility of producing a legislature (or delegation) whose membership reflects the multidimensionality of interests in the state.

Admittedly, this proposal is unlikely to produce more compact districts. Even adopting one of the more permissive variants on the basic method is likely to produce at least some districts that cross county lines with impunity and connect geographically distant areas. However, as I have argued above, the normative value of compactness pales in comparison to that of maintaining communities of interest. Moreover, I would argue that most of the distaste for salamander-shaped districts comes from the understanding that these creatures are the product of self-serving politicians.

Despite these drawbacks, the definition of communities of interest and method advanced in this paper offers an objective, non-partisan, and flexible procedure for producing a districting plan in any state that regularly features voting in initiative and referendum elections. While defining COI in this manner departs from the more common, geography-centric usage of the phrase, it does not preclude geography (or partisanship, class, or anything else) from being the dominant consideration. Rather, it allows voters to decide with whom they share interests.

[18] Likewise, separate analyses of initiative data from Maine and North Dakota produce similar results: factor analyses that extract three or more factors, none of which unambiguously corresponds to a liberal-conservative spectrum.

Finally, in contrast to most redistricting reform proposals which *prohibit* certain districting plans, this method affirmatively *prescribes* a suitable districting plan—or, to be more precise, a very narrow set of plans that leave little room for the political machinations of parties and incumbents. Given the widespread belief that parties will find ways to gerrymander despite heavy constraints, this is a nontrivial improvement.

Obviously, this method does not provide a universally applicable solution since only half of the states allow initiatives and referenda, and of those, some use them too infrequently to provide usable data for this method.[19] But regardless of whether this proposal is treated literally, or merely as a thought experiment, it serves as a reminder that one of the most widely cited and potentially most meaningful redistricting principles is also the most maddeningly under-conceptualized and under-defined.

[19] However, it should also be noted that the very states which do have the initiative process are also the states that have shown themselves willing to reform their redistricting processes. Of the thirteen states with redistricting commissions, for example, ten (all but Hawai'i, New Jersey, and Pennsylvania) are also states with the initiative and referendum.

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Online Appendix

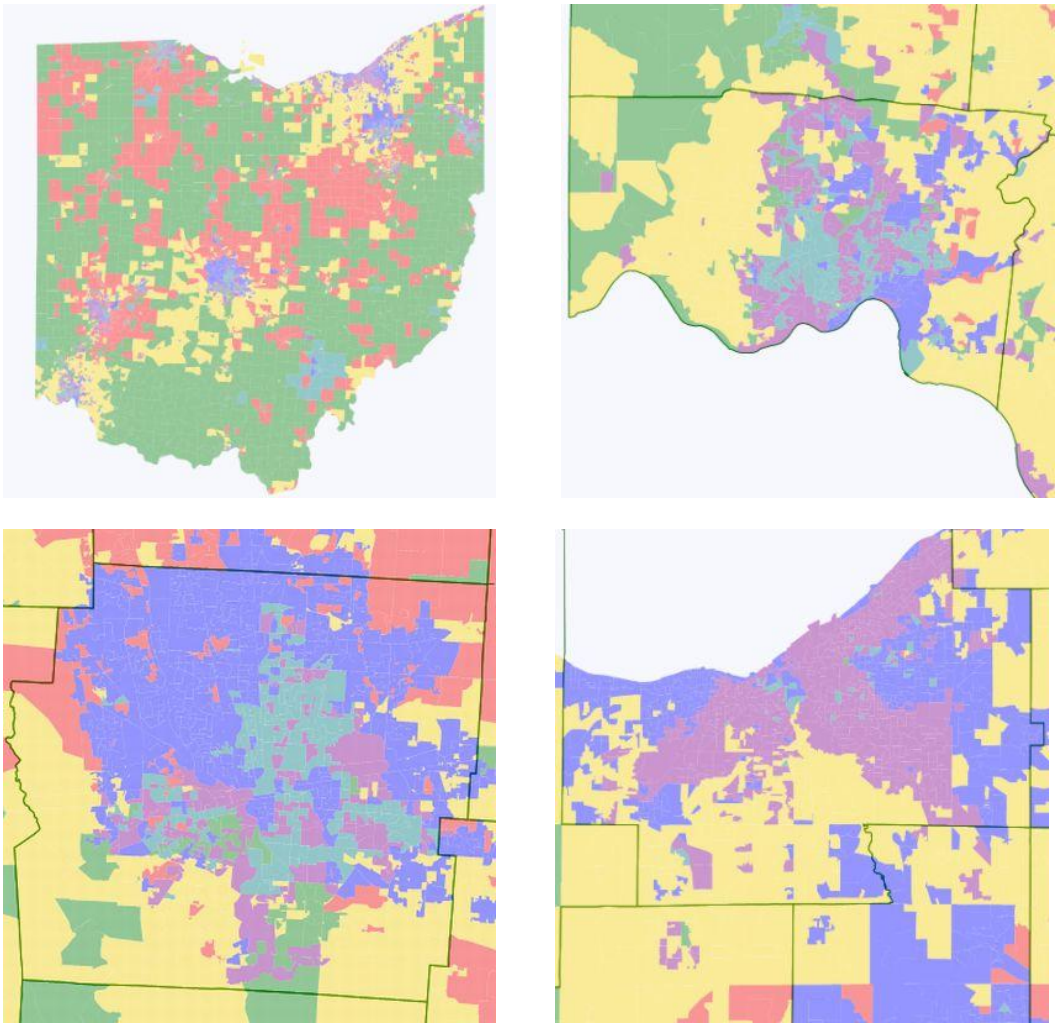

Figure A-1: (a) Statewide view of distribution of precinct types; (b) view of Hamilton County, OH; (c) view of Franklin County, OH; (d) view of Cuyahoga County, OH.

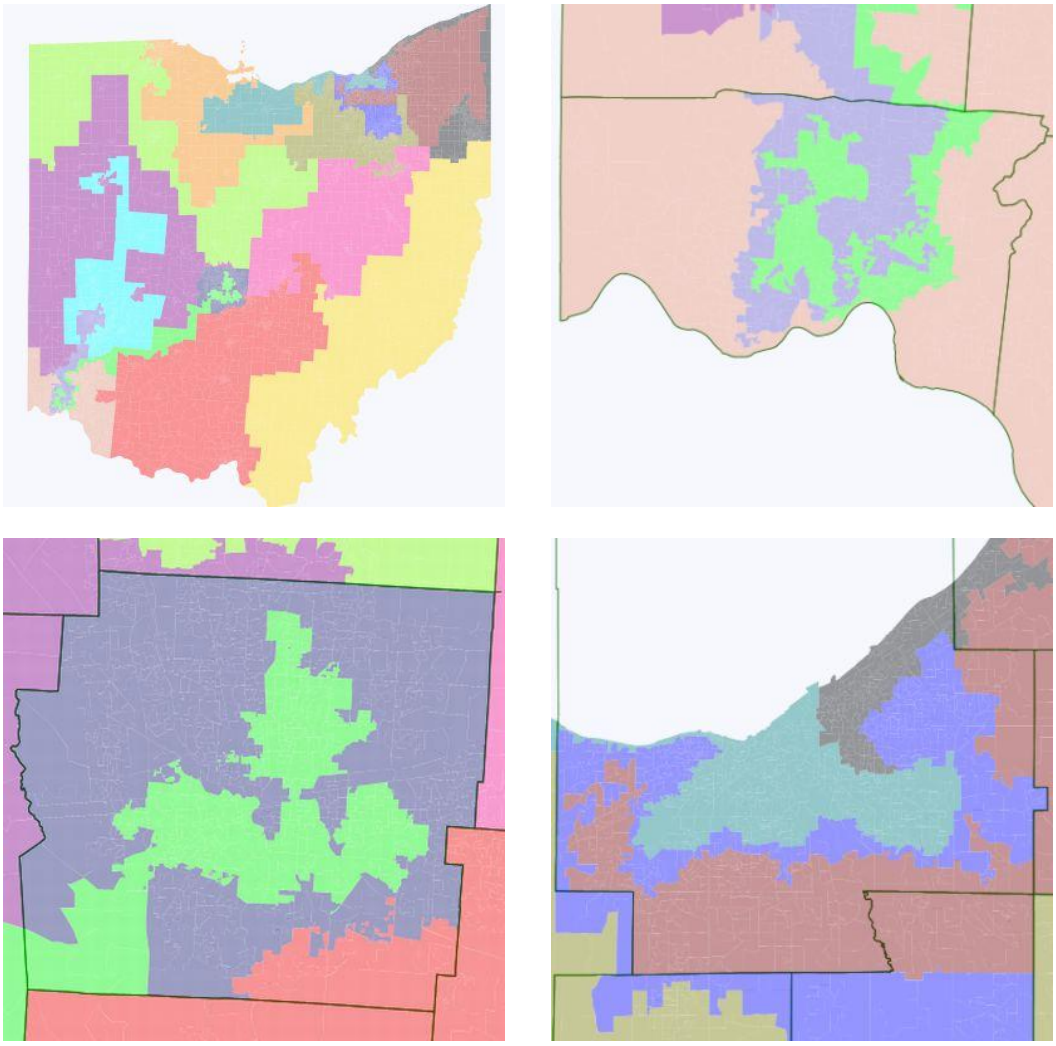

Figure A-2: (a) Statewide view of COI map for Congress; (b) view of Hamilton County, OH; (c) view of Franklin County, OH; (d) view of Cuyahoga County, OH.

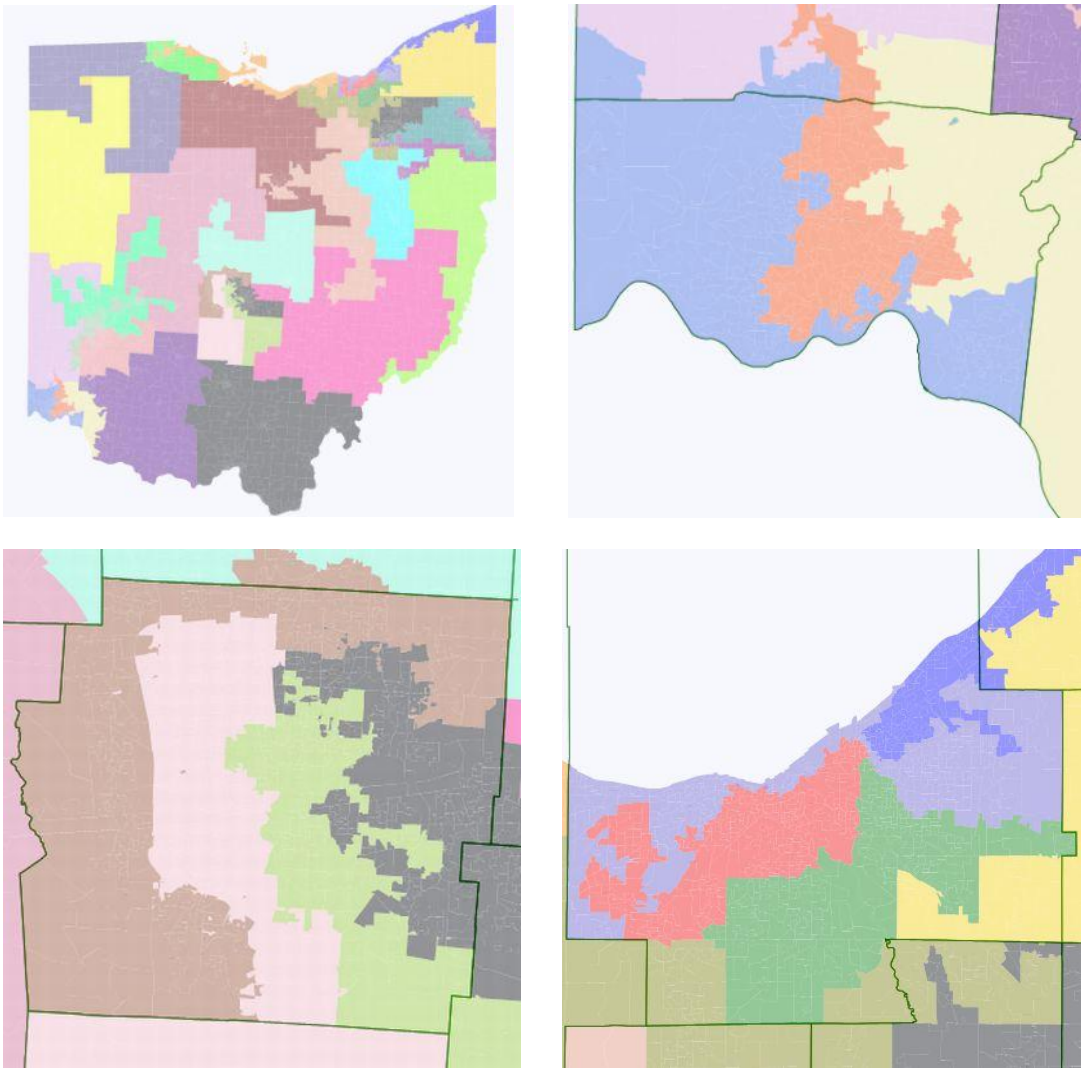

Figure A-3: (a) Statewide view of COI map for state senate; (b) view of Hamilton County, OH; (c) view of Franklin County, OH; (d) view of Cuyahoga County, OH.

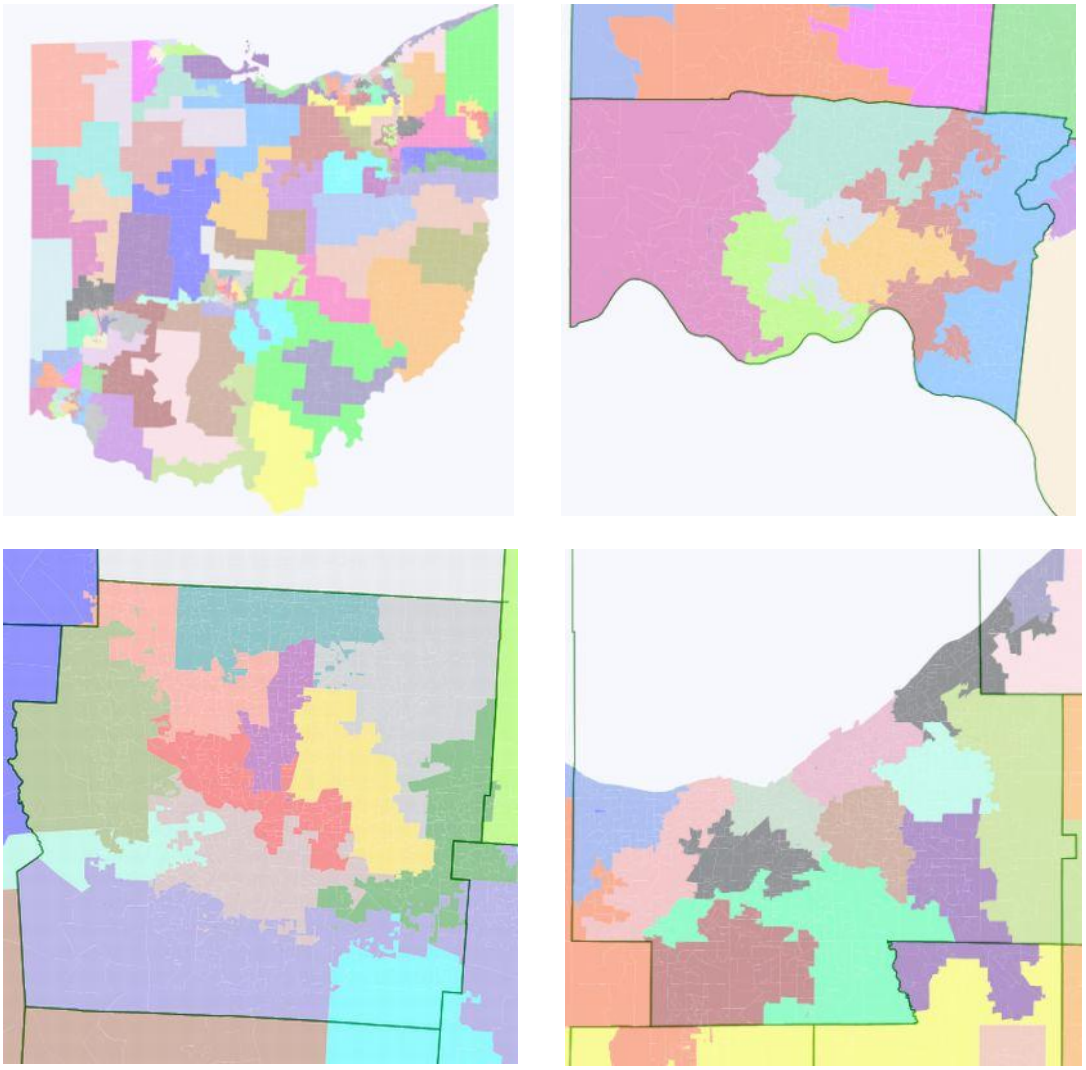

Figure A-4: (a) Statewide view of COI map for state house; (b) view of Hamilton County, OH; (c) view of Franklin County, OH; (d) view of Cuyahoga County, OH.