Center for
Effective Lawmaking

Colleagues and Neighbors? Geographic Patterns of Collaboration and Legislative Effectiveness

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August 2, 2026

Abstract: Geography plays a powerful role in shaping American legislatures, but while its importance vis-à-vis constituency representation is well-documented, its role as a source of division has not received as much attention. Legislative politics scholarship increasingly recognizes the importance of social relationships and networks in shaping outcomes, and within this literature, one important observation is that collaboration across difference can be especially impactful. In state legislatures, within-state regional divisions are often common knowledge but few multi-state academic studies have incorporated such information, let alone analyzed geography's impact in comprehensive studies of collaboration and lawmaking outcomes. In this paper, I make three contributions to the study of political geography in state legislatures. First, I analyze state legislative cosponsorship patterns to assess whether in-state regional divisions serve as important predictors of collaboration in legislatures, considering three conceptions of geography: (1) urbanity (2) regionalism; and (3) continuous distance. Second, I describe the aggregate geographic patterns of collaboration in each legislature, characterizing each state in terms of the divisions that promote and deter collaboration. Finally, I ask whether legislators who have a more geographically diverse set of collaborators have higher levels of legislative effectiveness. For all three conceptions of geography, I find that having a more geo-diverse set of collaborators is associated with greater effectiveness.

Center for Effective Lawmaking Working Paper 2026-04

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American legislatures cannot be readily understood without acknowledging the role that geography plays, starting with the nature of legislative constituencies (Rehfeld 2005). Starting with legislators' conception of their constituency and other aspects of their home style (Fenno 1978), the typical lawmaker's approach to the office accounts for geography in a variety of ways, including pork barreling (e.g., Stein and Bickers 1994) and other particularistic legislation (e.g., Bagashka and Clark 2016), constituency messaging (e.g., Ban and Kaslovsky 2024), an emphasis on local roots (Hunt 2022), and the staffing of offices (e.g., Cortina et al. 2026). As institutions, legislatures also acknowledge the relevance of geography in several ways, including the creation of committees that cater to specific geographies, and the widespread passage of particularistic legislation (Gamm and Kousser 2010).

Yet geography can also serve as a source of division in legislatures, just as it does in politics more generally. We know little, however, about the importance of geography and regionalism in shaping legislatures. Among observers of state politics, within-state regional divisions (e.g., Chicago vs. downstate; northern vs. southern California) are often perceived as common knowledge, although Gimpel and Schuknecht (2002) argue that these can be mischaracterizations. Much of the scholarly work in this area consists of single-state case studies (e.g., Abrams 2016; Pecorella 2012) or focuses primarily on urban-rural divisions (e.g., Burns et al. 2009) or the power of big cities (Gamm and Kousser 2013). Multi-state studies have not typically incorporated addressed intrastate geographic divisions, let alone analyzed their impact in comprehensive studies of legislative outcomes.

These dual perspectives---geography as a common motivator and as a source of division—can be squared by looking through the lens of collaboration and networks. That is,

does geography play an important role in the social organization of legislatures? Geography has the potential to be a salient identity in legislatures, but we have little evidence whether it is.

This omission is consequential because legislative politics scholarship increasingly recognizes the importance of social relationships and networks in shaping outcomes. Having strong connections to the rest of the chamber membership can indicate influence (Fowler 2006) and can lead to legislative success, as measured by bill passage (Matthews et al. 2024), legislative support for constituencies (Craig 2021), and financial support (Gaynor 2021). Connections can come in many forms, including interpersonal relationships (Curry and Roberts 2022), party factions (Clarke et al. 2024), and caucuses (Gaynor 2021). Importantly, collaboration *across groups* such as partisanship (Harbridge-Yong et al. 2023) and gender (Holman et al. 2022) can be especially impactful, a pattern consistent with the more general observation that weak ties serve to bridge differences between an individual and other groups (Kirkland 2011).

In this paper, I extend this logic to geography, analyzing state legislative cosponsorship patterns to assess whether in-state geographical divisions serve as important predictors of collaboration in legislatures. To do so, I proceed in three parts. First, I assess the geographic structure of legislative networks, developing measures of collaboration that consider three conceptions of geography: (1) divisions among urban, suburban, and rural districts; (2) divisions across metropolitan areas; and (3) geographic diversity using continuous distance metrics.

Second, I describe the aggregate geographic patterns of collaboration in each legislature, characterizing each state in terms of the geographic divisions that appear to promote and deter collaboration. Using measures of network modularity (see e.g., Kirkland 2013; 2014), I assess

whether legislators collaborate when they come from districts that differ in terms of urbanity and region. I find that states vary tremendously in the extent to which geography maps onto collaboration, that urbanity and regionalism matter greatly in distinct states, and that patterns of collaboration do not always match conventional wisdom about a state's geographic divisions.

Finally, I ask whether legislators who attract a more geo-diverse set of cosponsors have higher levels of legislative effectiveness. I find that all three conceptions of geography are associated with substantial variation in collaboration patterns within and across states, and that, in all three cases, having a more geo-diverse set of collaborations is associated with greater legislative effectiveness, even after accounting for the correlations between geography and partisanship.

Dimensions of Political Geography

In the broader literature on political geography, differences across space and place can be conceptualized in many ways. The "pictures in our heads" cannot always be mapped straightforwardly onto geographic units (Wong et al. 2012), and characterizing an individual's community or "milieu" (Moore and Reeves 2020) can suffer from validity problems (Newman et al. 2015) or be vulnerable to the Modifiable Areal Unit Problem (Lee and Rogers 2019; Openshaw 1984). Nonetheless, several overlapping but distinct conceptions of geography offer leverage in characterizing how places influence political outcomes, including in legislatures.

One conception of geography that has received an especially large amount of attention in recent years is the distinction between urban and rural places (with additional attention to suburban places and other related categories). These categories are important and shifting

predictors of voting behavior (McKee and Teigen 2009; Scala and Johnson 2017) and represent divides (e.g., Cramer 2016; Gimpel et al. 2020) that draw attention from political pundits as well as political scientists. More recently, the importance of urban and rural place *identities* has taken center stage, including the measurement of such identities (Munis 2022) and how those identities influence candidate support (Fudge and Armaly 2021; Jacobs and Munis 2023), other participatory behaviors (Lin and Trujillo 2023), and political attitudes (Dawkins et al. 2023; Lyons and Utych 2023). One challenge in utilizing the urban-rural dimension of politics, however, is determining what places fit into which categories (Nemerever and Rogers 2021).

In a second conception of geography—the media market—such measurement concerns are smaller, as the boundaries of media markets are agreed upon and require no conceptual definition. Political scientists, especially those with an eye on media and information, have often identified "natural experiments" (Moskowitz 2021; Sides et al. 2022) based on media markets, where spatially neighboring individuals are exposed to distinct media coverage. Media markets can represent different regions or bases of power in a state (Bauman et al. 2021), measure social distance between candidates and voters (Bowler et al. 1993), or distinguish between cities at the center of media markets and those which are not (Hopkins and Pettingill 2018), even if media markets don't perfectly correspond with other conceptions of regionalism.

Finally, a third strain of research draws on the conception of space implicit in Tobler's Law (Tobler 1970): treating observations as more similar or different depending on the physical distance between them. Politically relevant distances can include distances between voters and precincts (Dyck and Gimpel 2005), citizens and policy-relevant events (Cortina 2020; Nuamah and Ogorzalek 2021), citizens and state capitals (Hopkins 2018; Winburn et al. 2024), candidates

and voters (Gimpel et al. 2008), or concentrations of social groups (Enos 2017). Distances can also play a key role in characterizing social contexts (Makse et al. 2014) or studying how networks connect geographically disparate places (Baybeck and Huckfeldt 2002).

While much of this literature is more focused on political behavior, each of these three dimensions is also relevant to state legislatures. Legislative districts may not be *officially* classified as urban or rural, but many legislatures have committees dedicated to urban and/or rural affairs and informal caucuses that speak to these interests. Media markets are relevant in campaign communications (Cooper 2002), and may also influence legislative behavior (Myers 2026). If media markets also correspond with important regional divides within the state, their relevance may be even greater, especially if metropolitan areas within a state receive uneven representation (Thompson 2019). Finally, distances—such as the distance between a district and the capital—can play an important role in *Home Style*-inspired (Fenno 1978) accounts of behavior, including the provision of constituency service (Dropp and Peskowitz 2012).

Collaboration in Legislatures

Legislating is, by necessity, a collaborative exercise, so characterizing the nature of interpersonal ties is an important building block in describing the path to legislative success. Legislative ties can be strong or weak (Kirkland 2011) and may be created through personal or professional connections (Curry and Roberts 2022; Gaynor 2021; Minozzi and Caldeira 2021; Victor and Ringe 2009). Collaboration patterns in state legislatures can look quite different from state to state, both in terms of partisanship (Kirkland 2013) and in terms of important social differences such as race (Bratton and Rouse 2011) and gender (Holman and Mahoney 2018).

An increasing share of scholarship in this area explicitly seeks to understand the structure of legislative networks. Given that other sources of information about social relationships are mostly idiosyncratic (e.g., Lawless et al. 2018) or limited in scope (e.g., Box-Steffensmeier et al. 2019; Craig 2021), one popular basis for describing networks is by looking at cosponsor networks: inferring collaboration has occurred when one legislator sponsors a bill authored by another legislator. Although some critiques note that cosponsorship cannot capture differences in engagement among a bill's sponsors (Craig 2023), research utilizing this approach has advanced the literature in several important ways, including identifying influential legislators (Fowler 2006), examining how networks change over time (Kirkland and Gross 2014), probing the impact of legislative institutions and conditions (Clark and Caro 2013; Dobson 2026) and understanding cross-chamber relationships (Kirkland and Kroeger 2018; Makse 2020).

One key question is the extent to which collaboration maps onto legislative success or effectiveness. Recent evidence, especially in Congress, finds that collaborative ties developed by working within party factions (Clarke et al. 2024) or across party lines (Harbridge-Yong et al. 2023) can enhance legislative effectiveness, although the link between collaboration and success may depend on bill substance (Craig 2023). Moving beyond party, there is evidence that collaboration among women leads to greater success (Holman et al. 2022), although cosponsor diversity does not always produce success (Matthews et al. 2024).

Given the myriad impacts of geography described in the previous section, and that legislators fundamentally represent geographic-based constituencies, I argue that collaboration across place-based differences should enhance legislative success in an analogous way. In arguing this, it is important to begin by noting that overall patterns should tend toward

geographically *homogeneous* collaboration. For reasons rooted in constituency needs, legislators may be more likely to collaborate with legislators from similar and proximate districts, while collaborating with geo-diverse colleagues may require more of a deliberate effort. Nonetheless, such effort should prove valuable when undertaken. Collecting cosponsors from different parts of the state or types of districts can signal to leaders, as with other forms of cosponsor diversity (Koger 2003), that an individual bill has a broad coalition of support and reasonable prospects of floor success (Makse 2025). And in the long term, making a habit of such behavior across many bills and building relationships with a geographically diverse set of collaborators is likely to enhance one's lawmaking success across the board. This leads to the following hypothesis:

Geo-Diverse Collaboration Hypothesis: Legislators with more geo-diverse collaborators will have greater legislative effectiveness scores.

Data and Methods

To test the Geo-Diverse Collaboration Hypothesis and to provide a broader descriptive analysis of geographic patterns of collaboration, I examine all cosponsorship behavior in 38 lower chambers for three legislative sessions between 2013-2018. I exclude nine states with very sparse levels of cosponsorship and three other states with data limitations[1]. The data

[1] The states where the average number of cosponsors per bill is sparse—and specifically, less than one—are: AL, CO, CT, ID, MO, MT, NM, OK, and UT. The three other excluded states are KS (lack of legislative effectiveness data), NE (no lower chamber), and NH (missing legislator data). In addition, due to missing data, the following sessions are also excluded: TN in 2013-2014, OH in 2015-16, and MI in 2017-2018. States with four-year terms (LA, MD, MS) have one observation per term.

include nearly 134,000 bills with at least one cosponsor, and more than a million cosponsorship ties on substantive pieces of legislation.

To begin, I calculate the collaboration rate for each dyad of legislators in each session. A collaboration occurs in a dyad whenever one legislator cosponsors a bill authored by the other legislator, regardless of who is the author or cosponsor.[2] Drawing on Fowler (2006), I define the **collaboration rate** as the sum of the weighted quantity of cosponsored bills between the two legislators, where the weight assigned to a bill is the inverse of the number of cosponsors that bill has. That is, if a bill has just a single cosponsor, that bill would count as 1.0 bills collaborated upon in the dyad; if the bill has ten cosponsors, it would be weighted as 0.1 in the ten dyads connecting the bill's author and each cosponsor. For a numerical example of the calculation of the collaboration rate, see Figure A-1 in the Appendix.

Three Measures of Geographic Diversity

As laid out in the previous section, I consider the impact of geographically diverse collaboration based on three different conceptions of geography: urbanity, region (media markets), and distance. In each case, I create a categorical measure of location and use this measure to determine whether each dyad of legislators share a geographic category. Next, I calculate the distribution of each legislator's collaboration across the resulting categories. To assess the diversity of collaborations across categories, I use a dissimilarity index (Sakoda 1981)

[2] As is the convention in studies of cosponsorship, I treat the bill's first listed sponsor as the author. Although there is no guarantee that the bill's first author is the bill's most active policy entrepreneur, Bucchianeri et al. (2025) demonstrate that author ordering at least reflects a choice by the bill's authors, and not, for example, a matter of alphabetization of last names.

where the distribution of collaborations is compared to the overall distribution of members (i.e., how many districts are in each category).[3] Table 1 illustrates the construction of a dissimilarity index for urbanity.

Table 1: Illustration of Dissimilarity Index

District Type	Distribution of Collaborations (Sample legislator)	Distribution of Districts	Shift Required
Urban	20%	30%	10%
Suburban	50%	35%	15%
Exurban	15%	25%	10%
Rural	15%	10%	5%
			40% * (1/2) = 20% (Dissimilarity index)

While more frequently used as a measure of segregation, other political science work (e.g., Egan 2020) has used these indices to study the distribution of identity categories. The standard interpretation of the dissimilarity index can be adapted here: what proportion of a legislator's collaborations would have to be shifted among categories for the distribution of collaboration to match the distribution of districts? Higher values (closer to 1), indicate *less* geographically diverse collaboration, and should be associated with *lower* legislative effectiveness. (While reverse coding the dissimilarity indices to match the direction of the hypothesis would also be possible, it would render the standard interpretation of the dissimilarity indices inapt). I now discuss in more detail how the categories are created for each conception of geography.

[3] The ability to compare the distribution of collaborations to a baseline (the distribution of district types) makes the index of dissimilarity preferable to other diversity measures such as the Sullivan index, which only describe diversity in absolute terms.

Urbanity

First, I assess the extent to which legislators collaborate with legislators from different types of districts based on the urban-rural continuum. To identify district types, I rely on a primarily density-based definition to classify districts in four categories: urban, suburban, exurban, and rural. The choice to use four categories is consistent with recently developed place classification measures (e.g., Montgomery 2019) and reflects the increasingly relevant distinction between inner and outer suburban areas (Scala and Johnson 2017). These labels should be viewed not so much literally, but as shorthand for places of varying levels of population density, as they might be viewed among members of a legislature. (See Nemerever and Rogers 2021 for a conceptually richer discussion of measuring rural places and Airgood-Obrycki et al. 2021 for a similar discussion on suburban places.)

The primary goal here is developing a classification that has a high level of face validity *within states*, while recognizing that what constitutes, for example, an urban district, looks different in different states. For this reason, measures that rely *solely* on density pose problems, as such a metric does not consider the fact that city layouts differ substantially across states (e.g., Airgood-Obrycki et al. 2021). For example, Kolko (2015) suggests a threshold of 2,213 households per square mile to identify urban Census tracts. In much of the Sunbelt, however, only a handful of urban tracts have densities above 2,213. For example, even in Atlanta proper, the *median* Census tract would not be considered urban by this standard. Likewise, in Arkansas and Mississippi, less than 1% of Census tracts would be considered urban by this standard.[4]

[4] By comparison, the Census classifies 17% of Census tracts in AR and MS as fully urban, and another 15% of tracts as at least 75% urban.

At the same time, the measure should be tied to some external, nationwide criterion; for example, a measure that simply divided each state's districts into quartiles on some urbanity metric ignores the fact that some states are far more urban or rural than others by any criterion. Definitions based on Census urbanity measures (e.g., Warshaw and Rodden 2012) or RUCA classifications (e.g., Nemerever and Rogers 2021), however, do not parse all parts of the urban-suburban-rural continuum equally well. For these reasons, I develop a novel classification.

To construct this measure, I begin by using the Missouri Census Data Center's *GeoCorr* tool to identify the legislative district(s) and population density for every Census tract. Constructing a measure from the tract level up accounts for heterogeneity within counties far better than measures relying on traits of counties or municipalities (see Montgomery 2019 for an approach with a similar starting point). Based on state-calibrated thresholds for density, I then divide all Census tracts into four categories and aggregate to the district level, counting the proportion of each district in each category. (The Appendix describes, in detail, the process for establishing density thresholds and classifying districts.) Finally, I classify each district according to the category which contains the plurality of households[5]. Across all states, this measure classifies 26% of districts as urban, 23% as suburban, 28% as exurban, and 24% as rural. At the same time, it correctly produces distinct distributions in more urban and more rural states. For example, Maryland has an urban-heavy distribution {24%, 37%, 30%, 9%}, while Mississippi has a rural-heavy distribution {11%, 17%, 23%, 48%}. As we would expect, Democratic legislators

[5] In the Appendix, I discuss potential problems associated with the selection of the plurality category and show that these problems pose very minimal threat.

tend to come from more urban districts {41%, 25%, 19%, 14%}, while Republican legislators tend to represent districts at the rural end of the distribution {12%, 21%, 33%, 34%}.

Regionalism

The approach for state regionalism resembles the approach for urbanity, except that districts are categorized by their location with the state, rather than by their degree of urbanity. To identify regions of the state, I use data on DMA media markets[6] (Sood 2016), which range in number across states from two (ND, NJ) to twenty (TX). I exclude HI and RI from these analyses because they have only one media market.

Therefore, unlike in the previous section, where each state had the same four categories, the number of categories varies by state based on the number of media markets. This distinction, however, does not affect the interpretation of the dissimilarity index. Notwithstanding the varying number of categories, the dissimilarity index can still be interpreted as the percentage of a legislator's collaborations that would have to be shifted among categories to match the distribution of districts.

Distance

To assess a member's diversity of collaboration with respect to geographic distance, I begin by calculating the distance between a legislator's district and every other legislator's district. The distance between any two districts is calculated by identifying the population-

[6] In some cases, these may not perfectly correspond to perceived politically relevant regions of the state. For example, in New York, Long Island may be perceived as a separate region from New York City although both are part of the New York City DMA.

weighted centroid of each legislative district using the Missouri Data Center's G*eocorr* tool. These distance values, however, cannot be compared across legislators because the distribution of distances to other legislators varies massively across districts, sometimes even within the same state. Instead, for each legislator, I divide the distances to the districts of all other legislators into quartiles. These categories operate similarly to the four categories for the urbanity measure, although here the placement of dyads into categories is district-specific rather than state-specific.

Geo-Diverse Collaboration Across States

With these measures in hand, I first describe how geo-diverse collaboration varies across legislatures. However, values of the dissimilarity indices are not entirely comparable across states because the distribution of districts across categories differs by state.[7] To bypass this problem, I use a randomization inference approach so that the dissimilarity index scores for each state's set of legislators is compared to a simulated distribution. More specifically, I take the list of legislator dyads and collaboration rates for each state and produce 500 random draws by permuting the list of alters. I then calculate the mean dissimilarity index score for each draw, and then across all draws for that state. Finally, in each legislative session, I calculate the proportion of legislators whose dissimilarity index score is below the mean simulated value for

[7] For example, in a state with an even mix of urban, suburban, exurban and rural districts (25% each), a legislator who collaborates with colleagues from only one type of district will have a dissimilarity index of 0.75. But in a state with 40% urban districts and 20% of each other type, a legislator who only works with urban district colleagues will have a score of 0.6 and a legislator who works with only suburban (or exurban or rural) colleagues will have a score of 0.8.

the state; I treat those legislators as having a greater level of geo-diverse collaboration than would be expected by chance.

Beginning with the urbanity-based measure, across all states, 35% of legislators have more geo-diverse collaboration than the mean of the null distribution. In seven states, this is true of half of legislators, with the largest number of legislators in Mississippi (55%), Hawai'i (55%), and Texas (52%). The lowest number of such legislators are in Michigan, New York (12% each) and Pennsylvania (10%). Map 1 shows the share of legislators with this trait in all states.

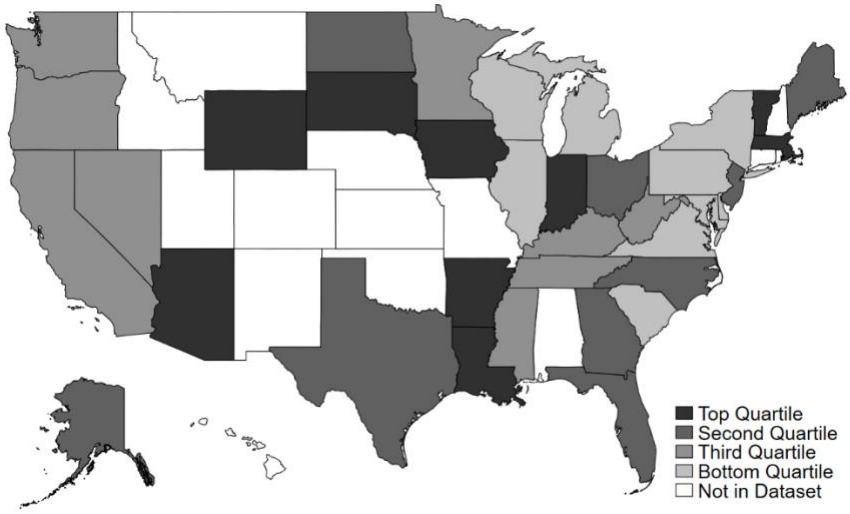
Turning next to the distance-based version of the dissimilarity index (see Map 2), 34% of all legislators have more geo-diverse collaboration than the mean of the comparison distribution. The three highest shares of legislators are in Iowa (56%), Wyoming (55%) and Arkansas (51%), while the lowest shares are in Pennsylvania (14%), New York (10%), and Maryland (9%).

Finally, the region-based measure (Map 3) indicates that 39% of legislators have more geo-diverse collaboration than the simulated state mean. In terms of the share of individual legislators, Vermont (63%), Wyoming (62%), and Iowa (61%) top the list, while Pennsylvania (16%), New York (15%), and Wisconsin (15%) are at the bottom. Table 2 shows that all three measures are quite highly correlated, with the three inter-correlations ranging from 0.67 to 0.83. A few states, however, have somewhat different scores across the three measures; for example, Ohio ranks fourth of 38 states on the distance metric, tenth on the regional metric, and twenty-eighth on the urbanity metric. The quantity of geo-diverse collaborating legislators in a chamber is also fairly stable from session to session. Among the states where we observe multiple sessions, the standard deviation of this quantity is 5.7% for the urbanity metric, 6.1% for the distance metric, and 6.8% for the regional metric.

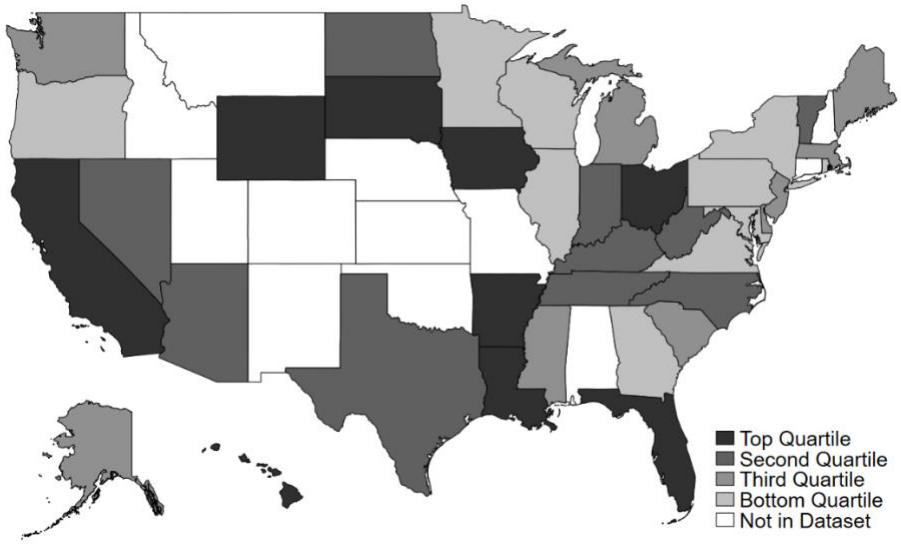
Table 2: Correlations Among State-Level Shares of High Geo-Diversity Collaborators, By Metric

	Urbanity	Distance	Region
Urbanity			
Distance	0.69		
Region	0.67	0.83	

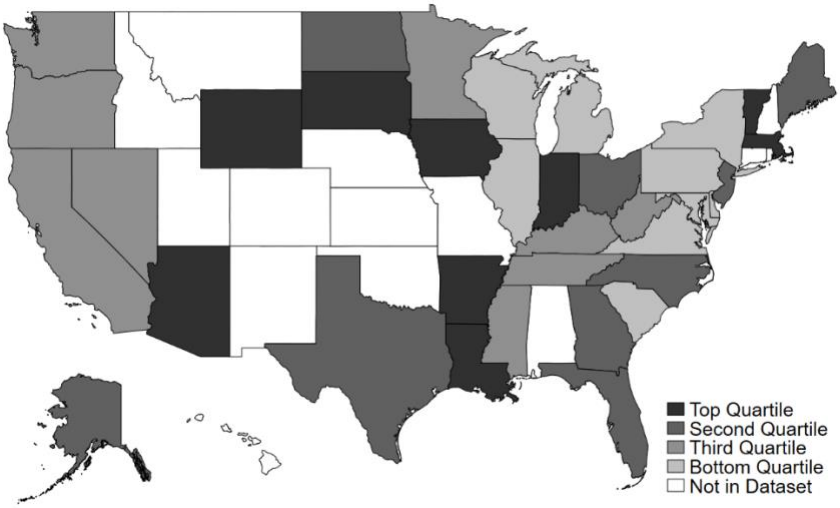
Map 1: Collaboration Across Urbanity Categories by State



Map 2: Collaboration Across Distance Categories by State



Map 3: Collaboration Across Region Categories by State



Geographic Pattens of Collaboration with States

States do not merely differ in the extent to which collaboration exists across geographies (as shown in Maps 1-3), but also in the specific patterns of geography. In one state, cities and suburbs might collaborate frequently but collaborate more rarely with rural areas; in another state, the opposite might be true. In some states, the largest city may serve as the "hub" of collaboration while smaller cities act as "spokes"; in others, legislators from the largest city may mostly work with one another, while legislators from other regions function as a competing coalition. In other words, when thinking about the urbanity and regionalism conceptions of geography[8], we are also interested in the *identity* of the groups who do and do not collaborate.

To describe each state's collaborative political geography, I use the measure of network modularity (Kirkland 2013) to describe pairwise patterns of collaboration between members from the four urbanity categories in each state, as well as patterns of collaboration between

[8] For these analyses, the distance conception is not likely to yield useful insights about state legislatures since the categories are district-specific and do not produce geographic categories.

members from different regions (media markets).[9] To avoid over-interpreting the patterns of collaboration among small groups of legislators, I limit analyses to categories that constitute at least 5% of legislators, or 5 legislators, whichever is larger.

To calculate modularity scores, I create, for each pair of categories in each state, a weighted network where the connection strength between two legislators is the collaboration rate described above and the two communities are the two categories in question (e.g., urban districts and suburban districts in one state would be one pair). Modularity scores range from -1 to 1, with values close to zero indicating that dyads within one of the communities have similar collaboration rates to dyads that cross the two communities.[10] Larger positive values, on the other hand, indicate that in-community dyads collaborate more than cross-community dyads.[11] As a reference point, Kirkland (2014) finds that the median modularity score for political parties (i.e., treating Democrats and Republicans as the two communities) is 0.12.

I look first at the patterns of modularity among the four urbanity categories. In 27 states, there are sufficient districts in all four categories, and thus, these states have six pairs of urbanity categories. Ten states have only three categories represented (three pairs) and North

[9] Another possible approach would be to use community detection methods, where regions are identified inductively. However, automated methods would identify communities based on both party and social factors (e.g., membership in informal caucuses) and could not be limited to the geographic dimension.

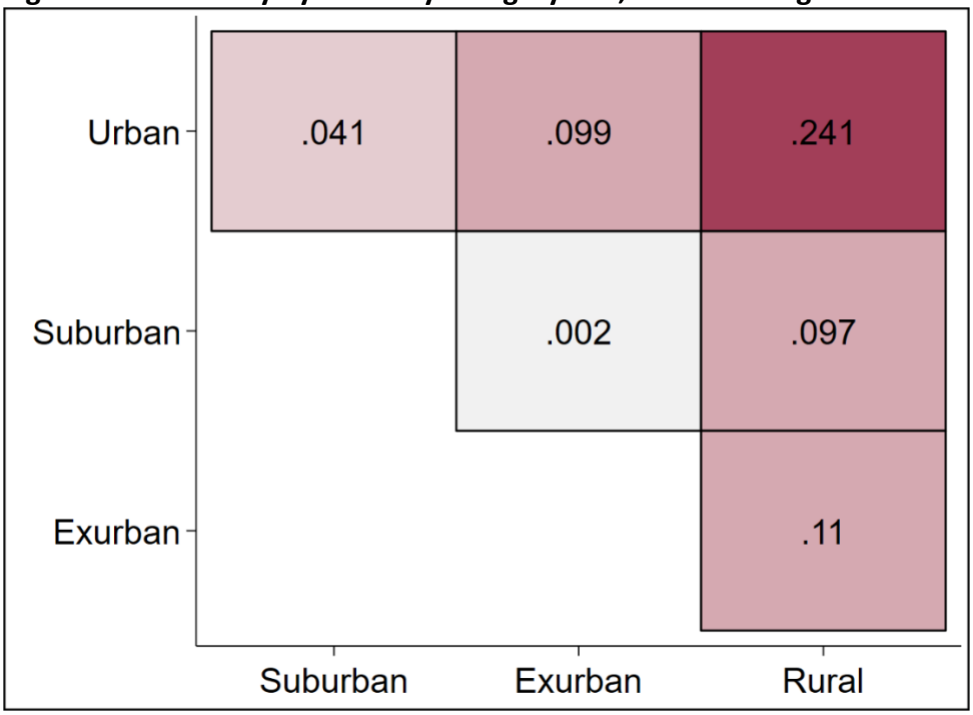
[10] As these analyses are descriptive, I do not consider whether observed values of modularity are significantly different from zero. However, it is worth noting that although 0 represents equal collaboration, the value associated with testing the null hypothesis is not precisely zero, but a negative number that approaches zero as network size increases. (Kirkland 2013).

[11] Negative values indicate that cross-community dyads collaborate at a greater rate than within-community dyads.

Dakota has only two categories sufficiently represented (one pair). The mean modularity value across all states and urbanity category pairs is 0.065, with a standard deviation of 0.077.

The heat plot in Figure 1 illustrates the patterns of collaboration in New York state. As higher values of modularity indicate a propensity to collaborate within one's group rather than across groups, the data indicate that the New York legislature has the most across-difference collaboration among suburban and exurban districts and the least across-difference collaboration among urban and rural districts. This pattern is common across states and not surprising insofar as urban and rural districts represent the ends of the urbanity spectrum.

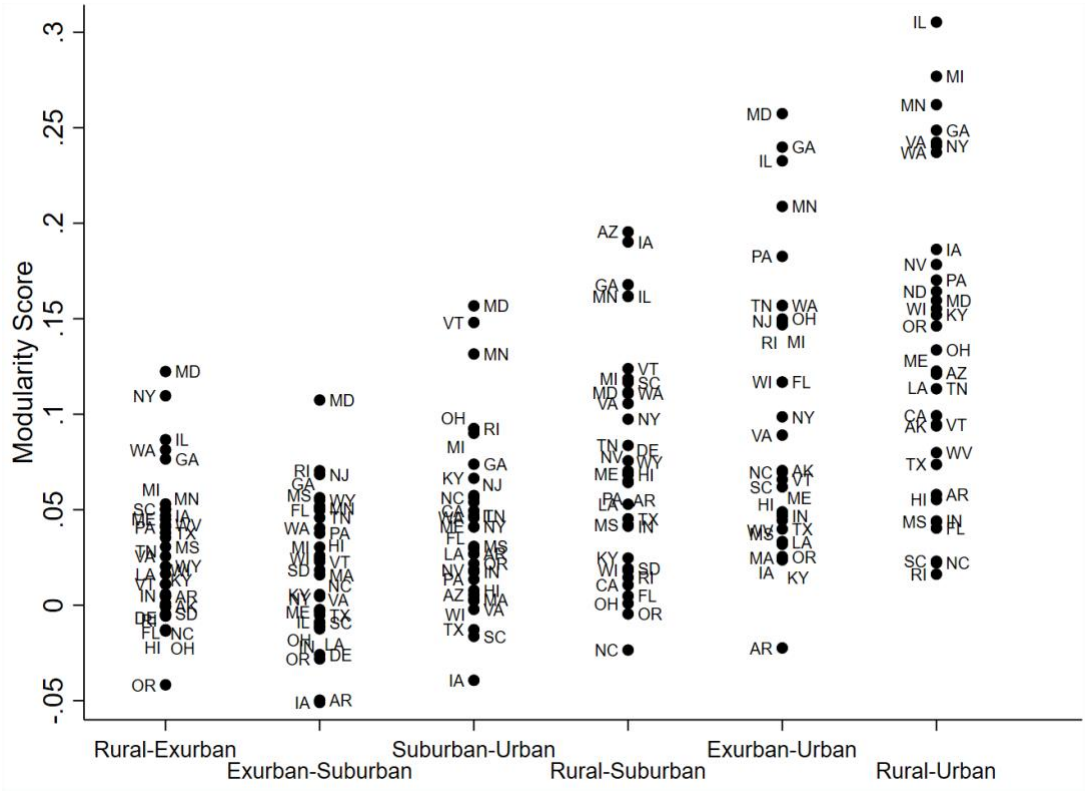
Figure 1: Modularity by Urbanity Category Pair, New York Legislature



As seen in Figure 2, which plots these values for all states, the urban-rural modularity scores are, on average, the highest among the six pairs. However, the clear pattern observed in

New York does not exist in all states. For example, in Mississippi, all six category pairs have modularity values between 0.03 and 0.05. A few generalizations can be made from the data. States with a single dominant city (AZ, GA, IL, MI, MN, WA) tend to mimic the pattern observed in New York: higher modularity scores, especially in the urban-rural category pair. States with several large cities (CA, FL, NC, TX) and mostly rural states (AR, MS, SD, WY) tend to have smaller differences across category pairs. Heat plots for all states can be found in Appendix Figure A-2.

Figure 2: Modularity Scores by Urbanity Category Pair

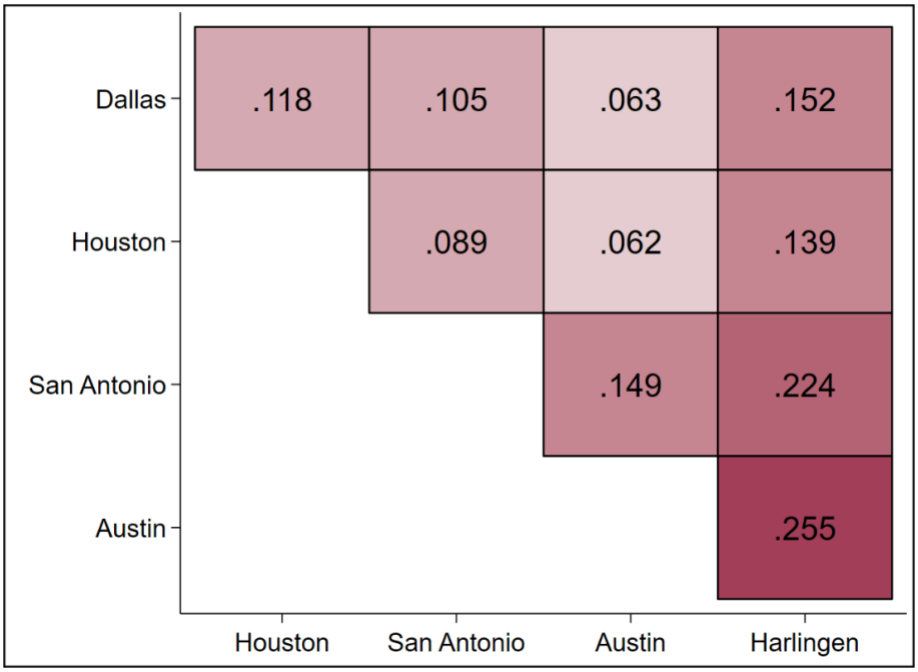


Turning next to collaboration across regions, I follow a similar approach, calculating the modularity score for each pair of regions. The number of media market regions that meet the threshold of 5% of districts varies across states, ranging from two (ND) to seven (IN, KY, and

WV). The mean modularity value across all states and region pairs is 0.095, with a standard deviation of 0.090, indicating that, on average, regional divisions may be more powerful than urbanity divisions in hindering cross-community collaboration (recall that the mean of modularity scores for urbanity category pairs was only 0.065).

Figure 3 provides an example of a heat plot from the state of Texas, showing modularity scores for all ten pairs of the five sufficiently large regions. The highest modularity score comes from the network of legislators from the Austin and Harlingen regions, indicating that in-group collaboration is much more common than collaboration across groups in that network. At the other end of the spectrum, across-group collaboration in the Houston-Austin and Dallas-Austin pairs is highest, although even these values are only in the 43rd percentile of modularity across all states' region pairs. Heat plots for regions in all states can be found in Appendix Figure A-3.

Figure 3: Modularity by Region Pair, Texas Legislature



Consistent with the findings for Texas, there is a strong tendency in the South to exhibit high modularity across regions; nine of the ten states with the highest scores are Southern or "border" states. On the other hand, we do not observe high region-based modularity in several of the states whose regional divisions (e.g., CA, IL, NY) have inspired past research. In some cases, this might suggest that such divisions were primarily rooted in the urban-rural dimension.[12] It is also possible that in some cases, regional divisions foster collaboration rather than dissuade it, especially in states like California where no single region is numerically large enough to produce a majority.

The region pairs with stronger and weaker collaboration ties are intuitive in some cases, but less predictable in others, especially in states with a larger number of regions. For example, neighboring regions sometimes have strong collaboration (e.g., Dayton-Toledo) but at other times have surprisingly weak collaboration (e.g., Austin-San Antonio). Some states (e.g., GA, MA, MN) also exhibit a "hub and spokes" pattern with strong collaboration between the largest city's region and the smaller regions, but weaker collaboration among the smaller regions. (See Figure A-4 in the Appendix for a summary of state-by-state patterns.)

There are two additional features of a state that might help explain cross-region collaboration. First, the region that contains the state capital might play a more pivotal role than its raw size might suggest, especially in the eight states where the capital is neither in the largest nor the second-largest media market. Second, the distribution of populations across regions within a state may matter. States where districts from a single region comprise a legislative

[12] In reality, the urban-rural dimension and the regional dimension are not entirely orthogonal dimensions of conflict. While the approach used here cannot easily account for that idea, it is quite plausible that these dimensions influence patterns of collaboration in concert.

majority (GA, IL, NY) may produce collaboration patterns different from those in which producing a majority requires members from at least two regions (CA, OH, TX). There is little evidence that state capital regions matter some evidence that states with a single dominant region have lower modularity scores than states with populations spread more evenly across several regions. See the Appendix for further discussion.

Individual Collaboration and Legislative Effectiveness

Having described the patterns of geographic collaboration across states, I next test the Geo-Diverse Collaboration Hypothesis to assess whether such patterns are legislatively consequential. To do so, I rely on linear regressions modeled closely on the main models from Bucchianeri et al. (2025), predicting a legislator's effectiveness in a session as a function of individual traits and institutional positions. Although the sample used here is only a subset of their full dataset, results for their covariates (which serve as control variables in this paper) produce very similar results to those using the full dataset. To these models, I add the measure of geo-diverse collaboration and a measure of the legislator's overall rate of collaboration (i.e., their average collaboration rate, as described above, averaged across all dyads they are in). This latter variable is included because a high degree of collaboration—diverse or not—is almost certainly associated with effective legislating and we do not want to confuse this more general effect for the specific effect of having geo-diverse cosponsors.

The main dependent variable is a state legislator's **legislative effectiveness** score in a session. These scores, developed by Bucchianeri et al. (2025), describe the extent to which a legislator succeeds in advancing bills through five stages of the legislative process starting with

bill introductions and ending in enactment into law. While these measures may not capture every aspect of legislative success (Casas et al. 2020; Eatough and Preece 2025), they allow for comparison of legislators across very different legislative contexts, including the disparate rules, institutions, and political contexts of the 99 state legislative chambers (Squire and Hamm 2005).

Three versions of the model are presented—one with each version of the dissimilarity index for the individual legislator. Each of the three dissimilarity indices has a similar distribution, in terms of both means (0.23, 0.24, and 0.24) and standard deviations (0.12, 0.13, and 0.14), while all three exhibit positive skew, as the construction of the dissimilarity index inherently makes scores closer to 1 harder to achieve. As such, all substantive effects are interpreted by comparing the 5th and 95th percentiles of the dissimilarity indices.

Following Bucchianeri et al. (2025), I control for seniority, gender, race, ideological extremity, and previous vote share (including a quadratic term), as well as whether the legislator holds majority party status, the speakership, a majority or minority party leadership position, a committee chairmanship, and a position on a power committee. Descriptive statistics for all variables can be found in Table 4.

Table 5 summarizes the main results. The results regarding the urbanity and distance-based conceptions of geography provide strong support for the Geo-Diverse Collaboration Hypothesis. For example, the predicted legislative effectiveness score decreases by 0.29 points as the urbanity dissimilarity index goes from the 5th (0.07) to 95th percentile (0.45). (Recall that higher values of the dissimilarity index indicate less geo-diverse collaboration.) This is roughly 80% as large as the difference between being a member of the majority or minority party, which is a consistent predictor of state legislator effectiveness (Bucchianeri et al. 2025). When we use

the distance-based dissimilarity index, the results are similar. An increase from the 5th (0.08) to 95th percentile (0.49) is again associated with a 0.31-point decrease in effectiveness.

Table 4: Descriptive Statistics

Variable	Mean	S.D.	Range
Dependent variable			
Legislative effectiveness (SLES)	1.02	1.08	[0, 25.38]
Dissimilarity indices			
Urbanity	0.23	0.12	[0.01, 0.97]
Distance	0.24	0.13	[0.01, 0.76]
DMA	0.24	0.14	[0.00, 0.99]
Control variables			
Collaboration rate	0.25	0.35	[0.00, 4.43]
Majority status	0.64	--	[0, 1]
Speaker of the house	0.01	--	[0, 1]
Majority leadership position	0.01	--	[0, 1]
Minority leadership position	0.01	--	[0, 1]
Committee chair	0.21	--	[0, 1]
Power committee member	0.41	--	[0, 1]
Ideological extremism	0.69	0.65	[0.00, 4.28]
Seniority	3.96	3.44	[1, 25]
Female	0.25	--	[0, 1]
Black	0.03	--	[0, 1]
Hispanic	0.04	--	[0, 1]
Previous vote share	0.73	0.24	[0.10, 1.00]

The model using the DMA-based measure shows a weaker but still statistically significant relationship between geo-diverse collaboration and effectiveness.[13] While this may indicate that

[13] In a robustness test located in Table A-4 of the Appendix, I consider whether the inclusion of legislators from small urbanity categories or small DMAs (those that don't meet the 5% threshold describe in the previous section) affect the results. Results are all but identical with those cases dropped.

regionalism is less relevant than the other two conceptions of geography, this more modest relationship is hardly trivial. The difference between the 5th (0.05) and 95th percentiles (0.48) of the DMA-based dissimilarity index is still associated with a decrease of 0.13 points of legislative effectiveness, roughly the same effect as having an additional six terms of seniority in the legislature. In short, all three measures and conceptions of geography support the claim that collaborating across legislative difference is associated with greater legislative effectiveness.

Table 5: Linear Regression Models of Legislative Effectiveness

	Version of Dissimilarity Index		
	Urbanity	Distance	DMA
Dissimilarity index	-0.76 (0.11)**	-0.75 (0.11)**	-0.32 (0.12)*
Collaboration rate	0.64 (0.16)**	0.64 (0.16)**	1.02 (0.18)**
Majority status	0.40 (0.06)**	0.41 (0.06)**	0.36 (0.06)**
Speaker of the house	0.89 (0.29)**	0.87 (0.29)**	0.72 (0.28)*
Majority leadership position	0.13 (0.11)	0.13 (0.11)	0.15 (0.11)
Minority leadership position	0.26 (0.14)#	0.25 (0.14)#	0.29 (0.15)#
Committee chair	0.46 (0.06)**	0.45 (0.06)**	0.46 (0.06)**
Power committee member	0.09 (0.03)**	0.08 (0.03)*	0.06 (0.04)#
Ideological extremism	-0.07 (0.04)#	-0.08 (0.04)#	-0.15 (0.05)**
Seniority	0.027 (0.006)**	0.027 (0.006)**	0.021 (0.006)**
Female	-0.07 (0.02)**	-0.07 (0.02)**	-0.07 (0.02)**
Black	0.06 (0.07)	0.08 (0.07)	0.06 (0.07)
Hispanic	-0.12 (0.07)#	-0.11 (0.07)	-0.11 (0.08)
Previous vote share	1.48 (0.57)*	1.39 (0.58)*	2.79 (0.61)**
Previous vote share squared	-0.92 (0.36)*	-0.86 (0.37)*	-1.71 (0.39)*
Constant	0.06 (0.22)	0.10 (0.23)	-0.48 (0.24)#
R-Squared	0.20	0.21	0.23
N	10,867	10,867	10,499

Note: # $p < 0.10$; * $p < 0.05$; ** $p < 0.01$. Standard errors clustered by state-session.

Since minority party members face greater challenges in getting their bills passed, I also consider the possibility that the benefits of geo-diverse collaboration differ across majority and

minority members, reproducing the above models to include an interaction between majority status and each of the three dissimilarity indices. These results (see Table A-5 in the Appendix) differ slightly across the three models, but none support the supposition that geo-diverse collaboration is more valuable to members of the minority party. In the urbanity model, the interaction is not significant and almost precisely zero. The distance model does produce an interactive effect, but one indicating that the effect of geo-diverse collaboration is larger for majority members, not smaller. In the regionalism model, the interaction falls short of statistical significance, but also points in the direction of a larger effect for majority party members.

Another possible concern is that collaboration across geographic difference is mostly serving as a proxy for bipartisanship, insofar as the two parties tend to have geographically distinct bases of support. In that telling, after accounting for one's collaboration with out-party legislators, geography has little or no independent effect. To account for this possibility, I produce additional models which control for member collaboration across party lines. To do so, I add to the above models a variable indicating one's collaboration rate among in-party members as a proportion of one's total collaboration rate. In addition, since the relationship between bipartisan collaboration and effectiveness differs by majority status (Dobson 2026), I also include an interaction between in-party collaboration and majority status.[14]

Table 6 presents the results of these models. In each case, the coefficient representing geo-diverse collaboration is slightly smaller, but remains statistically significant, with the

[14] In light of the findings in Dobson (2026), modeling the relationship between majority party status and effectiveness should also account for institutional factors such as majority security. However, there is no reason to think that the specification here is insufficient to answer the question at hand—whether collaboration across party lines could be mistaken for the effect of geo-diverse collaboration.

coefficient shrinking by 20% for urbanity, 14% for distance, and 7% for region. While a small proportion of the geographic effects might be attributable instead to collaboration across partisan difference, it is clear that geography does produce an independent effect.

Table 6: Additional Linear Regression Models of Legislative Effectiveness

	Version of Dissimilarity Index		
	Urbanity	Distance	DMA
Dissimilarity index	-0.61 (0.12)**	-0.64 (0.11)**	-0.30 (0.13)*
Collaboration rate	0.69 (0.16)**	0.69 (0.16)**	1.05 (0.18)**
Majority status	1.28 (0.16)**	1.27 (0.16)**	1.08 (0.15)**
In-party collaboration (%)	-0.17 (0.11)	-0.22 (0.11)*	-0.31 (0.11)**
Majority X In-party	-0.97 (0.18)**	-0.92 (0.18)**	-0.73 (0.17)**
Constant	0.10 (0.23)	0.17 (0.24)	-0.29 (0.26)
R-Squared	0.22	0.22	0.24
N	10,820	10,820	10,453

Note: # $p < 0.10$; * $p < 0.05$; ** $p < 0.01$. Standard errors clustered by state-session. Control variables not reported but are otherwise identical to those in Table 5.

Discussion

In this paper, I demonstrate that political geography is not only a crucial determinant of individual legislative behavior but of legislative collaboration. By describing the geography of legislative networks in 38 state legislatures, I identify several notable cross-state tendencies while also cataloguing each state's unique geo-collaborative patterns. I find that legislators who recognize the value of collaborating across geographies tend to be more effective legislators, a finding that echoes other findings on collaborating across difference while establishing that geography constitutes an important identity in this vein.

While this paper illustrates the value of geo-diverse collaboration, several questions remain open to further exploration. While this paper focuses primarily on legislator-level

analysis, drilling down to bill-level analyses can shed further light on the importance of collaboration for individual pieces of legislation. For example, is collaboration across geographic difference especially important for high-profile legislation, or for legislation in specific policy areas? Equally importantly, are these patterns especially strong in certain types of legislatures? For example, is the value of geo-diverse collaboration greater (or lesser) in term-limited legislatures and others which exhibit high levels of turnover? Finally, what is the interplay between geography and other dimensions of conflict, such as race or socioeconomics?

Beyond its impact on legislative effectiveness, what else can we learn about geographic collaboration in legislatures? For example, is having a geographical diverse set of collaborators a potent predictor of legislators who rise to leadership positions or who pursue progressive ambition opportunities? Are legislators from certain backgrounds more likely to seek out geo-diverse collaborators? Are such patterns stable over time, and do legislators pursue it more in the earlier or later stages of their careers?

Third, scholars might consider who benefits from geographic patterns of collaboration. Although this study focuses on all legislation, the themes of geography and collaboration beg for attention to questions of particularistic legislation and logrolling, topics which have often emphasized the biases toward some geographies over others. How, then, does collaboration contribute to these patterns? Do legislators from different types of places trade support for different types of legislation? Or do the patterns of collaboration themselves predict whether such biases will exist in the first place?

Finally, the description of urbanity and regionalism-based collaboration patterns offered in this study breaks new ground in offering a comparative account of the political geography of

state politics, but only data with a longer time horizon can fully answer some pertinent questions. For example, if legislative networks are structured around urbanity in some states and regionalism in others, does this have implications for agenda setting, coalition-building, and policymaking in these respective types of states? Moreover, how stable are such patterns over time? If we presume that relevant political cleavages are mostly stable in the short-to-medium term, does it follow that the structure of collaboration is similarly stable? Or can changes in the identity of the majority party, the transitions between individual leaders, and turnover in the legislature continually reshape patterns of collaboration? Further exploration of these questions can shed light on the linkages between political geography and lawmaking in state politics.

References

Abrams, Samuel Jeremy. 2016. “Purple California: Politics and Regional Realities in the Golden State.” *California Journal of Politics and Policy* 8(4): 1–32.

Airgood-Obrycki, Whitney, Bernadette Hanlon, and Shannon Rieger. 2021. “Delineate the US Suburb: An Examination of How Different Definitions of the Suburbs Matter.” *Journal of Urban Affairs* 43(9): 1263–84.

Bagashka, Tanya, and Jennifer Hayes Clark. 2016. “Electoral Rules and Legislative Particularism: Evidence from US State Legislatures.” *American Political Science Review* 110(3): 441–56.

Ban, Pamela, and Jaclyn Kaslovsky. 2025. "Local Orientation in the US House of Representatives." *American Journal of Political Science* 69(3): 1082-1098.

Baumann, Zachary D., Jonathan Winburn, Salvatore James Russo, and Mohammed Shariful Islam. 2021. “What Are Friends For? The Effect of Geographic Proximity on Primary Turnout in Gubernatorial Elections.” *Political Research Quarterly* 74(2): 317–31.

Baybeck, Brady, and Robert Huckfeldt. 2002. “Spatially Dispersed Ties among Interdependent Citizens: Connecting Individuals and Aggregates.” *Political Analysis* 10(3): 261–75.

Bowler, Shaun, Todd Donovan, and Joseph Snipp. 1993. “Local Sources of Information and Voter Choice in State Elections: Microlevel Foundations of the ‘Friends and Neighbors’ Effect.” *American Politics Quarterly* 21(4): 473–89.

Box-Steffensmeier, Janet M., Dino P. Christenson, and Alison Craig. 2019. “Cue-Taking in Congress: Interest Group Signals from Dear Colleague Letters.” *American Journal of Political Science* 63: 163–80.

Bratton, Kathleen A., and Stella M. Rouse. 2011. “Networks in the Legislative Arena: How Group

Dynamics Affect Cosponsorship." *Legislative Studies Quarterly* 36: 423–60.

Bucchianeri, Peter, Craig Volden, and Alan E. Wiseman. 2025. "Legislative Effectiveness in the American States." *American Political Science Review* 119(1): 21–39.

Burns, Nancy, Laura Evans, Gerald Gamm, and Corrine McConnaughy. 2009. "Urban Politics in the State Arena." *Studies in American Political Development* 23(1): 1–22.

Casas, Andreu, Matthew J. Denny, and John Wilkerson. 2020. "More Effective Than We Thought: Accounting for Legislative Hitchhikers Reveals A More Inclusive and Productive Lawmaking Process." *American Journal of Political Science* 64(1): 5–18.

Clark, Jennifer Hayes, and Veronica Caro. 2013. "Multimember Districts and the Substantive Representation of Women: An Analysis of Legislative Cosponsorship Networks." *Politics and Gender* 9(1): 1–30.

Clarke, Andrew J., Craig Volden, and Alan E. Wiseman. 2024. "The Conditional Lawmaking Benefits of Party Faction Membership in Congress." *Political Research Quarterly* 77(1): 121-36.

Cooper, Christopher A. 2002. "Media Tactics in the State Legislature." *State Politics and Policy Quarterly* 2(4): 353–71.

Cortina, Jeronimo. 2020. "From a Distance: Geographic Proximity, Partisanship, and Public Attitudes toward the US–Mexico Border Wall." *Political Research Quarterly* 73: 740-754.

Cortina, Jeronimo, Shana Hardin, and Brandon Rottinghaus. 2026. "All About Location: The Geographic Politics of District Office Placement." *American Politics Research* 54: 531-42.

Craig, Alison W. 2021. "It Takes a Coalition: The Community Impacts of Collaboration." *Legislative Studies Quarterly* 46(1): 11–48.

Craig, Alison W. 2023. *The Collaborative Congress: Reaching Common Ground in a Polarized House*. Cambridge University Press.

Cramer, Katherine J. 2016. *The Politics of Resentment: Rural Consciousness in Wisconsin and the Rise of Scott Walker*. Chicago: University of Chicago Press.

Curry, James M., and Jason Roberts. 2023. "Interpersonal Relationships and Legislative Collaboration in Congress." *Legislative Studies Quarterly* 48(2): 333–69.

Dawkins, Ryan, B. Kal Munis, Zoe Nemerever, and Francesca Verville. 2024. "Place, Race, and the Geographic Politics of White Grievance." *Political Behavior* 46(3): 1813-35.

Dobson, Mackenzie R. 2026. "Selective Reciprocity in Bipartisan Collaboration: How Majority Security Shapes Legislative Success." *State Politics and Policy Quarterly* 26(2): 139–64.

Dropp, Kyle, and Zachary Peskowitz. 2012. "Electoral Security and the Provision of Constituency Service." *Journal of Politics* 74(1): 220–34.

Dyck, Joshua J., and James G. Gimpel. 2005. "Distance, Turnout, and the Convenience of Voting." *Social Science Quarterly* 86(3): 531–48.

Eatough, Mandi, and Jessica Preece. 2025. "Crediting Invisible Work: Congress and the Lawmaking Productivity Metric (LawProM)." *American Political Science Review* 119(2): 566–84.

Egan, Patrick J. 2020. "Identity as Dependent Variable: How Americans Shift Their Identities to Align with Their Politics." *American Journal of Political Science* 64(3): 699–716.

Enos, Ryan D. 2017. *The Space Between Us: Social Geography and Politics*. New York: Cambridge University Press.

Fenno, Richard F., Jr. 1978. *Home Style: House Members in Their Districts*. Scott: Foresman.

Fowler, James H. 2006. “Connecting the Congress: A Study of Cosponsorship Networks.” *Political Analysis* 14(4): 456–87.

Fudge, Daniel, and Miles T. Armaly. 2021. “Place or Partisanship? The Conditional Role of Identities on Candidate Support.” *American Politics Research* 49(6): 655–65.

Gamm, Gerald, and Thad Kousser. 2010. “Broad Bills or Particularlistic Policy? Historical Patterns in American State Legislatures.” *American Political Science Review* 104: 151-70.

Gamm, Gerald, and Thad Kousser. 2013. “No Strength in Numbers: The Failure of Big-City Bills in American State Legislatures, 1880–2000.” *American Political Science Review* 107(4): 663–78.

Gaynor, SoRelle Wyckoff. 2022. “The (Financial) Ties That Bind: Social Networks of Intraparty Caucuses.” *Legislative Studies Quarterly* 47(4): 885–920.

Gimpel, James G., Kimberly A. Karnes, John McTague, and Shanna Pearson-Merkowitz. 2008. “Distance-Decay in the Political Geography of Friends-and-Neighbors Voting.” *Political Geography* 27(2): 231–52.

Gimpel, James G., Nathan Lovin, Bryant Moy, and Andrew Reeves. 2020. “The Urban–Rural Gulf in American Political Behavior.” *Political Behavior* 42: 1343–68.

Gimpel, James G., and Jason E. Schuknecht. 2002. “Reconsidering Political Regionalism in the American States.” *State Politics & Policy Quarterly* 2(4): 325–52.

Harbridge-Yong, Laurel, Craig Volden, and Alan E. Wiseman. 2023. “The Bipartisan Path to Effective Lawmaking.” *Journal of Politics* 85(3): 1048–63.

Holman, Mirya R., and Anna Mahoney. 2018. “Stop, Collaborate, and Listen: Women’s

Collaboration in US State Legislatures." *Legislative Studies Quarterly* 43(2): 179–206.

Holman, Mirya, Anna Mahoney, and Emily Hurler. 2022. "Let's Work Together: Bill Success via Women's Cosponsorship in U.S. State Legislatures." *Political Research Quarterly* 75(3): 676-90.

Hopkins, Daniel J. 2018. *The Increasingly United States: How and Why American Political Behavior Nationalized*. University of Chicago Press.

Hopkins, Daniel J., and Lindsay M. Pettingill. 2018. "Retrospective Voting in Big-City US Mayoral Elections." *Political Science Research and Methods* 6(4): 697–714.

Hunt, Charles. 2022. *Home Field Advantage: Roots, Reelection, and Representation in the Modern Congress.* University of Michigan Press.

Jacobs, Nicholas, and B. Kal Munis. 2023. "Place-Based Resentment in Contemporary US Elections: The Individual Sources of America's Urban-Rural Divide." *Political Research Quarterly* 76(3): 1102–18.

Kirkland, Justin H., and Justin Gross. 2014. "Measurement and Theory in Legislative Networks: The Evolving Topology of Congressional Collaboration." *Social Networks* 36: 97–109.

Kirkland, Justin H. 2011. "The Relational Determinants of Legislative Outcomes: Strong and Weak Ties between Legislators." *Journal of Politics* 73: 887–98.

Kirkland, Justin H. 2013. "Hypothesis Testing for Group Structure in Legislative Networks." *State Politics and Policy Quarterly* 13(2): 225–43.

Kirkland, Justin. 2014. "Chamber Size Effects on the Collaborative Structure of Legislatures." *Legislative Studies Quarterly* 39(2): 169–98.

Kirkland, Justin H., and Mary A. Kroeger. 2018. "Companion Bills and Cross-Chamber

Collaboration in the U.S." *Congress." American Politics Research* 46(4): 629–70.

Koger, Gregory. 2003. "Position Taking and Cosponsorship in the U.S. House." *Legislative Studies Quarterly* 28(2): 225–46.

Kolko, Jed. 2015. "How Suburban Are Big American Cities?" *FiveThirtyEight*. https://fivethirtyeight.com/features/how-suburban-are-big-american-cities/

Lawless, Jennifer L., Sean M. Theriault, and Samantha Guthrie. 2018. "Nice Girls? Sex, Collegiality, and Bipartisan Cooperation in the US Congress." *Journal of Politics* 80(4): 1268–82.

Lee, Dong Wook, and Melissa Rogers. 2019. "Measuring Geographic Distribution for Political Research." *Political Analysis* 27(3): 263–80.

Lin, Jennifer, and Kristin Lunz Trujillo. 2023. "Urban-Rural Differences in Non-Voting Political Behaviors." *Political Research Quarterly* 76(2): 851–68.

Lyons, Jeffrey, and Stephen M. Utych. 2023. "You're Not from Here! The Consequences of Urban and Rural Identities." *Political Behavior* 45: 75–101.

Makse, Todd. 2020. "The Disappearance of Bipartisan Representation." In *A Divided Union: Structural Challenges to Bipartisanship in America*, Dario Moreno et al., eds. New York: Routledge.

Makse, Todd. 2025. "Leadership Continuity, Cosponsor Cues, and the Floor Agenda in State Legislatures." *State and Local Government Review* 57(2): 105-120.

Makse, Todd, Scott L. Minkoff, and Anand E. Sokhey. 2014. "Networks, Context, and the Use of Spatially Weighted Survey Metrics." *Political Geography* 42: 79–91.

Matthews, Abigail A., Tracy Osborn, Emily U. Schilling, and Rebecca Kreitzer. 2025. "Legislative

Success and Collaboration in the Texas State House." *Politics, Groups, and Identities* 13(1): 159–81.

McKee, Seth and Jeremy Teigen. 2009. "Probing the Reds and Blues: Sectionalism and Voter Location in the 2000 and 2004 Presidential Elections." *Political Geography* 28: 484-95.

Minozzi, William, and Gregory A. Caldeira. 2021. "Congress and Community: Coresidence and Social Influence in the US House of Representatives, 1801–1861." *American Political Science Review* 115: 1292–1307.

Montgomery, David. 2019. "CityLab Congressional Density Index."

Moore, Ryan T., and Andrew Reeves. 2020. "Defining Racial and Ethnic Context with Geolocation Data." *Political Science Research and Methods* 8(4): 780–94.

Moskowitz, Daniel. 2021. "Local News, Information, and the Nationalization of U.S. Elections." *American Political Science Review* 115(1): 114–29.

Munis, B. Kal. 2022. "Us Over Here Versus Them Over There... Literally: Measuring Place Resentment in American Politics." *Political Behavior* 44: 1057–78.

Myers, Andrew CW. 2026. "Press Coverage and Accountability in State Legislatures." *American Political Science Revie*w 120(1): 207-225.

Nemerever, Zoe, and Melissa Rogers. 2021. "Measuring the Rural Continuum in Political Science." *Political Analysis* 29(3): 267–86.

Newman, Benjamin, Yamil Velez, Todd Hartman, and Alexa Bankert. 2015. "Are Citizens 'Receiving the Treatment'? Assessing a Key Link in Contextual Theories of Public Opinion and Political Behavior." *Political Psychology* 36(1): 123–31.

Nuamah, Sally, and Thomas Ogorzalek. 2021. "Close to Home: Place-Based Mobilization in

Racialized Contexts." *American Political Science Review* 115: 757–74.

Openshaw, Stan. 1983. *The Modifiable Areal Unit Problem*. Norwich, UK: GeoBooks.

Pecorella, Robert F. 2012. *Regional Political Conflict in New York State*.

Rehfeld, Andrew. 2005. *The Concept of Constituency: Political Representation, Democratic Legitimacy and Institutional Design*. Cambridge: Cambridge University Press.

Sakoda, James M. 1981. "A Generalized Index of Dissimilarity." *Demography* 18(2): 245–50.

Scala, Dante J., and Kenneth M. Johnson. 2017. "Political Polarization along the Rural-Urban Continuum? The Geography of the Presidential Vote, 2000–2016." *The Annals of the American Academy of Political and Social Science* 672(1): 162–84.

Sides, John, Lynn Vavreck, and Christopher Warshaw. 2022. "The Effect of Television Advertising in United States Elections." *American Political Science Review* 116: 702–18.

Sood, Gaurav. 2016. "Geographic Information on Designated Media Markets." https://doi.org/10.7910/DVN/IVXEHT.

Squire, Peverill, and Keith E. Hamm. 2005. *101 Chambers: Congress, State Legislatures, and the Future of Legislative Studies*. Columbus, OH: Ohio State University Press.

Stein, Robert M., and Kenneth N. Bickers. 1994. "Universalism and the Electoral Connection: A Test and Some Doubts." *Political Research Quarterly* 47(2): 295–317.

Thompson, Douglas I. 2019. "An Ill-Fitting Coat: Reforming US Political Boundaries for a Metropolitan Age." *Journal of Politics* 81(1): 246-59.

Tobler, W.R. 1970. "A Computer Movie Simulating Urban Growth in the Detroit Region." *Economic Geography* 46: 234–40.

Victor, Jennifer and Nils Ringe. 2009. "The Social Utility of Informal Institutions: Caucuses as

Networks in the 110th US House of Representatives." *American Politics Research* 37: 742-66.

Warshaw, Christopher, and Jonathan Rodden. 2012. "How Should We Measure District-Level Public Opinion on Individual Issues?" *Journal of Politics* 74(1): 203–19.

Winburn, Jonathan, Daniel J. Fudge, Joseph Murphy III, and Bailey Griffin. 2024. "State Attachment and Gubernatorial Approval." *Social Science Quarterly* 105(4): 1061-75.

Wong, Cara, Jake Bowers, Tarah Williams, and Katherine Drake. 2012. "Bringing the Person Back In: Boundaries, Perceptions, and the Measurement of Racial Context." *Journal of Politics* 74(4): 1153–70.

Appendix

Measuring Urbanity

As a starting point for creating density thresholds, I use the thresholds for high, medium, low, and very low density from the CityLab Congressional Density Index (Montgomery 2019), drawing demarcations at 102, 800, and 2,213 housing units per square mile. To recalibrate the CityLab standards by state, I rely on the "suburbanisms" metric developed by Airgood-Obrycki et al. (2021), who demarcate urban and suburban Census tracts based on features other than density (commuting, home ownership, single-family housing) and classify tracts relative to other tracts in the metropolitan area. Within each state, I run a logistic regression model predicting whether Airgood-Obrycki et al. (2021) classify a tract as urban or suburban with household density as the sole covariate and identify the value of density for which the model predicts of a 50% probability of being classified as urban, and conversely, a 50% probability of being classified as suburban. This value is then treated as threshold for urban and suburban districts in that state in lieu of the threshold of 2,213. In turn, the lower thresholds of 800 and 102 are replaced with proportionally smaller values (0.362 and 0.045 times the urban-suburban threshold).

Table A-2: Examples of State-Specific Thresholds

State	Urban-Suburban Threshold (Estimated)	Suburban-Exurban Threshold	Exurban-Rural Threshold
Baseline	2,213	800	102
Arkansas	784	284	35
California	3,248	1,176	146
Florida	2,002	725	90
Georgia	947	343	43
New York	4,591	1,662	207
Texas	1,745	632	79
Vermont	584	211	26

Note: All values represent households per square mile.

Although it is possible to produce a misleading portrait of the district based on the plurality category (e.g., if a district were 34% rural, 33% very dense suburban and 33% urban), in practice that happens very infrequently. In 78% of districts, a majority of residents live in tracts falling into one of the four categories, while 95% have more than 40% in one category. Among the districts which have no majority category, I compare the plurality category to the median category to identify districts at risk of misclassification. (Note that, by definition, the median person in these districts must be either in exurban or suburban tracts.) For the 565 districts classified as exurban or suburban by the plurality method, 424 (75%) are placed in the same category based on the tract the median person lives in. And among the 265 districts classified as urban or rural, only 5 (2%) have a median more than one category away from the plurality category. In short, examples like the one at the top of this paragraph are all but nonexistent.

I also compare my four-category classification of state legislative districts to the measure created by Nemerever and Rogers (2021) based on weighted averages of RUCA scores. As Table A-3 illustrates, nearly all districts with RUCA scores above 3 are classified as exurban or rural, while districts classified as most urban by RUCA (scores of 1) include many suburban districts and a good number of exurban ones.

Table A-3: Comparison of Urbanity Measure to Nemerever and Rogers (2021)

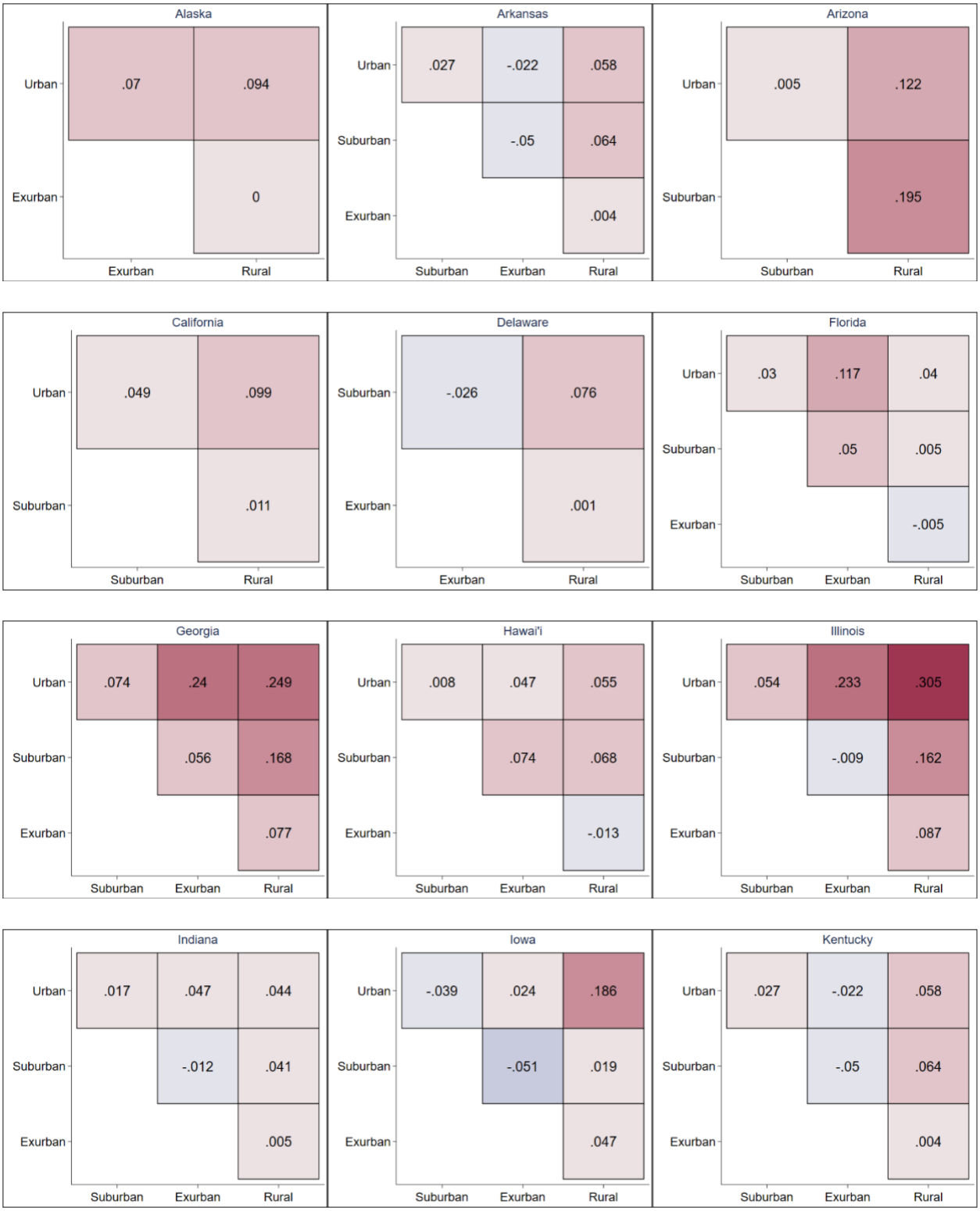
	Percentage of Districts Classified as…			
Weighted Average RUCA	**Urban**	**Suburban**	**Exurban**	**Rural**
Exactly 1.0	52	33	15	0
Between 1.0 and 2.0	13	28	49	10
Between 2.0 and 3.0	2	11	41	46
Between 3.0 and 4.0	1	3	30	66
Between 4.0 and 5.0	1	9	28	61
Between 5.0 and 6.0	1	2	19	79
Between 6.0 and 7.0	0	1	16	84
Between 7.0 and 8.0	0	0	12	88
Between 8.0 and 9.0	0	1	23	75
Between 9.0 and 10.0	0	5	26	69

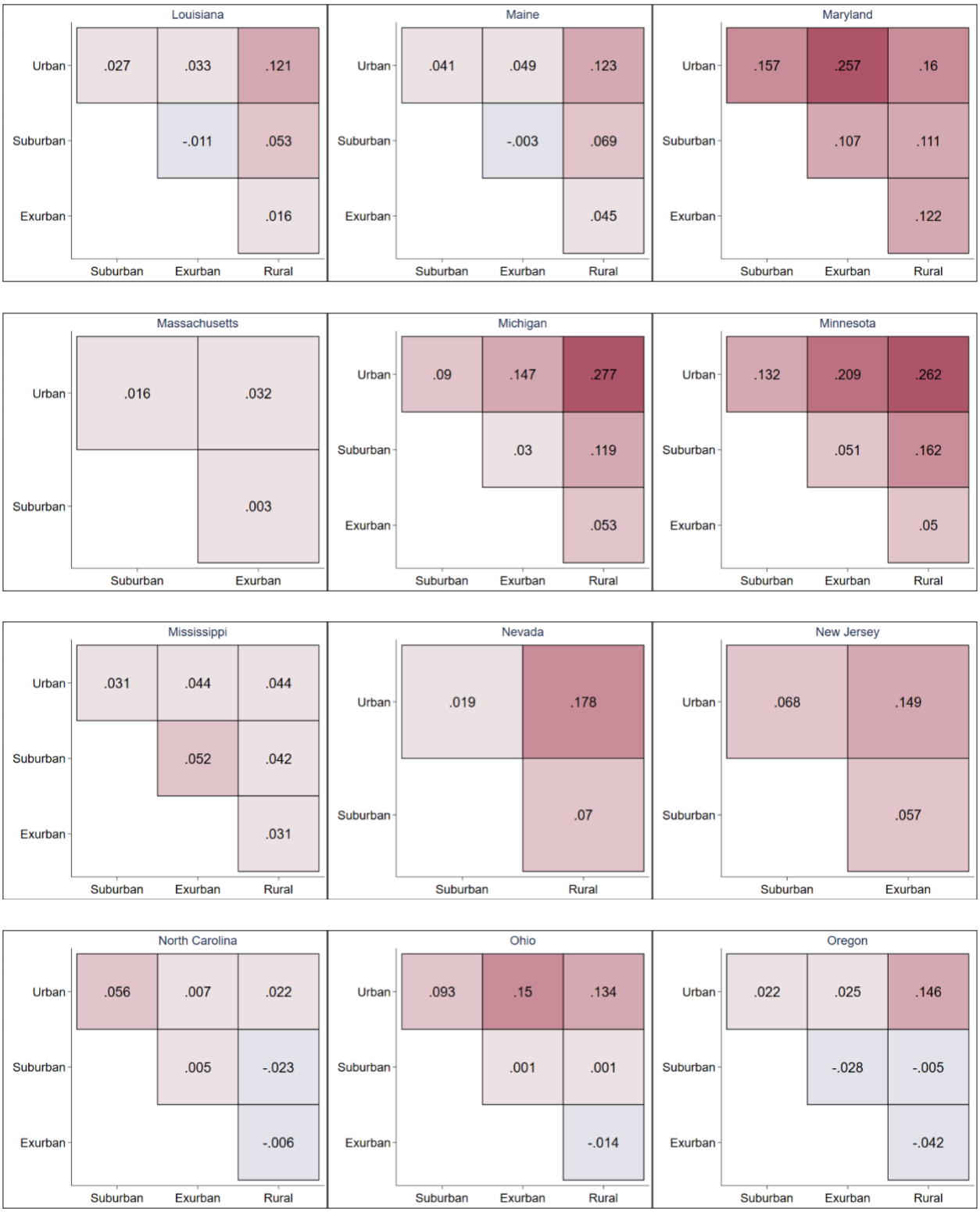
Note: Cells indicate how cases in each range of RUCA scores (per Nemerever and Rogers 2021) are classified using this paper's approach. Rows sum to 100%.

Figure A-1: Illustration of Collaboration Rate Calculations

Legislator A's Collaborators	Bills Authored or Cosponsored by Legislator A	Bill's Total Cosponsors	Bill Collaboration Rate Weight = (1 / Cosponsors)	Collaboration Rate = (Weight Summed)
Legislator B	Bill 1 Bill 2 Bill 3	10 5 2	0.1 0.2 0.5	0.8
Legislator C	Bill 4 Bill 5	1 1	1 1	2
Legislator D	Bill 6 Bill 7	20 4	0.05 0.25	0.3

Figure A-2: Heat Plots for Urbanity Categories

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Suburban
Exurban
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.121
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.016
Suburban
Exurban
Rural
Maine
Urban
Suburban
Exurban
.041
.049
.123
-.003
.069
.045
Suburban
Exurban
Rural
Maryland
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Suburban
Exurban
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.16
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.111
.122
Suburban
Exurban
Rural
Massachusetts
Urban
Suburban
.016
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.003
Suburban
Exurban
Michigan
Urban
Suburban
Exurban
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.03
.119
.053
Suburban
Exurban
Rural
Minnesota
Urban
Suburban
Exurban
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.209
.262
.051
.162
.05
Suburban
Exurban
Rural
Mississippi
Urban
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New Jersey
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Exurban
North Carolina
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Suburban
Exurban
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Suburban
Exurban
Rural
Ohio
Urban
Suburban
Exurban
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Suburban
Exurban
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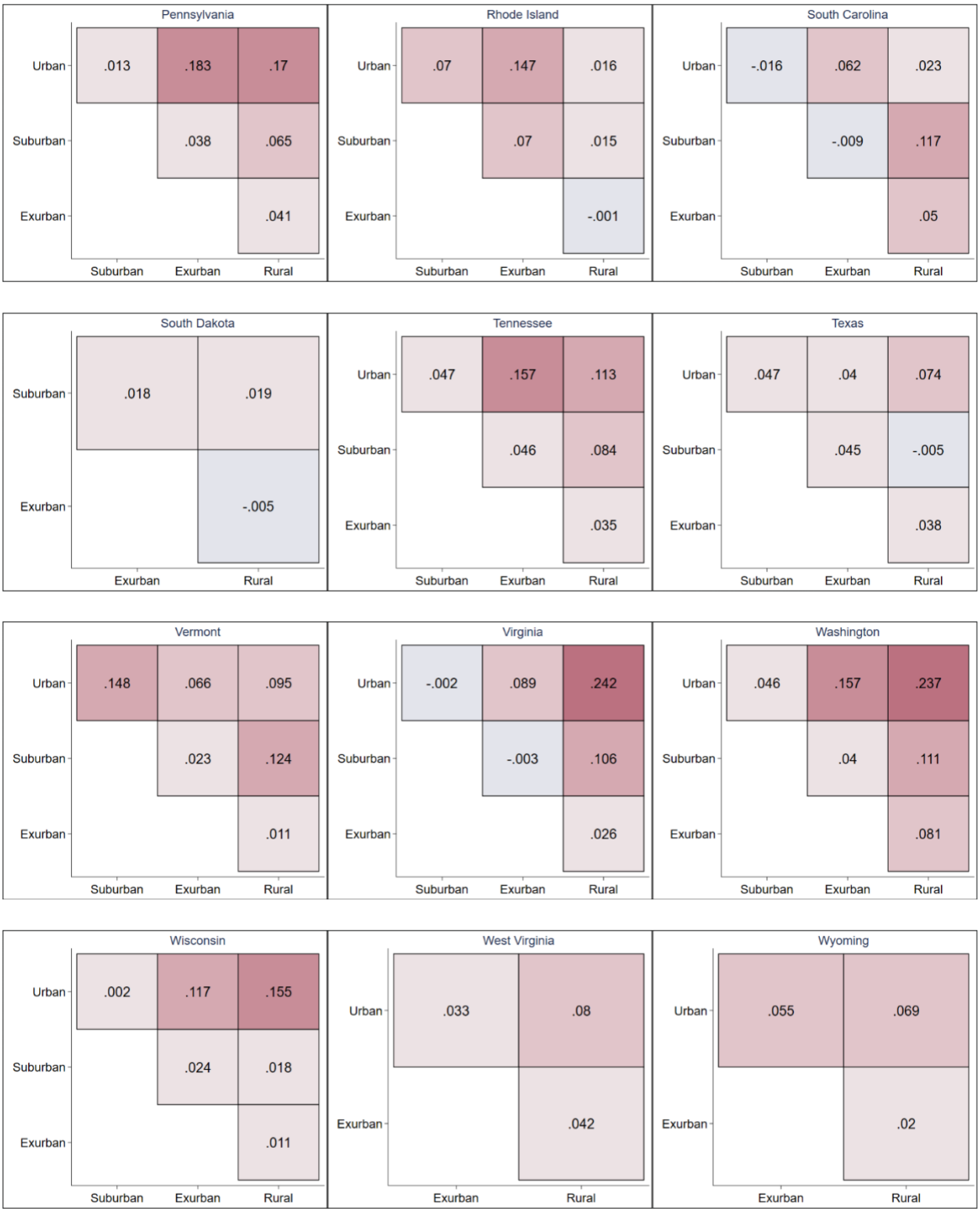
Suburban
Exurban
Rural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Exurban
Rural
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Suburban
Exurban
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.07
.015
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Suburban
Exurban
Rural
South Carolina
Urban
Suburban
Exurban
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Exurban
Rural
South Dakota
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Rural
Tennessee
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West Virginia
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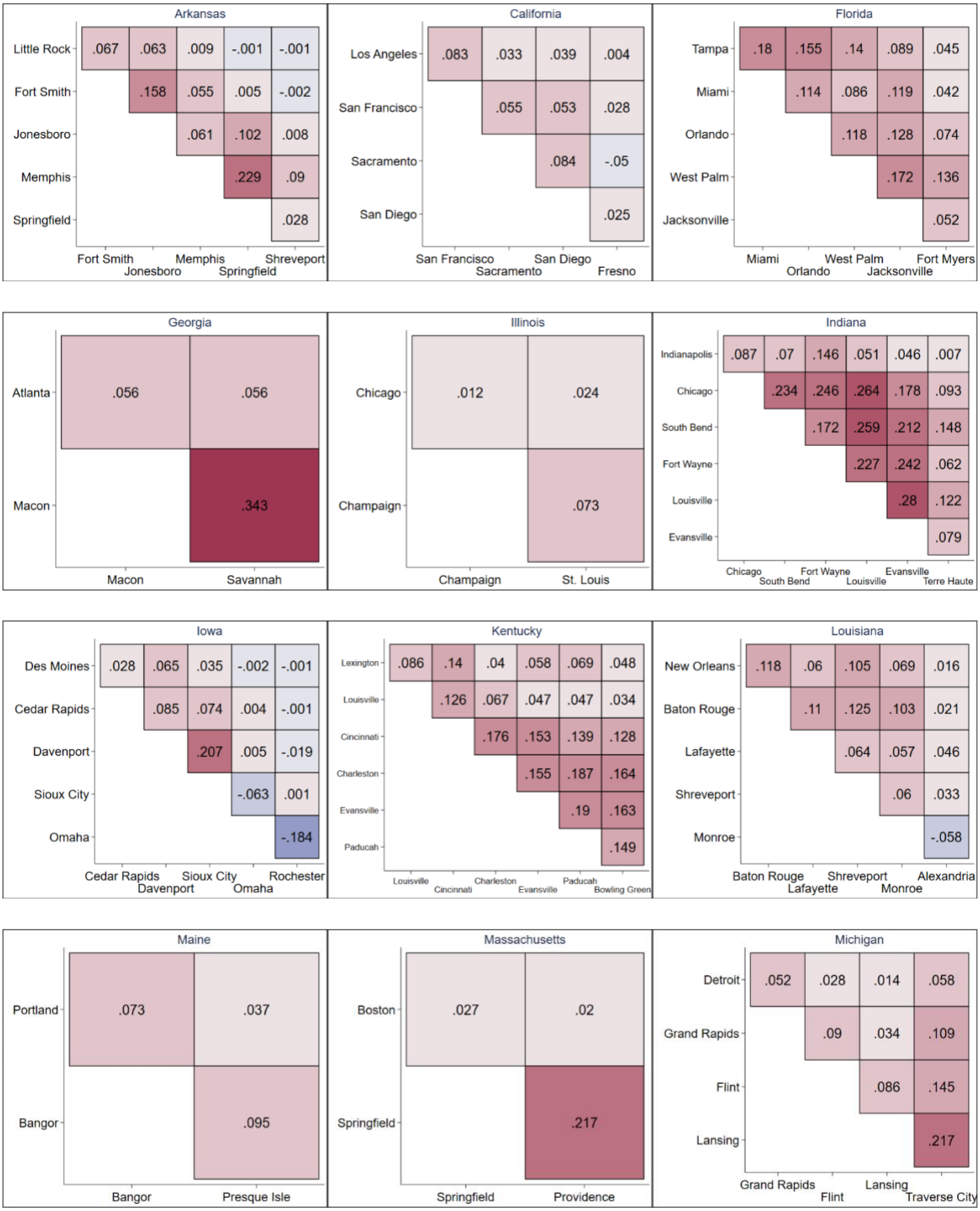
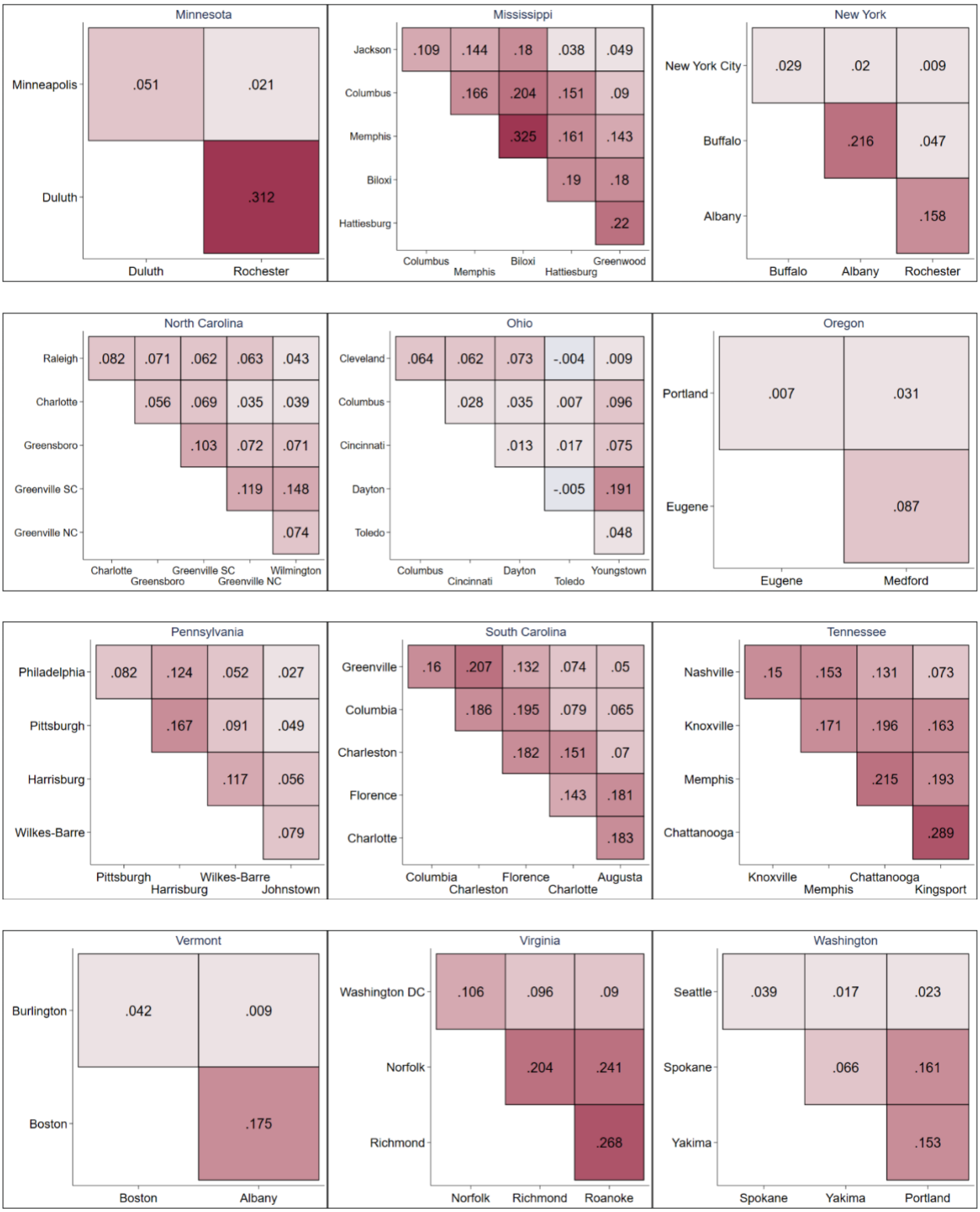
Exurban
Rural

Figure A-3: Heat Plots for Regional Categories

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Duluth
Rochester
Mississippi
Jackson
Columbus
Memphis
Biloxi
Hattiesburg
Greenwood
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.166 .204 .151 .09
.325 .161 .143
.19 .18
.22
New York
New York City
Buffalo
Albany
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.216 .047
.158
Buffalo
Albany
Rochester
North Carolina
Raleigh
Charlotte
Greensboro
Greenville SC
Greenville NC
Wilmington
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.056 .069 .035 .039
.103 .072 .071
.119 .148
.074
Ohio
Cleveland
Columbus
Cincinnati
Dayton
Toledo
Youngstown
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.028 .035 .007 .096
.013 .017 .075
-.005 .191
.048
Oregon
Portland
Eugene
Medford
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.087
Pennsylvania
Philadelphia
Pittsburgh
Harrisburg
Wilkes-Barre
Johnstown
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.167 .091 .049
.117 .056
.079
South Carolina
Greenville
Columbia
Charleston
Florence
Charlotte
Augusta
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.182 .151 .07
.143 .181
.183
Tennessee
Nashville
Knoxville
Memphis
Chattanooga
Kingsport
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.171 .196 .163
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Vermont
Burlington
Boston
Albany
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Virginia
Washington DC
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Richmond
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Spokane
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Portland
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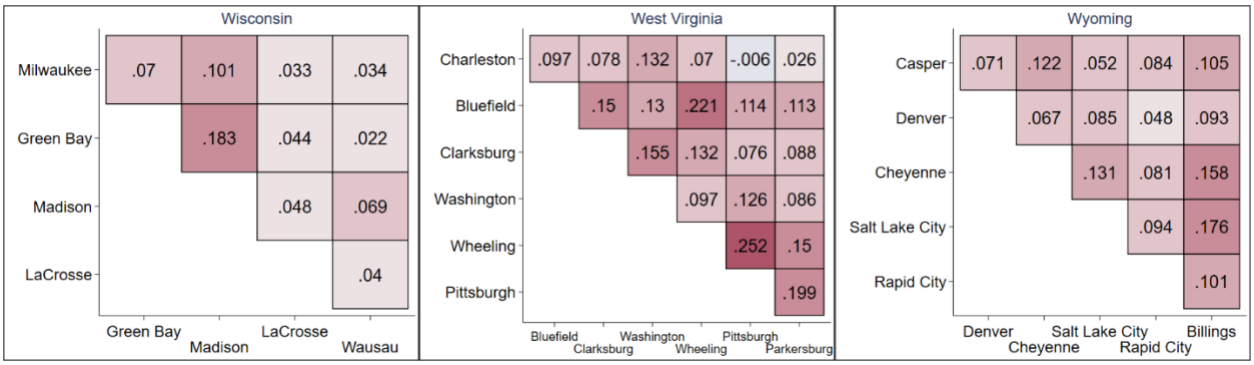

Note: Heat plots are not provided for the following states, which have only one pair of DMAs: AK, DE, MD, ND, NJ, NV, and SD.

Figure A-4: Summary of Modularity Scores by Comparative Region Size

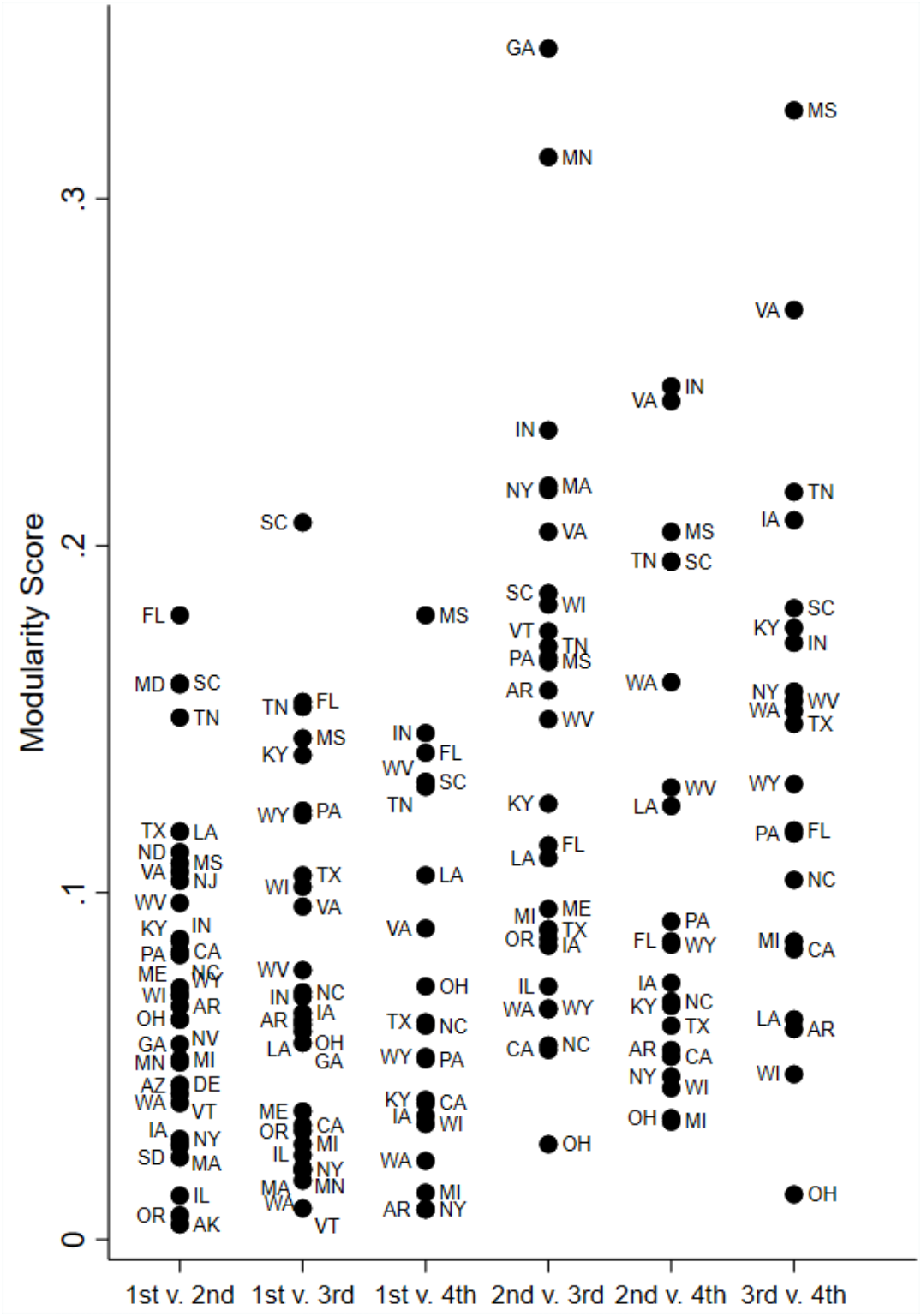

Table A-4: Additional Models of Legislative Effectiveness

	Urbanity (Excluding Small Categories)	DMA (Excluding Small Categories)
Dissimilarity index	-0.76 (0.11)**	-0.31 (0.13)*
Collaboration rate	0.64 (0.17)**	1.01 (0.18)**
Majority status	0.39 (0.06)**	0.35 (0.07)**
Speaker of the house	0.89 (0.30)**	0.76 (0.29)*
Majority leadership position	0.11 (0.11)	0.15 (0.11)
Minority leadership position	0.25 (0.14)#	0.32 (0.15)*
Committee chair	0.47 (0.06)**	0.45 (0.06)**
Power committee member	0.09 (0.03)**	0.05 (0.04)
Ideological extremism	-0.08 (0.04)#	-0.15 (0.05)**
Seniority	0.027 (0.006)**	0.023 (0.007)**
Female	-0.07 (0.02)**	-0.06 (0.02)**
Black	0.07 (0.07)	0.01 (0.06)
Hispanic	-0.12 (0.07)#	-0.15 (0.08)#
Previous vote share	1.47 (0.58)*	2.77 (0.61)**
Previous vote share squared	-0.91 (0.37)*	-1.71 (0.39)*
Constant	0.07 (0.23)	-0.45 (0.24)#
R-Squared	0.21	0.22
N	10,732	9,744

Note: # $p < 0.10$; * $p < 0.05$; ** $p < 0.01$. Standard errors clustered by state-session. Small Categories are those which do not meet the 5% of districts/5 members threshold.

Table A-5: Additional Models of Legislative Effectiveness

	Version of Dissimilarity Index		
	Urbanity	Distance	DMA
Dissimilarity index	-0.77 (0.16)**	-0.45 (0.13)**	-0.13 (0.19)
Collaboration rate	0.64 (0.16)**	0.63 (0.16)**	1.02 (0.18)**
Majority status	0.40 (0.08)**	0.53 (0.08)**	0.43 (0.08)**
Dissimilarity X Majority	-0.00 (0.23)	-0.47 (0.19)*	-0.30 (0.23)
Speaker of the house	0.89 (0.29)**	0.88 (0.29)**	0.72 (0.28)*
Majority leadership position	0.13 (0.11)	0.13 (0.11)	0.15 (0.11)
Minority leadership position	0.26 (0.14)#	0.26 (0.14)#	0.29 (0.15)#
Committee chair	0.46 (0.06)**	0.45 (0.06)**	0.46 (0.06)**
Power committee member	0.09 (0.03)**	0.08 (0.03)*	0.07 (0.04)#
Ideological extremism	-0.07 (0.04)#	-0.08 (0.04)#	-0.15 (0.05)**
Seniority	0.027 (0.006)**	0.027 (0.006)**	0.021 (0.006)**
Female	-0.07 (0.02)**	-0.08 (0.02)**	-0.08 (0.02)**
Black	0.06 (0.07)	0.07 (0.07)	0.05 (0.07)
Hispanic	-0.12 (0.07)#	-0.11 (0.07)	-0.12 (0.08)
Previous vote share	1.48 (0.57)*	1.39 (0.58)*	2.82 (0.61)**
Previous vote share squared	-0.92 (0.36)*	-0.86 (0.37)*	-1.73 (0.39)*
Constant	0.06 (0.22)	0.03 (0.23)	-0.53 (0.24)*
R-Squared	0.20	0.21	0.23
N	10,867	10,867	10,499

Note: # $p < 0.10$; * $p < 0.05$; ** $p < 0.01$. Standard errors clustered by state-session.

Capital Cities and Population Distributions across Regions

To assess the possibility that the region that contains the state capital might play a more pivotal role than its raw size might suggest, I use coarsened exact matching to identify dyads that are similar in terms of the share of the state's population for both the larger and smaller DMA in the dyad. Dyads that are otherwise similar do not have larger or smaller modularity scores when one of the two regions is the state's capital region ($\beta = 0.002$; $p = 0.77$).

Second, I consider whether the distribution of population size across regions within a state may matter. States where districts from a single region comprise a legislative majority (GA, IL, NY) may produce collaboration patterns different from those in which producing a majority requires members from at least two regions (CA, OH, TX) or even from three or more regions (FL).] Since this is a claim about the concentration of population among the regions of a state, I calculate a Herfindahl index of the number of districts across regions and estimate the correlation between a state's Herfindahl index score and the modularity scores in its region dyads. There is some evidence of a relationship there: the correlation between the two quantities is $r = -0.15$ and is statistically significant. This indicates that states with a single dominant region have lower modularity scores than states with populations spread more evenly across several regions.