The Transmission of Legal Precedent Among State Supreme Courts in the 21st Century

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Theories of legislative policy diffusion are well-formed and extensively tested, but scholars know far less about the diffusion of legal policy and reasoning. Three decades ago, Caldeira's "The Transmission of Legal Precedent: A Study of State Supreme Courts" examined this topic, but the intervening decades have been marked by considerable changes in both technology and the institutional structure of state supreme courts. We explore the effect of these changes by explaining modern translegal judicial communication in the United States. Relying on an original dataset encompassing every citation in every legal decision made by all 52 state supreme courts in 2010, we explore the effect of the proximity of two states and the prestige of the cited court on how frequently state high courts use one another's precedents. We find evidence that both proximity and prestige increase cross-state citations.

The fact that the American states serve as laboratories of democracy has been long acknowledged by scholars and politicians alike. The presence of fifty distinct state governments with extensive policymaking responsibilities frequently enables one state government to observe the consequences of a particular policy decision before it adopts that policy. With this in mind, the state politics literature has a long tradition of exploring the determinants of state legislatures' decisions to look outside their borders to adopt policies (Walker 1969; Berry and Berry 1990), finding that, though they are not bound by the decisions of their sister states, states learn from and emulate each other in contexts as varied as health care, education, and tax policy.

Yet the states are more than legislative laboratories. Judicial doctrines, like legislative or bureaucratic policies, diffuse among states. Just as state legislators borrow from their colleagues across state lines, state-level developments in constitutional and statutory interpretation also diffuse across state lines. For example, Canon and Baum (1981) demonstrate that a set of doctrines related to tort law gradually diffused across state lines, though the speed of diffusion depended upon the willingness of litigants to bring their claims before the state supreme court, marking a key distinction between the processes of legislative and legal diffusion. Another distinction is the legal practice of explicitly citing other courts' precedents when adopting a similar policy or applying a similar rule: through citation, legal logic travels from jurisdiction to jurisdiction. Consequently, the process of citation offers an excellent opportunity to study the diffusion of legal doctrines among state courts.

While the determinants of legislative borrowing are well-studied (Karch 2007), we know much less about the conditions under which state supreme courts draw upon each other's prior decisions. Under the judicial doctrine of stare decisis, judges are not bound by the decisions of their sister courts. Hence, when the Iowa Supreme Court dealt with the question of same-sex marriage in *Varnum v. Brien*, its holding was not formally dictated by the Massachusetts Supreme Court's 2003 decision in *Goodridge v. Department of Public Health* which recognized same-sex marriage in that state. Nevertheless, across-state citation

is common. Indeed, the Iowa court's same-sex marriage opinion repeatedly references the Massachusetts court's decision, praising it and explicitly relying on the same logic. In the years since the Iowa and Massachusetts courts legalized same-sex marriage, these two opinions have been widely cited by other state courts, with courts in 19 states referencing the Massachusetts opinion and 11 states referencing the Iowa decision. Across a broader set of legal issues, there is widespread evidence that state supreme courts cite each other. Friedman et al. (1981) report that state supreme courts cited one of their sister court's opinions once for every two citations to their own body of precedent from 1870 to 1970.

Why do states look outside their borders to cite and discuss non-binding precedents? Caldeira (1985) found evidence that the transmission of legal precedent results from geographic proximity and cultural linkages between two states as well as the somewhat arbitrary designation of West's National Reporter System concerning which states' legal opinions are published in each of its regional reporters. Yet much has changed in the three decades since Caldeira's study was published. Scholars of state politics have looked with renewed interest on institutional variation among state courts, seeking to understand how variation in professionalization (Squire 2008), selection and retention methods (Canes-Wrone, Clark and Kelly 2014; Brace and Hall 1995), the structure of the judicial hierarchy (Dubois 1988), and judicial discretion (Eisenberg and Miller 2009) affect judicial decisionmaking. Furthermore, technological advances in legal research have drastically undermined the importance of the physical location of state precedents in one West regional reporter or another. We simply do not know the extent to which the patterns of judicial borrowing have changed over time.

In this article, we assess change and continuity in the determinants of legal diffusion among state supreme courts. Building on Caldeira's study and drawing from the policy diffusion literature, we argue that proximity and prestige determine the extent to which state supreme courts rely on each other's jurisprudence. We predict that, as two states are more similar, in terms of ideological, geographic, cultural, and institutional features, the extent to which they rely on each other's opinions increases. Furthermore, we anticipate that

state supreme courts are more apt to cite the opinions of their more prestigious sister courts. Using an original dataset containing every decision of every state supreme court in 2010, we assess the extent to which proximity and prestige affect the total number of citations each state supreme court makes to its sister courts. We find evidence that factors indicating both proximity and prestige do increase the number of state supreme court precedents being transmitted from one jurisdiction to another.

Background

Judges justify their rulings by placing them in a web of precedent, thereby explaining how the present case relates to past cases. With every year that passes, the available body of precedent grows. As of the year 2000, legal scholars estimated that U.S. caselaw exceeded six million cases with approximately 200,000 new cases being added each year (Danner 2003). Consequently, when drafting their opinions, individual judges have a large choice set from which they can choose to cite when writing a given opinion (Hinkle 2015*b*). Judges may choose to cite a case for any number of reasons, such as its quality (Choi, Gulati and Posner 2009) or to legitimate the legal argument they are making (Walsh 1997).

Over time, the number of citations to a given precedent (and, by extension, the court that decided it) accumulates. These aggregate citation rates are an important phenomenon, indicating the prestige of a court or judge (Klein and Morrisroe 1999). Other scholars, including Choi, Gulati and Posner (2009) and Caldeira (1983), have argued that the accumulation of citations represents a measure of quality; by this theory judges or courts who accumulate more citations are writing opinions that are of a higher quality. An analogy to scientific practice is instructive. As Harris (1985) writes, "In the sociology of science, citation rates are a conventional measure of the status and influence of particular studies, of individual scientists, and, in a fashion very similar to this study, of communication between scientific fields and subfields" (460). While scholars, like judges, may choose to cite to past authority for a variety of reasons, authorities (precedents in the legal context or scholarly books or

articles in the academic context) with more citations are generally acknowledged as being of higher quality.

Citations reflect not only quality, but also influence. Across courts, influence is not uniformly distributed. Since at least Mott's (1936) claim that "[i]t is axiomatic that some supreme courts are more influential than others," scholars have sought to determine why some courts have more influence than others (295).[1] While Mott argued that prestige of a court determines its out-of-state influence, he acknowledged that other factors, like age, population, urbanization, or wealth might determine which states' opinions are widely relied upon by other courts (see also Mott, Albright and Semmerling 1933). Denniston (2014) finds evidence that state courts known to be particularly prestigious are more likely to be cited by their sister courts in opinions that expand rights.

Friedman et al's (1981) study of the decisions of sixteen state supreme courts from 1870-1970 describes the evolution of citation practices among state supreme courts. Whereas state supreme courts in the late 1800s cited equal numbers of in-state and out-of-state opinions to justify their rulings, a gulf emerged in citation patterns as states developed their own bodies of case law. By 1970, state supreme courts, on average, referenced three in-state precedents for each out-of-state opinion they cited. Friedman et al. conclude that, since New York, Massachusetts, and California are all particularly influential states in their data, that population and urbanization are key determinants of state supreme court influence.

Since Friedman et al. (1981), scholars have gradually moved beyond descriptive analyses of temporal variation in citation practice toward systematic cross-sectional comparisons designed to discover the determinants of inter-court citation practices and, by extension, the correlates of influence.[2] Caldeira (1983) found that, at least in 1975, the courts with the

[1]Caldeira (1983) makes a similar claim: "It is beyond argument that not all appellate courts are equal in influence and that some serve as models far more often than chance predicts" (104).

[2]In addition to the cross-state studies, a substantial literature has examined citation

highest reputation had *less* legal capital, were located in more populous states, had moderate caseloads, and were more professionalized. Caldeira (1985) found that the transmission of legal precedent results from geographic proximity and cultural linkages between two states, prestige, professionalism, as well as the somewhat arbitrary designation of whether two states' legal opinions are published in the same regional reporter. The legal publisher, West, has published state court opinions in a series of regional reporters since the late 1800s. The regions used to designate which states' opinions are included in which reporter are referred to as "West regions." They are shown in Figure 1.

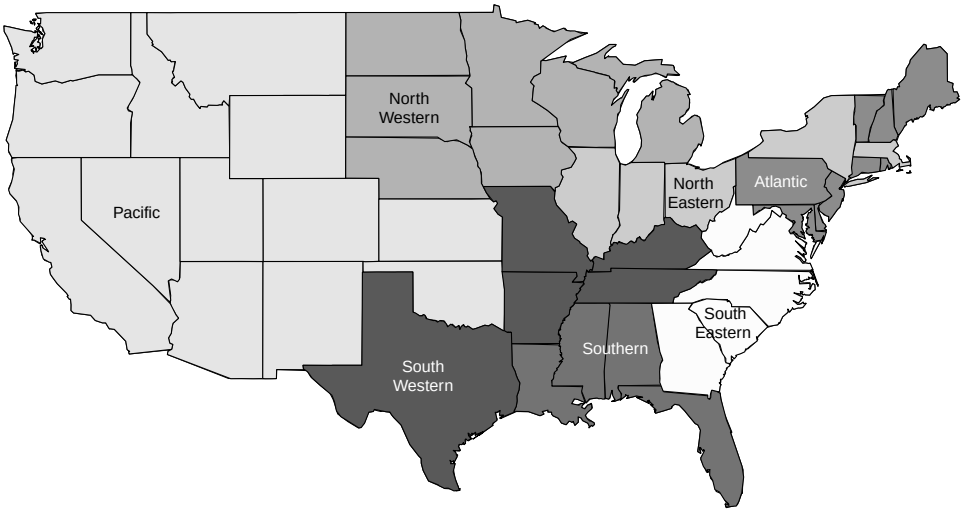

Figure 1: Map of Regions in West's National Reporter System. For the purposes of distribution, West Publishing divides the United States into seven reporting regions; state supreme courts within the same West region have their opinions published in the same reporter series. Alaska and Hawaii are in the Pacific Region.

In other work, Caldeira (1988) examined the positions of state supreme courts in the citation network, examining to what extent similarity among state supreme courts affects the likelihood that they cite each other. Caldeira finds robust support for the proposition

practices in single states (e.g. Merryman 1977; Manz 1995, 2001). Nagel (1962) examined positive and negative citations throughout the judicial hierarchy, though the analysis is conducted at the regional level.

that courts with similar workloads and in similar states tend to cite each other more often. However, there is an inverse relationship between a court's professionalism and prestige and the courts it cites, suggesting that low prestige and less professionalized courts tend to cite "up", perhaps seeking legitimization from courts of higher prestige and professionalism.

Harris (1982) compares predictors over time, finding that the state supreme court citation network changed dramatically between 1870 and 1970; in the late 1800s, the citation network was determined primarily by prestige. In the first part of the twentieth century, the network became fairly equalized, with states both citing and being cited. By the 1970s, prestige—of a national, rather than regional character—returned as a primary determinant of a court's place in the citation network. Moreover, the importance of interstate migration gradually increased over time; states with a higher proportion of citizens originally from another state are more likely to cite that state's opinions (see also Harris 1982).

This evidence that the determinants of citation practice can vary widely over time reinforces the need for a comprehensive examination of the current nature of transjudicial communication. There are many reasons to expect different patterns than those in evidence in 1975. For example, states have altered the institutions they use to select and retain judges, and many state legislatures have added intermediate appellate courts to the judicial hierarchy. Additionally, the advent of online legal research has dramatically increased the ability of state court judges to locate relevant opinions from other state supreme courts while lessening their need to rely on the printed reporters that Caldeira's study found were a key determinant of transjudicial communication. Given all of these reasons to expect that the determinants of legal communication have changed over time, we turn to developing a theory of judicial communication for the 21st century.

Proximity and Prestige in Citation Practice

Two major threads are woven through the existing work on the transmission of legal precedent from state to state: proximity and prestige. First, two states that are in close proximity

to one another are more likely to rely upon one another's opinions. There are multiple ways two states can be similar, and ideological, geographical, and institutional proximity are all likely to increase states' reliance upon another state's precedents. This expectation has been long-embraced in the study of state politics; for over a half-century, scholars have found that states tend to adopt polices that their neighbors have already implemented (Walker 1969), positing that the effect is due to tight communication networks (Karch 2007). This similarity effect extends beyond geography, with scholars finding evidence that ideological similarities (Grossback, Nicholson-Crotty and Peterson 2004); jurisdictional similarities (Hinkle 2015*a*); and demographic, political, and budgetary similarities are positively associated with policy transmission (Volden 2006).

Beyond the state-level evidence from the policy diffusion literature, there is also a psychological explanation for this expectation: cognitive biases. Humans tend to seek out information that fits their preexisting schemes (confirmation bias), viewing information that accords with prior opinions as stronger evidence (prior attitude effects) (Braman and Nelson 2007; Taber and Lodge 2006). Consequently, to the extent that relying upon sister courts provides evidence of genuine persuasion by the logic set forth in a precedent, we would expect a court to be persuaded more frequently by more similar courts. Yet consulting a sister court's opinions for purposes of efficiently considering an open legal question is only one plausible explanation for why state high courts cite one another. An equally realistic explanation is that a state court decides how it will resolve a legal issue and then seeks out supporting precedents to buttress its decision (Denniston 2014; Walsh 1997). This process would also lead to state courts relying disproportionately on more proximate sister courts since those courts' precedents are more likely to provided the support being sought.[3]

[3]We do not address the immensely difficult (if not impossible with observational data) task of distinguishing between persuasion and post-hoc justification since both lead to the same theoretical expectations.

Proximity Hypothesis: A state supreme court will cite more precedents from a sister supreme court that is more proximate to itself in terms of ideology, geography, and institutional features.

The second broad theme we examine is the role of prestige in the transmission of legal precedent. Any given precedent is more likely to be cited when it is produced by a more prestigious state court (Denniston 2014). This general pattern may be generated by a variety of specific dynamics. More prestigious courts may have an enhanced capacity for generating particularly persuasive opinions that, in turn, are more likely to be cited simply because they are more likely to persuade. Moreover, judges crafting an opinion may use their knowledge of the reputation of another court as prestigious as a cue or shortcut to efficiently determine which precedents to follow. Finally, a court seeking post hoc justification would prefer to rely upon supportive rulings from the most prestigious courts under the expectation that such sources will provide a more convincing justification. For all of these reasons, we hypothesize the a state high court is more likely to cite a more prestigious sister court than a less prestigious sister court.

Prestige Hypothesis: A state supreme court will cite more precedents from a sister supreme court that is more prestigious.

While we frame our hypotheses in terms of the broad concepts of proximity and prestige, these manifest in terms of more specific individual factors. Proximity, in particular, is a general way of thinking about how various types of similarity can influence citation. The first type of proximity we consider is ideological proximity. Since the actors making citation decisions are judges, the most direct type of ideological distance to consider is the distance between the ideology of the judges on two state high courts. A court dominated by a conservative majority should be more likely to cite another conservative high court than one with a majority of liberal judges. However, judges do not operate in a political vacuum. Precedents may be written to reflect the ideology of a state's citizenry, and judges may select precedents to cite with the preferences of their own citizens in mind. To the extent

that judges act in such a representative capacity, the ideological distance between the citizens in two states may be reflected in citation patterns.

Two states can also be similar in terms of the size or composition of their population. The cultural linkage between two states is measured by the proportion of residents of the citing state who were born in the cited state, and the difference in their populations captures the similarity in overall size of two states (Caldeira 1985). When a state has more citizens from a particular sister state, that suggests a stronger link in terms of the needs and issues faced by those citizens that may be better addressed by consulting the previous work of their original home state. Along similar lines, states with similar population sizes are more likely to face similar legal problems and, thus, generate precedents more applicable to their similarly-populated sister states.

Past research shows that the number of miles between two state capitals is related to citation patterns (Caldeira 1985), so we use this measure of geographic proximity. Physical contiguity is another way to measure geographic proximity. However, this poses complications since geographically contiguous states often also share key institutional similarities such as having their precedents reported in the same West regional reporter or being located within the same federal circuit. In order to parse out the independent effects of two states being in the same West region, in the same federal circuit, and that are contiguous, we consider each possible combination of these three features. This approach permits the effects of geographic contiguity to be disentangled from the effects of legal reporting practices or federal jurisdictional boundaries. Finally, we identify whether two states share the same type of judicial retention mechanism for staffing their high courts. As Caldeira (1988) notes, "if a pair of state supreme courts share an attribute, *ceteris paribus*, the two should exhibit a tendency to join the same clique..." (45).

Measuring the prestige of a cited state court is somewhat more difficult. To quantify legal professionalism, we use Squire's index of state court professionalism that incorporates information on judicial salaries, the number of law clerks, and the extent of agenda control

(Squire 2008). All of these features reflect a court's capacity to generate the high-quality opinions that help develop or enhance its reputation. Higher salaries may attract more qualified judges. More law clerks provide the assistance to write more detailed and thorough opinions. Finally, greater agenda control gives a court the ability to restrict its workload and, thus, exert more effort on turning out high quality opinions in a smaller number of cases. The legal capital of each state is the number of published high court opinions issued between its inception and the end of 2009. A greater amount legal capital both gives other courts a wider range of precedents to choose and reflects the overall impact a state high court has had on the legal landscape.[4] While older states have had the opportunity to generate greater amounts of legal capital, those same states have had a longer time to develop a reputation as prestigious. Consequently, looking at the raw legal capital generated by a state court provides a better measure of prestige than a normalized measure that takes the age of the state into account. Our final indicator of a cited court's prestige is the size of its population. Although blunt, this measure reflects the reality that more populous states generate a wider variety of litigation, thus giving their high courts more opportunities to establish a prestigious reputation. All of our hypotheses for each of these indicators are summarized in Table 1.

Data and Research Design

We examine citations in every opinion issued in 2010 by each of the 52 state courts of last resort ($n = 8,382$). Our unit of analysis is a dyad involving two courts. The citing state court (and all variables relating to it) is indicated using an index of i, while the index j denotes the cited state court. Each state high court is paired with each other state court. Since there is a distinct difference between citing and being cited, we use directed dyads.

[4]Paradoxically, the more blunt measure used by Caldeira (1985), running feet of state court reports, is unavailable for our time frame because several states have abandoned publishing their own reports and rely solely upon the West regional reporters.

Proximity		**Prestige (of cited court)**	
Ideological Distance: Courts	-	*Legal Professionalism*	+
Ideological Distance: Citizens	-	*Legal Capital*	+
Cultural Linkage	+	*Population*	+
Geographic Distance	-		
Population Difference	-		
Same West Region	+		
Same Federal Circuit	+		
Contiguous	+		
Same Selection Method	+		

Table 1: Summary of Hypotheses

As a result, there are two observations for each pair of states. For example, one observation contains Arizona as the citing state and Arkansas as the cited state and a second contains information on Arkansas as the citing state and Arizona as the object of its citations. There are 2,652 dyads among the 52 state high courts.[5]

The outcome variable for each dyad is the number of times the court of last resort from state$_i$ cited an opinion from the court of last resort of state$_j$ during 2010. We compiled these data by using the legal publication *Shepard's Citations* to obtain a report of all precedents cited in each 2010 case listed in the Hall and Windett (2013) dataset.[6] For each case, *Shepard's* provides a list of all precedents cited, but it does not identify how many times each precedent was cited in a given opinion. As a result, for each state$_i$-state$_j$ dyad, the outcome variable is the number of precedents from state$_j$ that were cited one or more times in a 2010 opinion from state$_i$.[7] This means that not all citations are precisely equal. Some

[5]For several variables (*e.g.*, population), the two high courts from Oklahoma and Texas have the same value. However, the ideology of each court does vary, so we evaluate them as distinct entities.

[6]We wrote Python scripts to extract and compile information from the *Shepard's* reports.

[7]For example, when one opinion from state$_i$ cites five precedents from state$_j$, that counts as five citations. However, when one state$_i$ opinion cites one state$_j$ opinion five times, that

reflect extensive discussion while others may indicate a single mention in a string citation. Although it is not practicable to capture all of the nuance contained within citations, we are able to exclude citations that criticize the cited precedent. Such citations, although rare, reflect the very opposite of the concept of reliance and support we seek to quantify. Consequently, we deem it worthwhile to purge these negative citations from our citation counts.[8] The outcome variable is a count that shows evidence of overdispersion, so we employ negative binomial models which, unlike Poisson count models, produce unbiased estimates when faced with an overdispersed outcome variable.

The distribution of the outcome variable provides insights into the citation practices of state supreme courts. Looking first at the dyad level, the outcome variable ranges from 0 to 39, though the average dyad contains only 2.5 citations. Second, there is considerable variation in how frequently each state chooses to cite the precedents of its sister courts. The number of times one state cites any other state ranges from 24 to 462, and the top panel of Figure 2 illustrates where states fall along this spectrum. Third, we can also determine how often each state supreme court is cited by its peers. While there is less variability, the range is still considerable: a minimum of 47 and a maximum of 287. Consistent with previous research, we find that California, Massachusetts, and New York are cited the most. The bottom panel of Figure 2 illustrates the distribution across the country. Detailed lists of the number of times each state court cited and was cited and the average citation rates by judicial selection method and West legal reporting region are provided in Table 5 in Appendix A.

As discussed above, we use several measures of the proximity, or similarity, between

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only counts as one citation. If five different state$_i$ opinions all cite the same state$_j$ opinion, that counts as five citations.

[8]The *Shepard's* treatment categories that clearly indicate negative treatment include 'Distinguished,' 'Criticized,' 'Limited,' 'Questioned,' 'Overruled,' and 'Disapproved' (Spriggs and Hansford 2000).

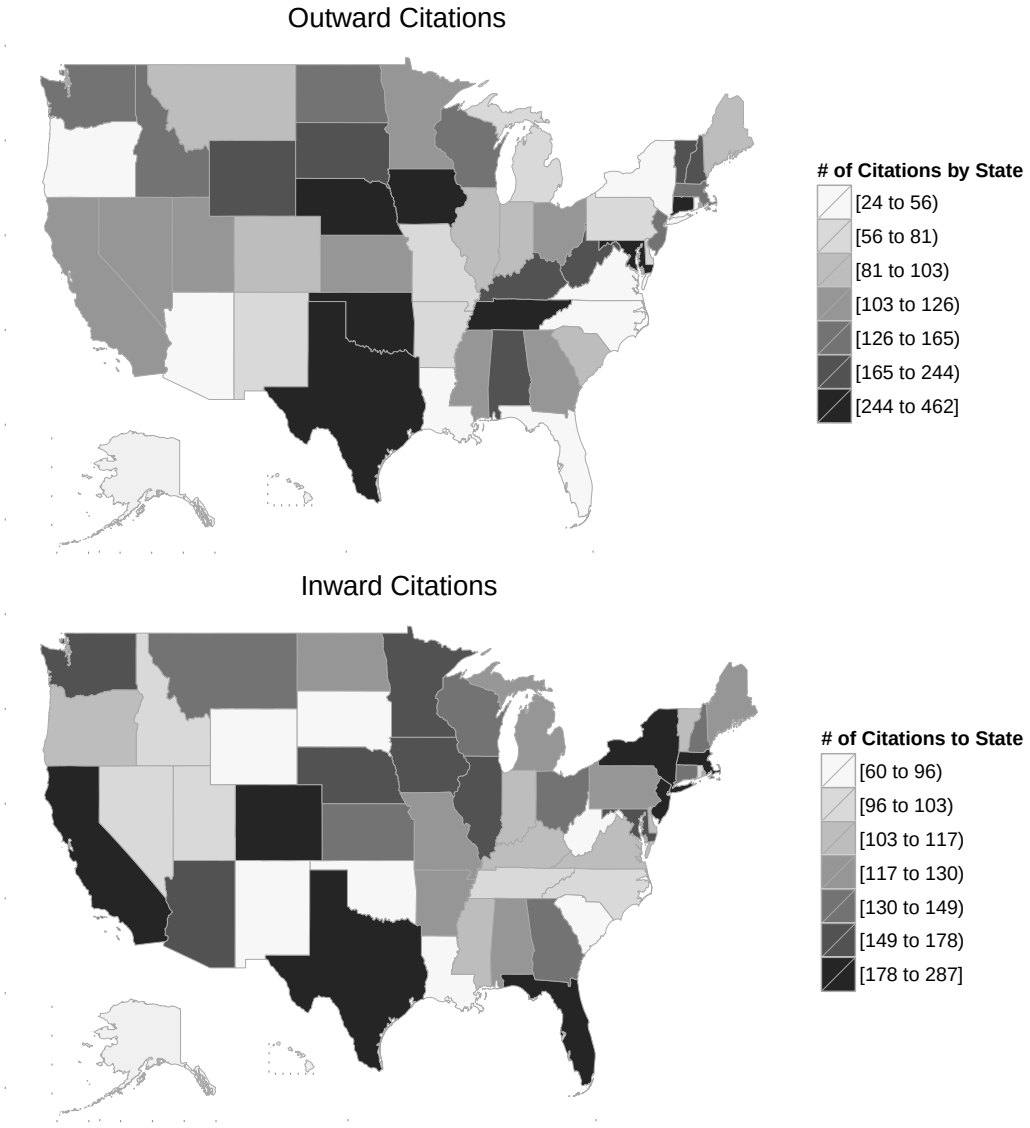

Figure 2: Illustration of the relative frequency with which each state cites its sister courts (top panel) and is cited by its sister courts (bottom panel).

state$_i$ and state$_j$. We begin by measuring ideological distance. The first such measure is the ideological distance between the median of the two relevant courts. We utilize Bonica and Woodruff's (2012) measure of state high court ideology to construct this measure. The second such measure is the distance between the citizen ideology of two states. Specifically, this is the absolute value of the difference between the revised 1960-2013 citizen ideology score for state$_i$ and state$_j$ in 2010 (Berry et al. 1998).[9] Next, we directly adopt Caldeira's

[9]Including ideological measures for courts and citizens may be problematic if they are

(1985) measure of the cultural linkage between two states as the proportion of residents of state$_i$ who were born in state$_j$.[10] *Geographic Distance* is the number of miles between the two state capitals and *Population Difference* is the absolute value of the difference between the respective 2010 populations of state$_i$ and state$_j$ (in millions) according to the U.S. Census Bureau. Next, we use a series of binary variables for each possible combination of three binary types of proximity–whether both dyad states are in the same legal reporting region in West's National Reporter System, whether both dyad states are in the same federal circuit, and whether the two dyad states are contiguous. The baseline (excluded) category is dyads that share none of these indicators of proximity. Each of the other seven possible combinations is a binary variable. All eight categories are populated. The final measure of similarity is whether the two states in a dyad use the same method to select their high court judges.[11]

Next, we turn to our measures of the prestige of the court of last resort in state$_j$. To begin with, we utilize Squire's (2008) measure of the professionalism of such courts. This measure incorporates judicial salary, number of clerks, and extent of agenda control (the extent to which the Court's jurisdiction is discretionary) (Squire 2008). Higher scores indicate greater professionalism, and a score of one represents the same level of professionalism as the U.S. Supreme Court (Squire 2008).[12] Next, we follow Caldeira's approach of quantifying the

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highly collinear. Here the two measures have a relatively modest correlation of 0.10.

[10]This variable is based on data from 2000, the most recent year for which the U.S. Census Bureau has released data on State of Residence by State of Birth. The data are available at https://www.census.gov/hhes/migration/data/decennial.html

[11]Each state court is classified as using one of the following retention mechanisms: partisan election, non-partisan election, retention election, legislative election, or gubernatorial appointment. The specific classification for each state is listed in Table 5 in Appendix A.

[12]Caldeira (1985) used a measure of judicial professionalism taken from Glick and Vines (1973). That measure included method of judicial selection, state court organization, size of the judicial administration apparatus, tenure, and salary. Because we view method of

amount of prestige a court may have built through compiling legal capital (Caldeira 1985). We count how many tens of thousands of published opinions a state high court has issued from its inception through 2009. The overall size of the population of a cited state (in millions) rounds out our efforts to capture the level of prestige of a state's high court.

We also include a number of control variables. First, in order to further address the confounding effects of judicial selection, we distinguish between states in which high court judges are elected (in either partisan or non-partisan elections) and those in which they are not.[13] Second, we also include control variables for whether high court judges in state_i and state_j are elected. This helps address the concern that being elected may have an impact on the way opinions are constructed that might also impact when and how other states use those precedents. Elected judges may be more or less inclined to cite other state high courts, and judges in general may be more or less likely to cite precedents written by courts with elected judges. Third, another institutional feature that may play a role in state-to-state citation is the presence of a civil law system in Louisiana. In order to account for this possibility we control for whether the citing state in a dyad is Louisiana and whether the cited state is Louisiana. Fourth, another factor that may play a role is the litigation environment in state_j. Tort reform efforts have resulted in variation across states. We utilize scores compiled by the U.S. Chamber Institute for Legal Reform that rank the lawsuit climate in each state in 2010.[14] Finally, we also include a control variable to reflect the citing court's underlying tendency to cite its sister courts. Following Caldeira (1985), this variable is the total number

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judicial selection and retention as conceptually separate from professionalization, we use Squire's measure rather than updating the Glick and Vines measure.

[13]Retention elections are excluded from the election category.

[14]Avalabile at: `https://www.uschamber.com/sites/default/files/documents/files/2010LawsuitClimateReport.pdf`, last accessed August 11, 2015. Higher scores indicate that a state's legal climate is regarded as more fair and reasonable by the corporate attorneys surveyed.

of state$_i$'s cites to its sister courts minus the number of cites to state$_j$. Summary statistics of all explanatory variables are available in Appendix A.

Examining the big picture of citation patterns necessarily glosses over differences in distinct legal areas. Some states may have a larger impact in some issue areas than others. While fine-grained, issue-specific comparisons are beyond the scope of this research, we evaluate differences among civil and criminal cases generally. The decision of two states, Texas and Oklahoma, to devote distinct high courts to resolve criminal matters highlights the significance of this distinction. The Hall and Windett (2013) dataset classifies each case in one of several legal issue areas. While civil matters are subdivided into many categories, "Criminal Law and Procedure" is a single distinct category. We classify all these cases as criminal and cases in all remaining categories as civil. Next, we compile outcome variables counting citations exclusively in criminal cases and citations exclusively in civil cases.[15] The number of times each state court has cited and been cited within each subset of opinions is provided in Table 5 in Appendix A. We estimate three negative binomial models: the number of citations in all cases, in criminal cases only, and in civil cases only. The only difference in the explanatory variables for the subject-specific models is that for each the citing state's background tendency to cite other states is calculated using the applicable subset of cases.

Before moving on to discuss the results, we wish to further elaborate on two aspects of our research design overall. First, we have chosen to use the analysis in Caldeira (1985) as a starting point for developing a theoretical understanding of how state high courts cite each other in the 21st century rather than simply using current data to replicate the analysis from 1975. The data we describe above do make it possible to update Caldeira's findings with the same, or similar, measures. While this is not the focus here, we do present the results of such an updated model, alongside the results from the full Caldeira (1985) model, in Appendix B. Second, our classification of a number of individual variables as reflecting one

[15]Note that the nature of the opinion by the citing court dictates this classification regardless of whether a cited precedent addresses a criminal or civil matter.

of two broad concepts suggests the alternative approach of combining the various indicators of proximity and prestige using factor analysis before modeling their effect on state-to-state citation. We examine individual indicators separately in our main analysis in order to gain insight into which types of proximity or prestige play a role. However, to supplement this approach, Appendix C provides a discussion of model results under the alternative approach. Our results are robust to the use of this measurement approach.

Results

The results of all three models are presented in Table 2. Model 1 is the primary focus, and the discussion is directed to those results unless otherwise noted. There is support for both our proximity and prestige hypotheses, but only some of the proximity variables show the relationship we expect. Ideological distance between citizens is negative and statistically significant, but the ideolgocial distance between courts is not significant.[16] Consistent with Caldeira's 35-year-old findings, we find that *Cultural Linkage* is a positive and statistically significant predictor of citation. The similarity generated when a greater proportion of state$_i$'s residents were born in state$_j$ leads to a greater tendency to cite state$_j$'s case law. In spite of the dramatic changes the last thirty-five years have seen in the technology used to conduct legal research (Danner 2003), West regions continue to have an important impact on citation practices. States are significantly more likely to cite precedents from courts in the same West region even after accounting for federal jurisdiction and contiguity. Furthermore, although federal circuits and contiguity have some influence, neither influences citation as much as a shared West region. States that are only in the same federal circuit or are only contiguous are *not* significantly more likely to cite each other. However, states that are both contiguous and in the same federal circuit are more likely to cite each other.

When citations in criminal and civil cases are examined separately, evidence that proximity matters persists, although the patterns change somewhat. The finding regarding citizen

[16] All discussion of statistical significance is at the $p < 0.05$ level.

	(1) All		(2) Criminal		(3) Civil	
	Coef.	SE	Coef.	SE	Coef.	SE
Proximity						
Ideological Distance: Courts	−0.004	(0.046)	−0.026	(0.053)	−0.007	(0.052)
Ideological Distance: Citizens	−0.005*	(0.002)	−0.008*	(0.003)	−0.005*	(0.002)
Cultural Linkage	0.031*	(0.006)	0.044*	(0.006)	0.014	(0.008)
Geographic Distance	−0.005	(0.003)	−0.005	(0.004)	−0.005	(0.003)
Population Difference	−0.004	(0.003)	−0.009	(0.010)	−0.008	(0.005)
Same West Region Only	0.246*	(0.054)	0.176	(0.096)	0.261*	(0.063)
Same Federal Circuit Only	0.201	(0.118)	0.352	(0.263)	0.235*	(0.098)
Contiguous Only	−0.016	(0.087)	−0.301	(0.188)	0.097	(0.098)
Same West & Cir.	0.348*	(0.091)	0.226	(0.219)	0.423*	(0.101)
Same West & Contig.	0.547*	(0.099)	0.374*	(0.152)	0.677*	(0.121)
Same Cir. & Contig.	0.375*	(0.133)	0.245	(0.224)	0.529*	(0.147)
Same West & Cir. & Contig.	0.546*	(0.121)	0.197	(0.171)	0.699*	(0.140)
Same Selection Method	0.054	(0.041)	0.004	(0.077)	0.058	(0.054)
Prestige of Cited Court						
Legal Professionalism$_j$	0.342*	(0.129)	0.067	(0.267)	0.441*	(0.169)
Legal Capital$_j$	0.026*	(0.005)	0.018*	(0.006)	0.027*	(0.006)
Population$_j$	0.010*	(0.003)	0.026*	(0.008)	0.009*	(0.004)
Elected$_j$	−0.151*	(0.040)	−0.246*	(0.066)	−0.146*	(0.051)
Elected$_i$	0.116*	(0.059)	−0.091	(0.124)	0.094	(0.065)
Louisiana$_j$	−0.677*	(0.109)	−0.542*	(0.103)	−0.640*	(0.087)
Louisiana$_i$	−0.421*	(0.144)	0.272	(0.214)	−0.667*	(0.167)
Total Cites$_{i,-j}$	0.005*	(0.001)	0.019*	(0.002)	0.008*	(0.001)
Litigation Environment$_j$	0.004	(0.002)	0.009	(0.005)	0.003	(0.003)
Constant	−0.588*	(0.222)	−1.906*	(0.436)	−1.246*	(0.113)
α	0.254*	(0.028)	0.422*	(0.100)	0.280*	(0.032)
N	2,652		2,652		2,652	

Table 2: Negative binomial regression estimates of the effect of relational and attribute characteristics on the number of times the high court of state$_i$ cites an opinion from state$_j$ in all cases (Model 1), criminal cases (Model 2), and civil cases (Model 3). To place variables on a more convenient scale, population variables are measured in millions, Legal Capital is measured in tens of thousands of precedents, and Geographic Distance is measured in hundreds of miles. Robust standard errors (clustered on the citing court) are reported in parentheses below each coefficient, and * denotes a p-value less than 0.05.

ideology is consistent across the criminal and civil models, but *Cultural Linkage* is not statistically significant in the civil model. The impact of West region and contiguity remains similar in the civil model, and the impact of federal jurisdiction is more prominent. Two states only being in the same federal circuit is a statistically significant predictor of citations

in civil cases. Conversely, there is little evidence that these three factors matter to citation in criminal cases. This is highlighted by the fact that a dyad of contiguous states in the same West region and circuit is not significantly more likely to cite one another in criminal cases than a non-contiguous dyad of states in different West regions and different circuits.

There is consistent support for the prestige hypothesis across variables and models. All three indicators of prestige of the cited court significantly increase citation. Courts with a higher measure of judicial professionalism (as measured by Squire's index), courts that have established a larger body of legal capital, and courts from more populous states are cited more frequently by their sister courts. With only one exception, the same patterns are evident when examining citation in criminal and civil cases separately. The only change is that the professionalism of the cited court is not a statistically significant predictor of citation in criminal cases.

The control variables shed further light on factors beyond proximity and prestige that influence state-to-state citation. Selection methods play a role in the process. Courts with elected judges are cited by other state courts less frequently even while those same courts with elected judges show a greater willingness to cite other state high courts. Louisiana's distinctive civil law system makes it unsurprising that its high court is both less likely to cite and be cited by other state high courts. Finally, states with a tendency to cite their sister courts more generally also cite a particular state_j more frequently.

The predicted counts in Table 3 illustrate the substantive effects that proximity and prestige have on citation. Rather than separate out the effect of each individual measure of these two broad concepts, we consider them together to present a more unified picture of how each type of influence changes the way legal precedent transmits across state lines.[17] A change from a pair of states being in low proximity to high proximity more than doubles the predicted citation count from 1.6 to 3.5. The change brought about by a shift from a low

[17]For readers interested in a different focus, a table of changes in predicted outcomes for each variable individually is available in Appendix A.

	All		Criminal		Civil	
	Count	95% CI	Count	95% CI	Count	95% CI
Average	1.78	[1.60:1.95]	0.44	[0.36:0.52]	1.20	[1.06:1.34]
Low Proximity & Low Prestige	1.41	[1.24:1.57]	0.33	[0.26:0.40]	0.93	[0.80:1.06]
Low Proximity	1.58	[1.40:1.77]	0.37	[0.29:0.44]	1.06	[0.92:1.20]
High Proximity	3.53	[2.61:4.45]	0.61	[0.38:0.84]	2.80	[1.93:3.66]
Low Prestige	1.58	[1.42:1.74]	0.39	[0.32:0.47]	1.06	[0.93:1.19]
High Prestige	2.03	[1.83:2.23]	0.50	[0.41:0.59]	1.38	[1.22:1.55]
High Proximity & High Prestige	4.02	[2.96:5.08]	0.70	[0.44:0.96]	3.22	[2.20:4.23]

Table 3: Predicted Outcomes for Selected Cases: Estimates of predicted counts of citations. Unless otherwise stated each variable is held at its median. The references to low/high proximity and prestige indicate that the relevant continuous variables are set at the 75th percentile or 25th percentile as applicable. The relevant binary variables are set at 0 or 1 as applicable. Low proximity indicates non-contiguous dyads that are in different West regions and different circuits. High proximity indicates contiguous dyads that are in the same West region and the same federal circuit.

prestige cited court to a high prestige cited court is more modest, an increase of less than one-half of a citation. For both proximity and prestige, the change from low to high increases the predicted citation count to a statistically significant degree. When taken together, a state_i and state_j dyad with low proximity and low prestige generate 1.8 predicted citations, while combining high proximity and high prestige more than doubles that estimate, bringing it up to 4. Similar relationships are evident in the predicted outcomes for the criminal and civil models. Another way to assess the substantive size of these effects is to calculate the predicted citation count for particular dyads. Connecticut is a useful example of the citing court because it is the most prolific citer of other state supreme courts. Model 1 predicts Connecticut would cite Hawaii only 14 times while Connecticut would cite New York 43 times.[18] These results are driven by the combined facts that Connecticut is more similar to New York and that New York is more prestigious than Hawaii. In short, the results demonstrate that both proximity and prestige have a substantively important effect on the

[18]In criminal cases, Model 2 predicts Connecticut would cite Hawaii 3 times and New York 7 times, and the predicted counts from Model 3 for civil cases are 8 cites to Hawaii and 23 cites to New York.

transmission of legal precedent from one state high court to another.

Discussion and Conclusions

Examining the transmission of law across state lines strengthens our understanding of legal development. Citations to nonbinding sister courts provide state judges with the opportunity to legitimate their decisions with similar decisions from other states and to acknowledge arguments from other jurisdictions. Our findings contribute to the accumulated knowledge regarding this type of diffusion among state supreme courts in two major ways. First, as theorized, both proximity and prestige inform a court's decision to cite its sister courts. Second, we present evidence of remarkable stability. Changes in institutional structure have a role in state-to-state citations, but they have not substantially altered the underlying process. Most remarkably, the effect of past legal research techniques has demonstrated surprisingly strong path dependency with West regions continuing to have an impact on citation. In short, the more things change, the more they appear to stay the same.

On the whole, we find evidence for our proximity hypothesis; as two states become more similar, they are likely to cite one another. These findings hold across multiple indicators, including those that encompass cultural, geographic, and institutional indicators. State courts tend to cite their sister courts in nearby states and those states from which their own constituents are heavily drawn.

The role of ideology deserves additional discussion. On the one hand, the null result for judicial ideological distance fits squarely within other findings in the judicial politics literature. It may be that, just as ideological disagreements between the U.S. Supreme Court and Congress only rarely appear to affect Supreme Court decisionmaking (Segal 1997; Owens 2010), our unit of analysis may mask this relationship. Because our measure of ideological distance captures current levels of ideological disagreement, it does not account for variation in a Court's ideology over time. When choosing which decisions to cite, judges have the option of citing any of its sister courts' decisions, even when those decisions date

back to the late 1800s. Unfortunately, judge-level ideology scores are not available to the founding (to say nothing of changes in the meaning and dimensionality of ideology over time), rendering a decision-level dyadic analysis impossible. However, we do find an effect for citizen ideology, with states that have citizenries that are more similar also being more likely to cite each other.

Additionally, the results suggest that the decisions of prestigious courts are more likely to be cited by state supreme courts. We have consistent evidence for this relationship across all three indicators: professionalism, legal capital, and population size. Yet the substantive impact of the prestige measures is noticeably smaller than the impact of proximity. Consequently, while our results indicate that both proximity and prestige matter, they also tend to indicate the proximity matters more to how frequently one state supreme court cites another. One caveat to this conclusion, however, is that the apparently smaller role of prestige may simply be due to the difficulties involved in quantifying that concept.

By accounting for judicial selection we learn about the role of an important institutional feature that was not incorporated in Caldeira (1985). The model results suggest that state courts are not more likely to cite cases from sister courts who are retained using the same institutional mechanism. Moreover, inasmuch as citation counts represent quality and prestige, as Choi, Gulati and Posner (2009) and Caldeira (1983) have argued, our results confirm the findings of Choi, Gulati and Posner (2009): elected courts tend to write opinions their colleagues view as lower quality than judges who face reappointment. Interestingly, though their colleagues are less likely to cite them, elected courts, on average, cite to their sister courts more frequently than their colleagues who do not face contestable elections.

Aside from our ability to parse the effect of judicial retention methods on the number of citations a court receives, we are also able to draw some conclusions about differences in citation practices in criminal and civil cases. On the whole, it appears that both proximity and prestige matter in both types of cases, though there are a few differences between the models. In particular the effects of geography (including the predictive power of the West

region) and professionalism are much more pronounced in civil cases while cultural linkages, measured here by migration patterns, only play a role in criminal cases.

We are cautious about drawing direct comparisons between our findings and those of Caldeira (1985) because our model specifications differ both in terms of the variables we include and the way we operationalize our concepts. Still, because the specifications are very similar and decades have passed since Caldeira's study, some discussion of continuity and change is warranted. The overall story is one of continuity. With the exception of professionalism (which we operationalize with a different measure) and geographic distance between state capitals, each of our shared predictors performed in 2010 as it did in 1975. The result concerning legal reporting systems demonstrates this continuity most vividly. The results show that courts are *still* more likely to cite state supreme courts whose opinions are published in the same West reporter, even after controlling for a bevy of other measures of similarity and even though judges and their clerks are much more likely to log into Lexis or Westlaw to find a relevant precedent than to open a bound legal reporter. This is strong evidence of continuity (and path dependence) in the citation practices of courts.

The continued impact of West reporting regions is strange enough to merit further consideration. What might explain this phenomenon in light ot the current ubiquity of online legal research? One plausible explanation is that the same technological advances that have made online research possible have also produced the ability to cut-and-paste direct text from existing files with only a few clicks. If judges and their law clerks use this tool in order to incorporate boilerplate segments of legal text from one opinion to another, this could result in the type of path dependency observed in this study. If cases from the same West region were cited more decades ago, and those precedents continue to be included in subsequent cases because of the convenience of cutting and pasting text from previously written opinions, then the result would be greater citation to cases from the same West region even today. One preliminary manifestation of such a process would be that a subset of cases (those cited in the boilerplate language that is reused) would be cited repeatedly over time.

We looked for evidence of such repetition in our data and did not find very much. In fact, about 97% of all state-to-state citations in our dataset are to unique precedents not cited by any other state in the year 2010. Examining citations over time may provide such evidence, but that is beyond the scope of this study.

In summation, our results demonstrate that the prestige of state supreme courts is driven both by proximity—geographically, institutionally, ideologically, and culturally—as well as prestige. Courts that are more prestigious and more similar to the citing court are more likely to be cited by that court. Further analysis needs to examine cross-court citation patterns at the justice- or case-levels to account for likely judge-level variation brought about by a justice's personal background or legal education as well as court-level variation in expertise by issue area.

Appendix A: Summary Stats and Predicted Outcomes

In this appendix, we provide additional information about the dataset analyzed in the paper and the substantive magnitude of our findings. Table 4 provides summary statistics for all of the variables used in our analyses, Tables 5 and 6 provide additional information about the dependent and independent variables by state, and Table 7 provides additional predicted probabilities from our models.

	5%	**25%**	**50%**	**75%**	**95%**
Continuous Variables					
Ideological Distance: Courts	0.05	0.35	0.70	1.20	1.89
Ideological Distance: Citizens	1.37	7.06	15.08	26.39	55.47
Cultural Linkage	0.03	0.11	0.28	0.71	2.64
Geographic Distance	2.32	6.04	9.96	15.78	26.15
Population Difference	0.27	1.73	3.90	8.48	23.82
Legal Professionalism$_j$	0.34	0.48	0.58	0.67	0.88
Legal Capital$_j$	1.38	2.23	4.47	7.21	11.96
Population$_j$	0.67	1.84	4.44	7.36	25.15
Total Cites$_{i,-j}$: All Cases	37	78	128	187	306
Total Cites$_{i,-j}$: Criminal Cases	5	14	25	55	125
Total Cites$_{i,-j}$: Civil Cases	20	48	75	125	211
Litigation Environment$_j$	40	55.65	61.25	64.8	69.7
		0		**1**	
Dichotomous Variables					
Same West Region Only		91.7%		8.3%	
Same Federal Circuit Only		98.0%		2.0%	
Contiguous Only		97.0%		3.0%	
Same West & Cir.		96.8%		3.2%	
Same West & Contig.		98.0%		2.0%	
Same Cir. & Contig.		98.9%		1.1%	
Same West & Same Cir. & Contig.		97.0%		3.0%	
Diff. West & Diff. Cir. & Not Contig.		22.4%		77.6%	
Same Selection Method		74.2%		25.8%	
Elected$_j$		63.5%		37.5%	
Elected$_i$		63.5%		37.5%	
Louisiana$_j$		98.1%		1.9%	
Louisiana$_i$		98.1%		1.9%	

Table 4: Summary Statistics: To place variables on a more convenient scale, population variables are measured in millions, Legal Capital is measured in tens of thousands of precedents, and Geographic Distance is measured in hundreds of miles.

	Outward Citations			Inward Citations			Selection	West
	All	Crim.	Civil	All	Crim.	Civil	Method	Region
AK	56	5	51	100	10	87	RE	P
AL	175	19	154	119	12	106	PE	S
AR	80	13	57	123	33	87	NP	SW
AZ	49	4	45	149	55	85	RE	P
CA	109	59	50	287	96	181	RE	P
CO	85	34	51	178	56	118	RE	P
CT	462	127	335	147	41	103	GA	A
DE	65	35	30	103	23	80	GA	A
FL	37	8	28	178	68	103	RE	S
GA	103	25	75	130	43	83	NP	SE
HI	98	45	53	60	12	46	GA	P
IA	268	98	170	177	51	123	RE	NW
ID	158	50	108	96	18	77	NP	P
IL	81	7	74	154	44	108	RE	NE
IN	85	23	60	109	36	71	RE	NE
KS	123	38	85	147	49	94	RE	P
KY	208	66	138	116	38	77	NP	SW
LA	33	9	24	92	37	54	PE	S
MA	157	70	87	263	84	175	GA	NE
MD	263	68	195	158	43	113	RE	A
ME	89	18	70	119	24	90	GA	A
MI	70	10	34	122	26	88	NP	NW
MN	119	26	92	156	41	108	RE	NW
MO	71	14	57	118	38	76	RE	SW
MS	123	39	84	110	25	82	NP	S
MT	87	37	49	139	36	101	NP	P
NC	24	4	20	98	34	60	NP	SE
ND	149	14	133	117	31	80	NP	NW
NE	244	66	178	153	38	113	RE	NW
NH	174	83	86	142	35	105	GA	A
NJ	130	7	122	190	42	146	GA	A
NM	69	23	46	91	22	67	RE	P
NV	122	18	96	100	34	61	NP	P
NY	53	22	23	199	47	148	GA	NE
OC	24	20	4	47	30	17	RE	P
OH	94	26	64	120	27	90	PE	NE
OK	298	10	288	94	11	81	RE	P
OR	45	7	38	110	23	87	NP	P
PA	74	17	55	125	33	88	RE	A
RI	46	16	30	99	26	71	GA	A
SC	84	4	74	90	26	64	LE	SE
SD	230	55	173	89	22	66	RE	NW
TC	157	138	17	66	42	21	PE	SW
TN	262	125	121	100	37	60	RE	SW
TX	151	11	119	122	32	90	PE	SW
UT	112	22	90	100	21	78	RE	P
VA	36	18	18	107	27	80	LE	SE
VT	176	54	122	108	36	69	LE	A
WA	126	26	100	177	52	124	NP	P
WI	143	41	83	147	35	111	NP	NW
WV	186	32	153	92	24	66	PE	SE
WY	165	54	111	95	34	61	RE	P

Table 5: Number of citations by and to each state high court in 2010, its method of judicial selection, and its West region.

	Outward Citations			Inward Citations		
	All	Crim.	Civil	All	Crim.	Civil
Judicial Selection Method						
Gubernatorial Appointment	141.6	47	92.9	146.9	37.1	107.1
Legislative Election	98.7	25.3	71.3	101.7	29.7	71
Non-partisan Election	110.6	26.9	78.1	121.9	32.9	86.0
Partisan Election	132.7	39.2	88.5	101.8	29.0	71.2
Retention Election	134.5	37.0	96.4	133.6	39.8	90.4
West Region						
Atlantic	164.3	47.2	116.1	132.3	33.7	96.1
North Eastern	94.0	29.6	61.6	169.0	47.6	118.4
North Western	174.7	44.3	123.3	137.3	34.9	98.4
Pacific	107.9	28.3	79.1	123.1	34.9	85.3
Southern	92.0	18.8	72.5	124.8	35.5	86.3
South Eastern	86.6	16.6	68	103.4	30.8	70.6
South Western	154.8	61.2	84.8	107.5	36.7	68.5

Table 6: Average number of citations by and to each type of state high court, broken down by judicial selection method and West region.

	(1) **All**	(2) **Criminal**	(3) **Civil**
Baseline Predicted Count	1.78	0.44	1.22
Proximity			
Ideological Distance: Courts	−0.01	−0.01	−0.01
Ideological Distance: Citizens	−0.18	−0.07	−0.12
Cultural Linkage	0.03	0.01	0.01
Geographic Distance	−0.09	−0.02	−0.06
Population Difference	−0.05	−0.03	−0.07
Same West Region Only	0.50*	0.08*	0.36*
Same Federal Circuit Only	0.40*	0.18*	0.32*
Contiguous Only	−0.03	−0.11*	0.12
Same West & Cir.	0.74*	0.11*	0.63*
Same West & Contig.	1.29*	0.20*	1.16*
Same Cir. & Contig.	0.81*	0.12*	0.84*
Same West & Same Cir. & Contig.	1.29*	0.10*	1.22*
Same Selection Method	0.10	0.002*	0.07
Prestige of Cited Court			
Legal Professionalism$_j$	0.12	0.01	0.10
Legal Capital$_j$	0.23*	0.04	0.16*
Population$_j$	0.10	0.06	0.06
Elected$_j$	−0.25*	−0.10*	−0.16*
Elected$_i$	0.22*	−0.04	0.12
Louisiana$_j$	−0.61*	0.14*	−0.59*
Louisiana$_i$	−0.87*	−0.18*	−0.57*
Total Cites$_{i,-j}$	3.21*	0.42*	0.79*
Litigation Environment$_j$	1.14*	0.92*	0.40*

Table 7: Change in Predicted Outcomes: The change in the predicted outcome when moving each dichotomous variable from 0 to 1 and moving each continuous variable from its 25th percentile to its 75th percentile (while all other variables are held at their median). * denotes that the change in predicted outcome is statistically significant.

Appendix B: Caldeira Replication

	1975		2010	
	Coef.	t-Ratio	Coef.	t-Ratio
Characteristics of Cited Court				
Prestige	0.601*	7.14	0.0001*	12.69
Legal Professionalism†	0.126*	6.04	-0.001	-0.31
Size of Population	2.04-07*	10.32	-1.38-11	-0.13
Legal Capital†	-0.009*	-5.77	-1.40-08	-0.63
Caseload	0.022*	2.97	1.95-06	1.56
Caseload Squared	-1.64-04*	-2.54	-5.58-10	-1.67
Relational Characteristics				
Prestige	-0.043	-0.79	3.69-07	0.06
Legal Professionalism†	-0.011	-0.87	0.0004	0.15
Size of Population	1.175-08	0.91	1.43-11	0.20
Legal Capital†	0.0002	0.13	6.56-09	0.66
Cultural Linkage	0.375*	12.64	0.003*	10.22
Distance	-0.0007*	-5.82	-3.91-06*	-3.38
Distance Squared	1.039-07*	4.43	8.28-10*	3.15
Legal Reporting Districts				
Atlantic	0.678*	3.04	0.006*	2.87
Northeast	0.342	0.70	0.009*	2.38
Southeast	0.573	1.49	0.002	0.52
South	1.493*	3.01	0.008	1.60
Pacific	0.745*	5.25	0.003*	2.37
Northwest	1.348*	4.66	0.006*	2.44
Intercept	-0.091	-0.27	0.003	1.06
R^2	0.490		0.237	
N	2,401		2,550	

Table 8: Replication of Caldeira (1985), Table 3: Results from Caldeira's analysis of 1975 data and the same model replicated as closely as possible using data from 2010. Ordinary least squares regression estimates of the effect of characteristics of the cited court and relational characteristics on the standardized number of times the high court of state$_i$ cites an opinion from state$_j$. See Caldeira (1985) for further details. Concepts necessarily measured differently in the 2010 model are marked with a †. The alternative measures are those we describe and use in this paper. P-values less than 0.05 are denoted by an *.

Appendix C: Alternative Models Using Factor Analysis

The paper presents a simple theory: state-to-state citations become more common among more proximate states and as the cited court becomes more prestigious. The empirical tests of this theory presented in the paper do so by using a variety of indicators to measure proximity and prestige. Whenever multiple indicators are used to measure a single concept, a natural question to ask is the extent to which those indicators can be combined, using some sort of measurement model, into a single measure of that concept. In this appendix, we take up this challenge. The conclusion is clear: even though our indicators of proximity do not load neatly onto a single measure (as we expected to be the case, given the discussion of proximity's many facets in the body of the paper), more proximity and more prestige are each associated with increased citation rates.

Combining the indicators of proximity into a single measure is not a straightforward matter; because the indicators are of different types (including both continuous and categorical variables), standard factor analysis models are inappropriate. To this end, we rely on Quinn's (2004) Bayesian solution, which combines standard normal theory factor analysis with item response theory to create a Bayesian factor analysis model that can accommodate indicators that are both continuous and categorical. Quinn's model is easily accessible in `MCMCpack` (Martin, Quinn and Park 2011). We ran the chain for 100,000 iterations, and standard diagnostics indicate that the chain reached convergence. Results of the Bayesian mixed factor analysis are shown in Table 9.

Because the Bayesian Factor Analysis model includes both continuous and categorical indicators, the estimates from that model produce estimates that are similar to familiar concepts to those sets of models. For example λ_1 in the table provides estimates with interpretations akin to item difficulty parameters in traditional item response models; of course, traditional factor analysis has no such concept, which is why that column reports values of 0.00 for the continuous indicators. The λ_2 column reports estimates with interpretations

	λ_1	λ_2	ψ_{jj}
Ideological Distance: Courts	0.000	0.003	1.001
	-	(0.019)	(0.028)
Ideological Distance: Citizens	0.000	-0.168	0.971
	-	(0.019)	(0.026)
Cultural Linkage	0.000	0.164	0.975
	-	(0.019)	(0.028)
Geographic Distance	0.000	-1.000	0.001
	-	(0.013)	(0.001)
Same West Region Only	-1.406	0.171	1.000
	(0.036)	(0.042)	-
Same Federal Circuit Only	-2.115	0.234	1.000
	(0.063)	(0.075)	-
Contiguous Only	-3.646	2.420	1.000
	(0.270)	(0.282)	-
Same West & Circuit	-1.854	0.076	1.000
	(0.048)	(0.049)	-
Same West & Contiguous	-3.668	2.209	1.000
	(0.298)	(0.300)	-
Same Circuit & Contiguous	-4.980	3.142	1.000
	(0.521)	(0.472)	-
Same West & Circuit & Contiguous	-3.699	2.478	1.000
	(0.267)	(0.274)	-
Population Distance	0.000	-0.072	1.000
	-	(0.020)	(0.027)
Same Selection Method	-0.700	0.404	1.000
	(0.029)	(0.042)	-

Table 9: Results of Bayesian Mixed Factor Analysis of Proximity. Entries are posterior means with posterior standard deviations in parentheses. The column labeled λ_1 provides information akin to item difficulty parameters in the ordinal item response theory literature (e.g. Schnakenberg and Fariss 2014); the column labeled λ_2 provides information similar to factor loadings or item discrimination parameters. The column labeled ψ_{jj} describes the error variances. The element for *Cultural Linkage* was constrained to be positive. The chain was run for 100,000 iterations with the first 5,000 discarded as burn-in. The chain was thinned to include only every 100th iteration.

similar to item difficulty parameters (for categorical variables) or factor loadings (for continuous variables). The final column in the table (ψ_{jj}) provides information on the error variances for the continuous variables.

The overwhelming conclusion from Table 9 is that the indicators of proximity fail to load well onto a single factor. Each of the variables included in the models presented in the

	λ	ψ_{jj}
Legal Professionalism	0.699	0.512
	(0.023)	(0.026)
Legal Capital	0.469	0.781
	(0.021)	(0.022)
Population	0.890	0.209
	(0.025)	(0.036)

Table 10: Results of Bayesian Factor Analysis of Prestige. Entries are posterior means with posterior standard deviations in parentheses. The column labeled λ provides factor loadings. The column labeled ψ_{jj} describes the error variances. The element for Legal Capital was constrained to be positive. The chain was run for 100,000 iterations with the first 5,000 discarded as burn-in. The chain was thinned to include only every 100th iteration.

body of the paper were included in the measurement model. We have tried expanding the number of dimensions, to no avail. Additionally, for those concerned that the poor loading is a function of the model, we tested this possibility by treating the categorical variables as continuous variables and running normal factor analysis model. In that model (not presented here), only one indicator (*Geography*) loads at an absolute value above 0.50 (the loading is 0.55). *Ideological Distance: Courts* loads at a measly -0.01. The other indicators load in this model with absolute values between 0.30 and 0.40. Though the indicators fail to load well, we use the scores from the Bayesian factor analysis going forward in our analysis. We note that we reach the same substantive findings whether we use the Bayesian factor analysis, a traditional factor analysis, or a factor analysis which excludes the two variables that load especially poorly. In all cases, we reach the same substantive conclusions.

The measurement of prestige is comparatively easier since all three indicators are continuous variables. Here, a traditional factor analysis is appropriate, and we rely on a Bayesian normal theory factor analysis for our estimates given the necessity of using a Bayesian model for the measurement of proximity. We estimated the model using `MCMCfactanal` in `MCMCpack` (Martin, Quinn and Park 2011). We note, however, that we have again estimated prestige using a traditional factor analysis model; again, we reach all of the same conclusions. Table 10 displays the results of the Bayesian factor analysis. The λ column displays the factor loadings and the ψ column displays the error variances. The three indicators load much

better, with *Legal Capital* having the weakest loading ($\lambda = 0.47$).

To examine the extent to which proximity and prestige, measured using a single indicator, predict state-to-state citations, we have reestimated the models in Table 2 using these two indicators. The results are shown in Table 10. We rescaled the two measures to vary from 0 to 1 in order to enhance comparability. Interestingly, the two indicators are nearly uncorrelated, with $r = 0.03$.

	(1) All		**(2) Criminal**		**(3) Civil**	
	Coef.	SE	Coef.	SE	Coef.	SE
Proximity	0.930*	0.259	0.871*	0.304	0.985*	0.247
Prestige of Cited Court	0.843*	0.102	1.205*	0.162	0.680*	0.112
Elected_j	−0.112*	0.038	−0.176*	0.071	−0.119*	0.049
Elected_i	0.112*	0.055	−0.059	0.101	0.085	0.063
Louisiana_j	−0.743*	0.104	−0.606*	0.090	−0.687*	0.085
Louisiana $_i$	−0.204	0.149	0.346	0.215	−0.416*	0.160
$\text{Total Cites}_{i,-j}$	0.005*	0.001	0.019*	0.002	0.008*	0.001
Litigation Environment$j$	0.006*	0.002	0.012*	0.004	0.004	0.003
Constant	−1.245*	0.307	−2.876*	0.391	−1.476*	0.300
α	−1.149*	0.107	−0.558*	0.197	−1.074*	0.106
N	2,652		2,652		2,652	

Table 11: Negative binomial regression estimates of the effect of proximity and prestige on the number of times the high court of state_i cites an opinion from state_j in all cases (Model 1), criminal cases (Model 2), and civil cases (Model 3) using single indicators of proximity and prestige. Robust standard errors (clustered on the citing court) are reported in parentheses below each coefficient, and * denotes a p-value less than 0.05.

The clearest finding reflected in Table 11 is that the results of this analysis are robust to the alternative measurement strategy. Combining our indicators of proximity and prestige into single indicators results in the same conclusions we reach in the body of the paper: more proximity and more prestige lead to more citations. The only changes in statistical significance are minor; the litigation environment is now statistically significant, indicating that states with litigation environments that are perceived as more fair and reasonable are cited more, both overall and (somewhat surprisingly) in criminal cases. Additionally, one of the indicator variables for Louisiana (when that state's supreme court is the citing court) loses statistical significance. Still, we underscore that both proximity and prestige continue

to be strong predictors of citation practices across states.

One analysis enabled by the estimates from Table 11 is one that compares the relative strength of proximity and prestige. Whereas such comparisons are difficult to do in the body of the paper, where both concepts are measured using a variety of indicators, the fact that both concepts are now measured with a single indicator and those indicators are measured on the same 0 to 1 scale means that we can easily compare the strength of the relationship between these concepts and citation counts simply by examining the equality of the coefficients. These analyses reveal that, at least overall and in civil cases, the effects of proximity play a more important role in structuring interjudicial communication than the prestige of the cited court. The effect is reversed in criminal cases. We have tested for the existence of an interactive effect between the two concepts; in none of the three models is a statistically significant effect found.

In sum, we have reestimated the model using newly-created measures of proximity and prestige generated using Bayesian factor analysis. The results from these analyses (1) provide further evidence that both proximity and prestige affect the extent to which one state cites another state; (2) that these effects are not interactive, that is, that it is not the case that the prestige of a cited court has a differential effect based on the proximity of two states; and (3) overall, it seems that proximity plays a more important role in affecting citation counts than prestige.

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