

Copy and Paste Lawmaking: The Diffusion of Policy Language across American State Legislatures

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Abstract

Why do state lawmakers copy text from other states' policies? We argue that legislators facing increased time and resource constraints in writing legislation copy more policy language from other states. We test the theory using text analysis and multivariate regression. We find that states copy more text when model legislation is available, particularly on economic issues. However, we find no evidence that institutional features of legislatures, particularly professionalization and term limits, shape legislators' bill text copying habits.

In March 2015, Indiana passed its own version of the controversial Religious Freedom Restoration Act (RFRA), sparking public outcry. Lawmakers claimed they were attempting in good faith to define the scope of religious protections in the state, while opponents cited the bill as state authorization for business to discriminate against LGBT citizens. A lack of clarity surrounding the bill’s legal language contributed to the controversy. In an op-ed written to the *Wall Street Journal*, Indiana Governor Mike Pence claimed, “the law is not a ‘license to discriminate,’ either in Indiana or elsewhere. In fact the Religious Freedom Restoration Act reflects federal law, as well as law in 30 states nationwide.” However, critics pointed out that the Indiana bill language was different than other versions of RFRA because it had been “carefully written to make clear that 1) businesses can use it against 2) civil-rights suits brought by individuals” (Epps 2015).

Past studies of policy diffusion in the American states have similarly and frequently suffered from an assumption that, in the words of *Atlantic* contributor and University of Baltimore law professor Garrett Epps, “if a law has a similar title as another law, they must be identical.” As the Indiana case illustrates, it is important for scholars not only to examine *which* policies diffuse, but *what contents* of policies diffuse across states (Karch 2007). Policy content diffusion is a timely and important topic for the academic study of state politics, as many journalists covering states have observed a rise in the emulation of bill texts diffusing across states, particularly among policies sponsored by the conservative American Legislative Exchange Council (e.g. Pilkington and Goldenberg 2013; Suhay 2015). However, little scholarly work has attempted to explain the policy content diffusion process. What factors lead state lawmakers to copy language from other states’ policies?

We argue that state legislators face time and resource constraints in writing legislation. We assume that legislators are primarily motivated to win reelection to the legislature or election to higher office, and that their election chances can be improved by spending relatively more time on politics and relatively less time on writing legislation. To save time and resources, legislators copy and paste pre-written texts available to them from other sources, such as other states, interest groups, policy entrepreneurs, and intergovernmental agencies, rather than adapting or writing policies anew. Political, temporal, and institutional factors, as well as characteristics

of the policies themselves, shape the degree to which legislators emulate language from other state’s laws.

To test the theory, we compare the texts of bills of twelve different policies that diffused across the states. We calculate cosine similarity scores between bills to detect how similar the bill is to previously adopted statutes in other states. Then, we use multivariate regression to estimate the effect of independent variables capturing legislators’ time and resources on bill language emulation. The results indicate that legislators copy more text on policies for which model legislation exists. They also copy more on economic policies than social policies. While we find that bill texts become more similar as more states adopt the policy, we find no evidence that legislative institutions (namely professionalization and term limits) structure the extent to which legislators copy bill text.

Foundations of the Diffusion Literature

The literature on the diffusion of innovations has been heavily shaped by seminal theoretical and methodological works. In the first major study of diffusion among the American states, Walker (1969) treated diffusion as a function of internal state characteristics and external forces, such as the policy adoptions of neighboring states. Gray (1973) expanded on Walker’s notion of external forces, demonstrating that diffusion depends on the type of issue, the time (and thus political opportunity structure) in which the issue arises, and whether or not the federal government encourages diffusion. Methodologically, the diffusion literature has relied on event history analysis (EHA) to model diffusion, spearheaded by Berry and Berry (1990). The typical EHA setup models the duration until policy adoption based on a variety of internal state characteristics and external forces.

In leveraging the EHA model, scholars developed theories that explain state policy adoptions and their timing. Two different theories have risen to prominence in the literature: economic competition and social learning. Economic competition theory suggests that states compete with one another for citizens, businesses, and capital. In response to competition, states adopt policies in order to gain a competitive advantage over other states, leading to cascades of

emulation (e.g. Berry and Berry 1992; Berry and Baybeck 2005; Boehmke and Witmer 2004; Peterson and Rom 1990; Volden 2002). The social learning model suggests that state legislators actively look to other states for examples of successful and popular policies. Social learning can occur between geographic neighbors (Case, Hines, and Rosen 1993; Pacheco 2012), states with similar ideologies (Grossback, Nicholson-Crotty, and Peterson 2004), and states with similar economies (Volden 2006).

Legislators and Organizations in the Diffusion Process

Both the economic competition model and social learning model are state-centered approaches to understanding diffusion. That is, the key causal actors in the theory are state officials who seek out information about the actions of other state officials in order to generate policy ideas. Less emphasis is put on non-state actors, such as professional organizations and interest groups that are crucial to facilitating information exchange among the states. However, non-state actors have been identified as the ties that connect the states ever since Walker's first study. Walker (1969, 898) argued that scholars should develop "an elaborate theory of the interactions among professional associations, federal officials, private interest groups, and political leaders in setting the agenda of politics within a state," stating later (Walker 1981) that policy networks are necessary for information exchange (see also Gray 1994; Savage 1985).

A substantial body of work within the diffusion literature has studied the effect of interstate organizations on the diffusion of innovations. Scholars argue that individual policy entrepreneurs, professional organizations, and interest groups shop for venues in which they are likely to be able to translate their policy ideas into law, using success in one state to spread information about the policy among all the states and creating policy cascades (Balla 2001; Haider-Markel 2001; Mintrom 1997, 2000; Mintrom and Vergari 1998). From the perspective of the legislator, interstate organizations substantially lower the cost of policy and political information gathering (Balla 2001; Clark and Little 2002).

Methodological Limitations in the Study of Diffusion

Despite these productive developments, the literature is still limited in its reliance on a binary indicator of adoption as the dependent variable. Whether a state adopted or not (and how long it took to adopt) does not really measure transmission of policy from one state to another. Instead it is important to understand how similar the policy is to previous adoptions (Karch 2007). To do this, a detailed process must be traced before scholars can conclude that diffusion has occurred, including evidence that a policy innovation was adopted in one jurisdiction and then observed, adapted, and adopted in another (Karch 2007; Volden, Ting, and Carpenter 2008). With the binary dependent variable, scholars cannot distinguish diffusion from simultaneous adoption of similar policies (Volden, Ting, and Carpenter 2008). Instead, some measure of similarity is necessary to understand the diffusion of innovations and continued innovation throughout the process.

In this line of thinking, researchers have begun to develop methods of text analysis to measure the similarity of policy adoptions across the states (Garrett and Jansa 2013; Hertel-Fernandez and Kashin 2015; Kroeger 2015). Comparing the text of adoptions of Stand Your Ground laws and abortion insurance restrictions, Garrett and Jansa (2013) find that early adopters are often not the most influential adopters and that interest group model legislation facilitated the spread of legislation among the states. Others have examined the use of model legislation using text analysis, finding that legislators with more experience, resources, and conservative ideology are more likely to introduce American Legislative Exchange Council (ALEC) model bills (Kroeger 2015). These new findings highlight the limitations of standard EHA models in understanding diffusion, and the importance of organizations in facilitating the diffusion of bill text. While scholars have begun to use text analysis to study diffusion, the studies have been focused on the effect of conservative interstate organizations on the diffusion of conservative model bills. From these studies alone it is unclear which internal state characteristics influence the similarity of policy language generally.

Theory of Time- and Resource-Constrained Legislators

Our theory is grounded in the fact that legislators face time and resource constraints when drafting and considering new laws. As such, they rely upon heuristic devices in order to make the complicated matters they handle more manageable in a shorter period of time. Time and resource constraints vary by the institutional context of the state and over time, making both internal legislative characteristics and issue characteristics important to consider.

As elected officials, state legislators are concerned with reelection, influence within the legislature, and good public policy (Fenno 1973). Making progress toward one of the goals helps make progress toward the other two goals, although without reelection the other two goals cannot be achieved (Mayhew 1974). Since election is a prerequisite to holding office, and reelection a prerequisite to influencing and shaping policy, lawmakers tend to be political experts more than they are policy experts. As political experts, lawmakers focus their effort on generating the political momentum needed to get measures passed than on crafting the measure itself. On policy, it is likely that in seeking election legislators generate a platform of policy ideas that they would like to see made into law. They are not likely, however, to have a stash of written bills for each of these ideas. Drafting a new bill requires a costly, time-intensive effort, and legislators are incentivized to win as much political support as possible while investing the least amount of time possible (Butler 2014). As a result, the legislator seeks shortcuts to writing policy. This includes technical information from policy experts, examples of policy experiments in other states, and relevant statutes within the state. Specifically, legislators are looking for actual legal language. Statutory language already formulated by another organization or state helps them translate their policy ideas into law, thus making progress on their three goals in an efficient manner.

Variation in Constraints by Issue Context

The degree to which lawmakers need to spend time and resources crafting original language can vary by issue. Specifically, issues for which there is model legislation available require less independent innovation than other issues. Interest groups provide state legislators information

as a means of gaining access to lawmakers and, thereby, influencing policy on the issue. One type of information interest groups provide is model legislation, or pre-written, ready-to-go bills that can be easily introduced by legislators. Often, the preparation on the legislator's end is simply filling in his or her name and the state in the designated blank spaces. Interest groups use model legislation as a means of communicating to legislators the policies that advance their agenda (ideological or otherwise), and state legislators use it to lower the time and resource costs associated with lawmaking. Other organizations, such as professional organizations in which lawmakers can be members, can also promote best-practices model bills to the same effect. Along with the actual legislation, these groups provide information on other states that adopted the model bill. Model legislation, therefore, presents the opportunity for legislators to introduce similar pieces of legislation without sinking individual resources into policy research and writing.

While some policies are easier to emulate because of the existence of model legislation, other policies are more likely to be emulated because of competitive pressures among the states. States seek to attract businesses and individuals who will invest their resources in the state (Tiebout 1956). Thus, there is competitive pressure for lawmakers to copy the economic innovations of their peers in order to keep up (Baybeck, Berry, and Siegel 2011; Berry and Berry 1990; Berry and Baybeck 2005). Lawmakers face less pressure on social issues, although adopting a particularly controversial social policy could have negative economic consequences. Economic policies, however, directly shape the business climate and social safety net in the state and, therefore, the perception of the state economy among potential investors. As such, legislators are more likely to devote time to economic issues, using the search process to understand what has been done recently in other states and what their state needs to do to remain competitive. This is likely to end with the legislator introducing legislation that is similarly crafted to that in other states. On social issues, legislators face less pressure to match competing states' language. Our hypotheses on issue context are stated below.

Model Legislation Hypothesis: Policy adoptions on issues with model legislation will be more similar to previous adopters than policy adoptions on issues without model legislation, all else

equal.

Economic Issue Hypothesis: Policy adoptions on economic issues will be more similar to previous adopters than policy adoptions on social issues, all else equal.

Variation in Constraints by Temporal Context

We know that *when* a policy innovation is developed matters for how it diffuses. In previous scholarship, time context has been found to affect whether a policy diffuses and how fast it diffuses (Boushey 2010; Gray 1973). Time matters because different time periods are characterized by different political opportunity structures. A favorable political opportunity structure needs to exist in order to support the adoption and spread of an innovation across the states. We can adapt this logic for the context of the diffusion of policy language dependent on the time and resources constraints on lawmakers. Over the past fifty years, several factors have increasingly constrained the time and resources available to lawmakers. First, parties have polarized and nationalized in platforms. As such, potential candidates for office could be more likely to be seeking to implement policy similar to lawmakers in other states. Second, with the polarization and nationalization of politics have come increasingly expensive elections. Fundraising is now a chief duty of legislators, whether they are from a marginal or safe seat. Even at the state level, safe seat legislators and leaders are generally expected to raise money for the rest of their party (e.g. Clucas 1992).

Scholars have also argued that, as time has progressed, communication technologies have improved, allowing for easy sharing of information among networks of legislators and policy entrepreneurs (e.g. Boushey 2010; Walker 1969). There are now many groups with the financial resources to organize nationally, and produce policy, legal, and political resources for use across the state legislatures. With electronic communication, legislators can quickly find policy language, including model legislation, within seconds by simply googling bill texts. Electronic communication also reduces barriers to access, such that entrepreneurial groups can quickly and easily present information to legislators (though see Cluverius 2015). Taking this point with the above points about increased demand for attention to politics, we can expect that

over time bill texts are becoming more similar.

Temporally, it also matters when in the diffusion process legislators take up the policy in their state. When a state is an early adopter, there is much less example language in existence. Entrepreneurial lawmakers must work with their staffs, colleagues, and experts to craft the language that will become law in their state. As such, they are likely to place more emphasis on the needs of their state and the language most likely to pass in their state. As this process iterates itself across the nation's state legislatures, greater emphasis is placed on the actions of other states, their success with the policy, and the popularity of the policy as a means of both crafting language and lowering the political hurdles that the bill faces in the legislature. In other words, legislators learn from other contexts and use this information to their policy and political advantage. Thus, we should expect that later in the diffusion process laws will become more similar to previously adopted laws in other states. Our two hypotheses related to the temporal context of the policy adoptions are stated below.

Year of Adoption Hypothesis: Policy adoptions in recent years will be more similar to previous adopters than policy adoptions in earlier years, all else equal.

Adoption Order Hypothesis: Policy adoptions later in the diffusion process will be more similar to previous adopters than policy adoptions early in the diffusion process, all else equal.

Variation in Constraints by Institutional Context

When legislators allocate their limited time and resources between policy and politics, they are likely to favor politics. However, the institutional context in which lawmakers operate varies across the states, possibly leading to variation in how much time and resources lawmakers can contribute to policy crafting. States with more professional legislatures provide greater resources to office holders that can be dedicated to policymaking. In particular, longer session lengths and larger staff budgets give legislators more time and resources to research and craft unique legislative language while reserving adequate time for constituent service, public appearances, deal making, and fundraising (see Kousser and Phillips 2012). In most rankings of states by innovation, the states with more professional legislatures tend to be ranked higher than states

with less professional legislatures (see Desmarais, Harden, and Boehmke 2015; Walker 1969). The greater time and resources afforded to legislators in professional legislatures facilitates the writing of unique bills and the time to engage in meaningful policy discussion with colleagues.

While certain aspects of legislative professionalism increase the time and resources available for policymaking, term limits reduce the time available to legislators. While term limits do not limit the time available in a single session, they do limit the time available to legislators over their careers. There is less time to develop deep policy expertise and relationships with their fellow lawmakers, thereby limiting the ability to craft original policy language in their own office or with colleagues (see Carey et al. 2006; Kousser 2005; Kousser and Phillips 2012). When time to contribute to policy is reduced, there is more incentive to move to another chamber, the governorship, or national office in order to maintain a career in politics (Maddox 2004; Tothero 2003). With more time and resources moving to politics in term limited contexts, we should expect lawmakers to rely more heavily on legal language previously adopted by other states.

However, there is also a strong argument to be made that legislators are time constrained regardless of how long the session lasts or how many resources they have to research policy. As professionalism increases, the capacity of the legislature to take on more issues increases, and thus the volume of bills considered increases. Whether a legislator finds herself in a short session with few resources or a long-slog session, there are seemingly countless bills to consider. Thus legislators are busy all the time and always looking for shortcuts. The availability of previously adopted legislation or model bills is tempting for legislators in both contexts. We are faced with competing predictions about professionalism, one that purports that the time and resources afforded to legislators should help them craft policy and one that purports that greater time and resources means more things to do and thus an equally low attention paid to crafting unique policy language. Our competing professionalism hypotheses and term limits hypotheses are stated below.

Professionalism Hypothesis (a): Policy adoptions in states low in legislative professionalism will be more similar to previous adopters than policy adoptions in states high in legislative professionalism, all else equal.

Professionalism Hypothesis (b): Policy adoptions in states low in legislative professionalism will be just as similar to previous adopters as policy adoptions in states high in legislative professionalism, all else equal.

Term Limits Hypothesis: Policy adoptions in states with legislative term limits will be more similar to previous adopters than policy adoptions in states without term limits, all else equal.

Measuring Language Diffusion

In order to observe which factors influence bill language diffusion across states, we selected twelve policies that vary in ideology, issue type, and the existence of model legislation. Practicalities such as how many states adopted the policy and the accessibility of bill texts and dates of adoption were important considerations as well. Policy adoptions on the issue span from 1943 (Florida, Right to Work) to 2014 (several E-cigarette and I’m Sorry laws). Table 1 identifies and categorizes the twelve policies. More information on each issue is provided in Appendix Table 1.

[Table 1 about here]

After selecting our policy cases, we gathered the bill texts from each state that adopted the policy. When original bill language was not available online, we used the language from the state session law or state legal code corresponding to the bill. Once the bill texts were collected, they needed to be cleaned in order to facilitate comparison. Each text file was scrubbed of idiosyncrasies including numbers, symbols, punctuation, general whitespace, and bill preambles when applicable. We also converted all words to lowercase letters and removed common English stopwords like “the” and “of.” More details about the text preparation process are provided in the appendix.

With the bills cleaned, we calculated a similarity score between each pair of state bills. This was done using a combination of commands in the `tm`, `smdc`, and `stringr` packages in R. The procedure generates an adjacency matrix of similarity scores by comparing each bill text to every other bill text. A separate matrix was produced for each policy.

The method of comparison we used is cosine similarity, a commonly used plagiarism detection technique. The cosine method produces a vector of word frequencies in one text and compares it to the vector of word frequencies from another. It does this by taking the product of the two vectors divided by the matrix norm of the two vectors. The procedure in the numerator returns the inner product which is then normalized by the procedure in the denominator. The result is a similarity score that can range from 0 to 1. The calculation is shown in Equation 1.

$$CosSim(A, B) = (A * B) / (||A|| * ||B||) = \sum_{i=1}^n (A_i * B_i) / (\sqrt{\sum_{i=1}^n (A_i)^2} * \sqrt{\sum_{i=1}^n (B_i)^2}) \quad (1)$$

The scores themselves are similar to Pearson correlations except that they change with shifts in the scale of A or B. O'Connor (2012) explains that cosine similarity can be thought of as a normalized inner product or a correlation of vectors of paired samples. We think it is most useful to simply think of the similarity scores as a relative measure of how similar the two texts are, with the score of 1 indicating identical texts, and the score of 0 indicating no similarity.¹

Cosine similarity is sometimes referred to as a “bag of words” approach in that it compares texts using counts of word frequencies rather than strings of words. Scholars have found that cosine similarity achieves a medium to high plagiarism detection rate, especially in instances of copy-and-paste plagiarism (Potthast et al. 2011). Other scholars studying bill similarity have used sub-string methods to match state bills to model bills where word ordering matters to making correct matches (Kroeger 2015). The matching is important in order to identify which states adopted which model bills. Since we are examining the degree of similarity between state adoptions of defined policies, the relative similarity measure produced by the cosine method is ideal for our application.

With all the bills compared, we set out to construct our dependent variable *Similarity Score*. To do this, we isolated the largest similarity score for each state on a given policy. We also ordered the scores by adoption year so that states could not copy bill language from later adopters of the policy. First adopters are thus excluded as there is no previous adopter. We assumed that this largest similarity score represented the greatest amount of emulation of

previously adopting state’s language. As a result, *Similarity Score* is the similarity between that state and its most similar previous adopter. We then transformed the 0 to 1 scores to a 0 to 100 scale for easier interpretation.

[Figure 1 about here]

Our unit of observation is thus state-by-policy adoption, yielding 390 observations.² The average similarity score across issues is 65.5, with a minimum value of 12.5 (Texas, I’m Sorry Law) and a maximum of 99.2 (North Dakota, Electronic Transactions). A bar chart of mean similarity scores by issue is presented in Figure 1. Issues with higher mean similarity scores indicate that more language emulation has occurred. See Table 2 in the appendix for a discussion of reasonable baseline similarities.

Our method also allows us to compile a new measure of state innovativeness. Using our *Similarity Score* variable, we can calculate a mean similarity score across issues for each state. States with higher mean similarity scores copy text more often. States with lower mean similarity scores adapt policy language more often, which we interpret as an indicator of innovativeness. A graphical representation of our measure and discussion is presented in the appendix Figure 1.

To determine what factors cause states to emulate text more closely, we turn to multivariate regression. Our first set of independent variables examines the characteristics and origins of the diffused policies. *Model Legislation* is a dummy variable, with a value of 1 indicating that an interest group authored model legislation on the issue. *Social Issue* is a dummy variable, with a value of 1 indicating that the issue is social in nature and a value of 0 indicating that the issue is economic. We coded these issues based on descriptions of the issue in journalistic coverage of the legislation. We include a control variable *Ideology*, which categorizes issues as conservative, moderate, or liberal. We coded these issues based on our reading of media coverage, particularly on which party supported the policy. In the model, indicators are included for moderate and liberal issues, with the indicator for conservative issues omitted to avoid collinearity.

Our second set of variables represents the dynamics of policy diffusion over time. *Year* represents the year that the state adopted the policy. As time has progressed, communication

technologies have improved, allowing for networks of policymakers to emerge and share information more quickly and efficiently. *Order* is the rank order in which the states adopted the policy from the innovating state to the most recent adopting state. States that adopted the policy in the same year are considered a tie by our measure.

Our third set of variables take into account the time constraints that legislators face when authoring and approving new policies. *Term Limits* is a dummy variable indicating whether the state’s legislators faced term limits in the year that the policy was adopted. *Legislative Professionalism* is the first dimension in the multidimensional scale created by Bowen and Greene (2014). In a separate model, we also estimate the effects of the components of professionalization (*Session Length*, *Salary*, and *Staff*) using data from Bowen and Greene (2014).

Because language emulation in our model depends upon bills being not only introduced but also passed in legislatures, we control for two variables that affect bill passage. First, we include *Party Competition*, a Ranney index measuring party competition within the state. With increased party competition, particularly with split control over legislative chambers, we might expect less language emulation. With legislators from different parties holding veto power over any given bill in a split legislature, we might expect more amendments, concessions, and compromises to be made that would cause deviation from the text found in other states’ bills. Second, we include *Neighbor*, a dummy variable indicating whether a neighboring state has adopted the policy. States may be more likely to adopt bills that their politically, demographically, and economically similar neighbors adopt (Berry and Baybeck 2005; Walker 1969). States with at least one neighbor having previously adopted the policy are coded ‘1’ and all others coded ‘0.’

Estimates of Text Diffusion

Our unit of analysis is policy adoption by state. We used OLS regression to estimate the effects of our independent variables on bill language diffusion. We present regression results in Table 2. In all models, we include fixed effects for states. The professionalism scale developed by Bowen and Greene (2014) provides no estimates before 1973 or after 2010, consequently producing data

not missing at random. Though we were able to extend their data to cover our observations during the period 1943-2013, we use multiple imputation to account for data unavailable for 2014.

[Table 2 about here]

Turning first to Model 1, we find a statistically significant, positive effect for model legislation. Across our twelve policy issues, states copied more language directly from one another's bills when interest groups circulated model legislation across state legislatures, compared to when no interest group's model legislation was available for a given issue. Moreover, the substantive effect of model legislation is large. On average, the availability of model legislation on a given issue increases a state's similarity score by more than 9 points, controlling for other included variables. Thus, we find support for the Model Legislation Hypothesis.

We find a statistically significant and positive effect for the indicator for economic issues. On average, states adopting economic policies receive similarity scores almost 10 points higher than when they adopt social policies, controlling for other variables. States copy more language word-for-word from one another when penning bills addressing economic issues. Thus, we find support for the Economic Issue Hypothesis.

We find an effect for ideology in our sample. According to our model, states receive similarity scores about 4 points higher when adopting moderate bills than when adopting conservative bills, controlling for the other variables. However, we want to caution against interpreting this result as an indication that ideology plays a notable role in bill language emulation. This model also shows no significant differences between liberal and conservative bills. In changing the excluded category from conservative to liberal in a model not reported here, we also find that moderate legislation is no more likely to be copied verbatim than liberal legislation.

Turning to the time variables, we find positive, statistically significant effects for adoption order, but not for adoption year. The coefficient estimates on the Year variable indicates that states have not copied one another's legislation language more over time, controlling for the other variables. Thus, we find no support for the Year of Adoption Hypothesis (though see below for a qualification). The order in which states adopt bills is important. We find that

early adopting states improvise and adapt language much more than later adopting states. According to our model, a state that adopts a policy last of the 50 states has a similarity score on the bill 15.5 points higher than the first state an innovative policy diffuses to (the second state to adopt the policy). Clearly, bill language becomes more similar over time. Thus, we find support for the Adoption Order Hypothesis.

Finally, we examine variables affecting the amount of time and resources that legislators possess to write legislation. We proposed competing hypotheses regarding legislative professionalism, as longer sessions and greater staff may allow for more innovation but may also require many more complex issues to be considered, thereby negating the time and resource advantages of professionalization. We also predicted that legislative bodies retaining less institutional knowledge (as measured by the Term Limits variable) will copy bill text more from other states. In both instances we cannot claim to find effects. The effect of Term Limits is signed in the expected, positive direction, but fails to achieve significance at the .05 level of confidence. We find that Legislative Professionalism is not a statistically significant predictor of emulation, all else equal. Examining these findings further, we alter our model specification in Model 2 by including the component variables of Legislative Professionalism rather than the multidimensional scale developed by Bowen and Greene (2014). Separating the components of professionalization allows us to test our theoretical expectations more closely. However, specifying this model with component variables does not give us a different picture of the dynamics of language diffusion. We find no effects of any of these variables on similarity scores. Thus we find no support for the Term Limits Hypothesis or Professionalism Hypothesis (a). Overall, we find support only for Professionalism Hypothesis (b), that there are no significant differences in language emulation due to legislative professionalism.³

On professionalism, it is likely that it is not a predictor of text emulation because legislators are time constrained no matter the institutional context. Professional legislatures are themselves an outgrowth of larger, richer, more industrial states that have a greater number of issues to deal with and, thus, a greater number of bills (Rosenthal et al. 2003). With a short amount of time to dedicate to each bill, legislators in professional states rationally seek shortcuts to bill writing like lawmakers in citizen legislatures. Additionally, seats in professional legislatures are

generally seen as desirable careers. This makes focusing on electoral and constituent politics very important aspects of the job that need attention (see also Rosenthal et al. 2003).⁴ Finally, it is important to note that of our control variables, party competition does not predict similarity scores, while having a neighbor adopt does, all else equal.

Why Do States Copy Bill Language?

Understanding the *contents* of policies that diffuse across states is critical to understanding how states learn and borrow ideas from one another (Karch 2007). In response, we develop a theory of legislative constraints in policy adoption and investigating which political, temporal, and institutional characteristics affect the diffusion of policy language. We employ a text analysis measurement of policy adoption similarity using cosine similarity scores and multivariate regression to test the theory. We also take preliminary steps towards addressing a frequent criticism of the diffusion literature: that researchers often fail to establish a causal relationship between one state and a subsequent state adopting a similar policy. By examining more closely the similarity of the wording of state legislative bills, we can more confidently argue that states borrow policy from other states, especially when prominent interstate organizations are not involved in the process.

Observing the bill diffusion process across twelve issues, we find that characteristics of the issues themselves are the most important factors in determining how much legislators copy language from other states' bills. We find that the availability of interest group model legislation on a given issue makes it more likely that adopting states approve emulated language. This finding adds to a growing literature demonstrating that model legislation is an important tactic for interest groups to employ to win policy battles. States emulate policy language more on economic policies than on social policies because of pressures of competition and a lack of expertise on economic issues. As policies diffuse, later adopting states copy and paste language from earlier adopting states.

Importantly, we do not find institutional effects in the policy language diffusion process in our analysis. Lawmakers in states with more professionalized legislatures borrow text just

as much as lawmakers in citizen legislatures. Bodies of lawmakers facing term limits do not borrow text more than bodies where lawmakers do not face term limits. We also do not find strong effects of ideological content. Though more text was copied from moderate bills than from conservative bills, we found no statistically significant differences between moderate and liberal policies or between conservative and liberal policies in terms of similarity scores.

Future research on this topic may expand the number and diversity of issues selected to find if the temporal and political constraints found here apply in a broader sample. More work is also needed to compare results obtained using our cosine similarity method with results obtained using other text analysis methods, including establishing a reasonable baseline similarity among bills so we can conclude whether policies are truly diffusing or just being simultaneously adopted. We take an important step toward this elusive question in the diffusion literature.

The content of legislation is important in the study of policy diffusion. As policies diffuse across states, small changes in wording can make major differences in policy; for instance, in determining whether businesses in Indiana can lawfully refuse to provide services to certain populations. Understanding what incentivizes lawmakers to copy policy language verbatim from other states' policies or to adapt policy content to fit local policy needs is critical to understanding how ideas spread.

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Notes

¹Literally, the similarity scores are the cosine of the angle between the two vectors of words, hence the name cosine similarity. The smaller the score, the larger is the angle between the two texts, and the less similar are the two texts. This interpretation is less than intuitive, but can be used to graph the similarity of texts in Euclidean space.

²First adopters are excluded since there is no previous adopter with which to compare their bill text. For the state innovativeness scores introduced in the next paragraph, first adopters were assigned a similarity score of 0 on that policy.

³To check that our results were not being driven solely by idiosyncrasies among the twelve issues in our sample, we fit a model with fixed effects for issues. Due to problems with multicollinearity in this model, we are forced to exclude the Model Legislation, Economic Issues, Issue Ideology indicator variables. In results not reported here, we find that including issue fixed effects moderately improves model fit (from $R^2 = 0.40$ in Model 1 to $R^2 = 0.55$). There is some variation by issue that we cannot explain by the type, ideology, or existence of model legislation. We continue to find no statistically significant effects for term limits or legislative professionalization. The estimate for year effects falls out of statistical significance at the .05 level of confidence, but remains signed in the same direction. The estimates for Order and Neighbor remain the same.

⁴In no version of the model did professionalism or its component parts predict similarity scores. State fixed effects may be highly collinear with professionalism as professionalism does not vary much over time. Even when excluding state fixed effects from the model, professionalism and its components were not significant predictors.

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Appendix

[Appendix Table 1 about here]

Appendix Table 2 presents descriptive statistics for similarity scores. The minimum, maximum, and mean reported under “w/o stopwords” are the descriptive statistics associated with the similarity scores used in the above analysis. In our initial analysis, we did not remove common English stopwords (such as “and”, “I”, and “there”). The descriptive statistics for similarity scores with stopwords included is reported under “w/ stopwords” in Appendix Table 1. Our reasoning for not removing stopwords was that since we seek to understand the tendency for states to copy each other word for word that even seemingly innocuous words should be included. The respective similarity scores produced by each method correlate at 0.81. However, the inclusion of stopwords inflated similarities across all issues. The average similarity score across issues is 79.6 with stopwords and 65.5 without. The lowest similarity score with stopwords included is 34.8 (Indiana, I’m Sorry Laws), which is 22 points higher than the minimum with stopwords removed. The highest observation by both measures is North Dakota on Electronic Transactions. When estimating our models with stopwords included, there was substantially lower model fit ($R^2 = 0.22$) probably due to greater noise in the dependent variable. While model fit was lower, the estimated effects were still signed and significant in the same ways. Thus, our results are robust to the inclusion of stopwords.

[Appendix Table 2 about here]

We should expect some degree of similarity, whether emulation is occurring or not, since we are comparing bills on similar issues. We can get a sense of the baseline similarity by looking at the minimum similarity scores across issues. The average minimum similarity score (with stopwords excluded) across all issues is 31.1. Recalling that similarity scores lie on a relative 0 to 100 scale, a score of 31 represents two bills that are more different than similar. Looking at the full adjacency matrix of similarity scores (i.e. before the time-ordering and most similar restrictions were imposed), we observed a minimum of 0 and a maximum of 1. That is, there

was at least one bill pair that had zero words in common and one bill pair that had all words in common. These numbers indicate that for any two bills, even on the same issue, the score could range anywhere from zero to one. With the time-ordering and most similar restrictions imposed, we should expect a baseline score around 30, depending on the issue.

[Appendix Figure 1 about here]

Table 1: Policy Selection

	<i>Model Legislation</i>	<i>No Model</i>
<i>Conservative Economic</i>	Right to Work Laws (24)	Private School Vouchers (11)
<i>Conservative Social</i>	Stand Your Ground (31)	Three Strikes Laws (25)
<i>Moderate Economic</i>	Electronic Transaction Regulation (47)	I'm Sorry Laws (38)
<i>Moderate Social</i>	E-Cigarette Bans for Minors (40)	Safe Haven Laws (50)
<i>Liberal Economic</i>	Electronic Waste Recycling (25)	Guaranteed Insurance Renewal (44)
<i>Liberal Social</i>	Anti-bullying (49)	LGBT Non-discrimination (21)

Note: The number of adopting states is in parentheses below the name of the policy. More information about the years of adoption and the interest groups sponsoring model legislation is located in the appendix.

Figure 1: Mean Similarity Score by Issue

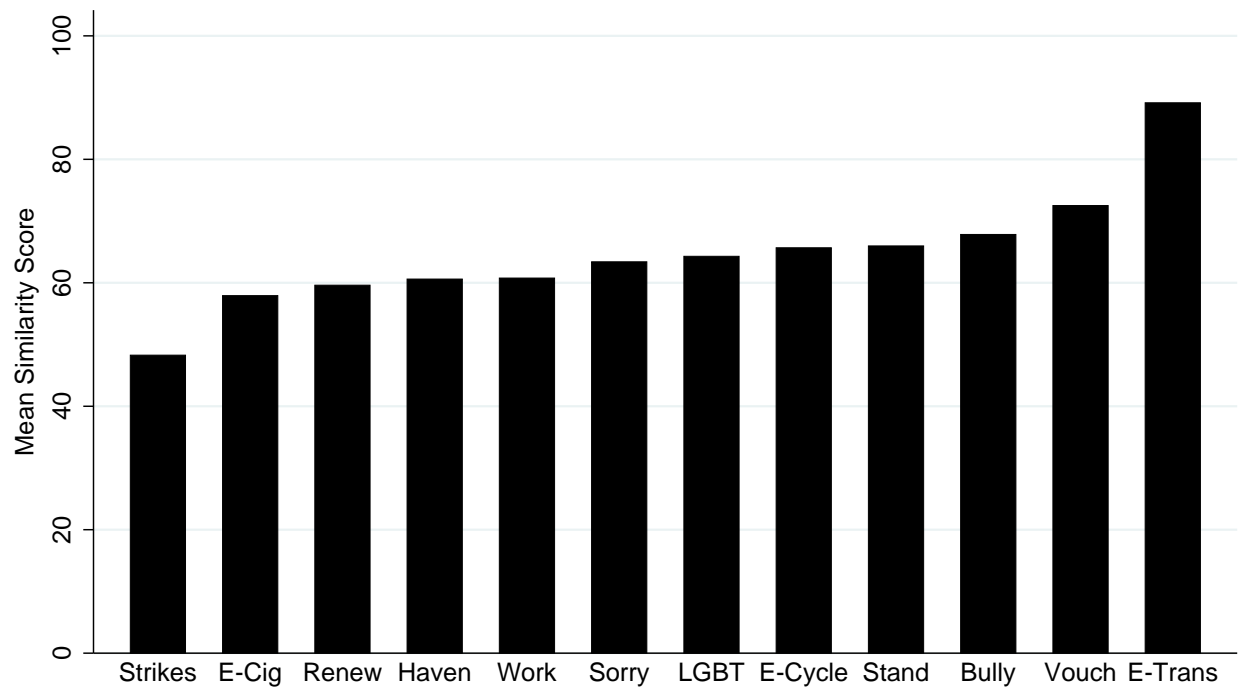


Table 2: OLS Regression Results

	<i>DV: Bill Text Similarity Score</i>	
	(Model 1)	(Model 2)
Model Legislation	9.14* (1.65)	8.74* (1.70)
Economic Issue	9.83* (1.74)	9.91* (1.74)
Moderate Bill	4.04* (1.87)	3.87* (1.89)
Liberal Bill	0.52 (2.48)	0.71 (2.50)
Year	0.03 (0.09)	0.08 (0.10)
Order	0.31* (0.09)	0.32* (0.09)
Term Limits	3.92 (3.08)	4.00 (3.06)
Legislative Professionalism	-0.05 (1.85)	
Session Length		-0.00 (0.02)
Salary		-0.00 (0.00)
Staff		0.00 (0.00)
Neighbor	8.68* (2.21)	8.65* (2.24)
Party Competition	0.72 (1.91)	0.71 (1.92)
State Fixed Effects	Yes	Yes
Constant	57.64* (8.94)	50.72* (10.70)
Observations	383	383
R ²	0.40	0.41
Adjusted R ²	0.30	0.30

Note: * $p \leq .05$. Significance tests are two-tailed. Due to the inclusion of the party competition variable, seven observations of policy adoptions in Nebraska (which has a nonpartisan legislature) are excluded from the analysis.

Appendix Table 1: Policy Information

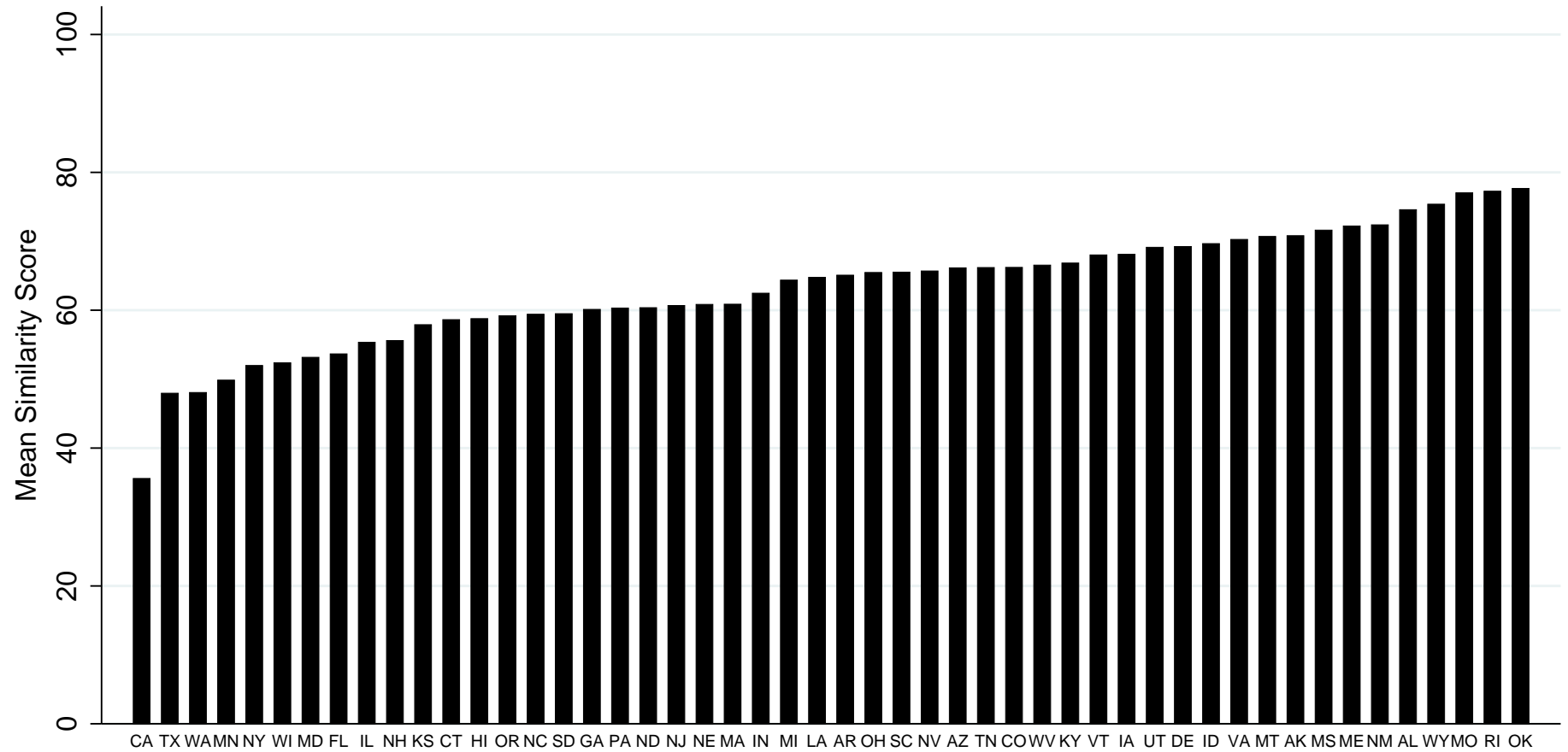
<i>Policy</i>	<i>Years</i>	<i>First Adopter</i>	<i>Model Legislation from:</i>
Right to Work	1943 - 2012	Florida	National Right to Work & ALEC
School Vouchers	1990 - 2013	Wisconsin	N/A
Stand Your Ground	2005 - 2014	Florida	ALEC
Three Strikes	1993 - 1995	Washington	N/A
Electronic Transactions	1999 - 2009	California	Uniform Law Commission
I'm Sorry	1986 - 2014	Massachusetts	N/A
E-Cig Bans for Minors	2009 - 2014	New Jersey	Reynolds American
Safe Haven	1999 - 2008	Texas	N/A
E-Waste Recycling	2003 - 2011	California	Dell & Electronic TakeBack
Guaranteed Insurance Renewal	1992 - 1998	NJ/NY/MN	N/A
Anti-bullying	1999 - 2014	Georgia	Gay, Lesbian & Straight Education Network
LGBT Non-discrimination	1982 - 2009	Wisconsin	N/A

Note: Interest groups sponsoring model legislation were identified for six of the policies above. For those policies labeled “N/A,” we could find no evidence that interest groups were spreading model legislation.

Appendix Table 2: Descriptive Statistics on Similarity Scores

	Most Similar Previous Adopter					
	w/ stopwords			w/o stopwords		
	Min	Max	Mean	Min	Max	Mean
Right to Work	0.410	0.920	0.716	0.229	0.900	0.608
I'm Sorry Laws	0.348	0.938	0.716	0.125	0.919	0.634
E-Cig Bans	0.468	0.886	0.771	0.389	0.764	0.579
Stand Your Grnd	0.531	0.952	0.795	0.361	0.888	0.660
Three Strikes Laws	0.627	0.901	0.798	0.241	0.631	0.483
Anti-Bullying	0.576	0.982	0.818	0.335	0.977	0.678
Insurance Renewal	0.619	0.987	0.821	0.329	0.977	0.596
ENDA	0.629	0.923	0.836	0.375	0.756	0.643
Safe Haven	0.666	0.952	0.838	0.145	0.906	0.606
E-Recycling	0.718	0.947	0.879	0.393	0.857	0.657
Vouchers	0.876	0.965	0.914	0.571	0.845	0.725
E-Transactions	0.783	0.997	0.968	0.232	0.992	0.892

Appendix Figure 1: Innovativeness by State



Note: Lower mean similarity scores indicate more innovative states. By our measurement, the most innovative state is California, while the least innovative state is Oklahoma. On its face, our ranking of states tracks previous rankings of innovativeness (e.g. Walker 1969) with some important differences. Texas is one of the top most innovative states in terms of unique bill language, but was determined by Walker to be one of the least innovative. Only one other state (Rhode Island, moving from 15th most innovative in Walker's ranking to 49th in ours) shifted more than 30 spots up or down between the two scores.