DIVERSITY AND INNOVATION:

AN ANALYSIS OF POLICY REINVENTION

By

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Abstract:

This study explores a diversity-innovation relationship in state legislatures. The research includes three measures of diversity: occupational, gender, and racial diversity. The author uses two measures to capture diversity: a USA Today Diversity Index formula and the proportion of legislators that do not belong to the majority subgroup. To explore innovation, the author exploits the policy reinvention stage of the policy innovation and diffusion process. Innovation in policy reinvention is measured with cosine similarity, arguing that greater originality in policy reinvention represents a greater display of innovation. The study finds that as the gender diversity of a state legislature increases, the legislature displays greater innovation through an increased use of original language in policy reinvention. These findings add to our current understanding of descriptive representation, indicating that symbolic representation provides greater substantive benefits than previously thought. Additionally, these findings expand our understanding of policy reinvention, by demonstrating legislature diversity has an impact on a legislature's ability to innovate on behalf of constituents.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

"Strength lies in differences, not similarities."

-Stephen R. Covey

A diverse group of voices in a legislative body is necessary to produce the ideal form of representative government described by John Stuart Mill in the mid-1800s. Nearly two centuries later, a major charge against state legislatures is their occupational, racial, and gender homogeneity. When people consider what a state legislator looks like, often, the mental image is of a White, college-educated, Protestant, male. Although this image is easily associated with the state legislators of most states, according to Kurtz (2015) with the National Conference of State Legislatures, state legislatures, although less diverse than their constituencies, are more diverse than ever before.

Currently, we understand diversity in state legislatures to affect legislative agenda setting. Through an analysis of proposed legislation in six state legislatures, Bratton (2002) examined the relationship between racial/gender diversity and agenda setting. Bratton (2002) finds that as gender diversity increased in the Democratic Party, the number of proposed women's interest

measures[1] increased. As racial diversity increases, Bratton (2002) observed White legislators introducing fewer Black interest measures[2] and Black legislators placing more Black interest measures on the agenda.

Additionally, the effects of diversity in the private sector are well-documented. According to Lorenzo et al. (2017), who examine diversity's potential impact in business, the top twenty-five percent of companies in racial diversity are thirty-five percent more likely to generate greater innovation revenue than the average company, while the top twenty-five percent of companies in gender diversity are fifteen percent more likely to have higher innovation revenues than the average company. Furthermore, Hunt (2015) finds that the bottom twenty-five percent of companies in racial and gender diversity are less likely to outperform the average company. Companies around the globe reap the benefits of diversity, seeing innovation revenue[3] increase when diversity is present (Lorenzo et al. 2017). It remains to be seen, however, whether these findings are transferrable to state legislatures. Drawing from Bratton (2002) and Lorenzo et al. (2017), I further explore of how diversity influences political processes. Specifically, by using occupational, racial, and gender diversity measures for forty-seven state legislatures, I examine how diversity impacts a legislature's capacity to use original language when reinventing policy adopted from another state.

To measure state legislature innovation, I exploit the policy reinvention stage of the policy diffusion process. Policy diffusion is the process of a policy spreading to policy adopters.

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[1] Bratton (2002) categorizes a measure as a women's interest measure if the proposed measure attempts to substantively address gender discrimination, alleviate the effects of gender discrimination, or improve the socioeconomic status of women. An example of a woman's interest measure is an Equal Pay law.
[2] Similarly, Bratton (2002) categorize a proposed bill as a Black interest bill, whenever the proposed legislation attempts to substantively address racial discrimination, mediates the effects of racial discrimination, or increases the socioeconomic status of African Americans. An example of a bill coded as a Black interest bill is proposed legislation that encourages the integration of the education system.
[3] Innovation revenue is defined by Lorenzo et al. (2017) as "the share of revenues that companies have generated from enhanced or entirely new products or services in the most recent three-year period".

When implementing another state's policy, adopters adapt a policy to fit the needs of their state and constituents. In an ideal situation, adopting a policy without adapting it to the needs of a state indicates the legislature did not need to alter a policy before adoption. However, in a worst-case scenario, not changing a policy upon adoption indicates lazy lawmaking and a missed opportunity to innovate in order to best serve constituents. Further, it is thought that policies incrementally become more comprehensive over time, as states learn from the policy successes and failures of other states (Mooney and Lee 1999). A lack of innovation in policy reinvention can prevent the policy from incrementally changing and becoming more comprehensive over time.

By using diversity to explain variability in policy diffusion and policy reinvention, a new avenue of research is revealed. This group-centered approach investigates the effects of diverse groups in state legislatures. This study reveals that the legislators, themselves, play a role in determining the amount of change a legislature performs to a policy upon reinvention. The legislators, as a collective group, are critical to explaining policy reinvention, because diversity can be a driver of innovation. Diverse collections of people contain the potential to unlock innovation, because they have a larger pool of experiences, knowledge, and expertise, derived from distinct group-experiences and cultural dissimilarity (Janssens and Zanoni 2005), to draw upon when debating solutions to a problem (van Kippenberg and Hoever 2017). In the context of a state legislature, diverse groups provide distinct voices in the deliberative process.

The deliberative process is the political mechanism by which diversity creates a larger capacity in a legislature for innovation. During the deliberation over a policy, differences between legislators expand the discussion of solutions and consequences. The logic is elegant in its simplicity: the more diverse the perspectives in deliberation, the greater the likelihood of addressing the potential issues, such as conflictual constituent preferences, conflictual state laws, or conflictual state agency enabling legislation, of a policy proposal. Determining which

measures of diversity and which mediating factors, in the context of a legislature, unlock diversity's potential for innovation remains unexplored.

I add to the current empirical understanding of the characteristics affecting a legislature's capacity for policy reinvention, which is described by Glick and Hays (1991) as being driven, at least partially, by innovation. I measure the innovativeness of policy reinvention by conducting a textual analysis of state policies using cosine similarity, which measures the amount of similarity between two document vectors, arguing that significant changes in the reinvention of a policy display legislative innovation. The most similar-previously passed legislation acts as a control or baseline for measuring subsequent changes in the reinvention process. Further, I enhance the understanding of policy innovation, diffusion, and reinvention by presenting evidence that the composition of state legislatures also has a role in determining the level of innovativeness in the reinvention process.

By developing a fuller understanding of a legislature's capacity to reinvent policy, this study more than explores the factors that explain why some legislatures borrow language from previous policy adopters and other states use original language. Through empirically showing voters that the composition of their state legislature influences the legislature's capacity for reinventing public policy, the findings of this study provide voters additional, constructive information for selecting elected representatives. Reform-minded individuals may also use the findings of this research to add credence to the notion that diversity matters, especially when considering political representation. The following section displays policy diffusion and policy reinvention scholarship and concludes by addressing the factors contributing to the diversity-innovation relationship.

CHAPTER II

REVIEW OF LITERATURE

The seminal work of Rogers (1962) began the study of policy diffusion. The policy diffusion process is as follows: the initial state to implement a policy is known as a policy innovator. The states that 'follow-the-leader' are the adopters of a policy. The process of subsequent innovation and adoption is referred to as policy diffusion (Walker 1969; Rogers 1962; Rogers 1990). According to Rogers (2010), diffusion is described as "the process by which innovation is communicated through certain channels over time among the members of a social system" (5). Essentially, states do not create laws in a vacuum. States are in positions within a social system to learn from the policy successes and failures of other states.

Initially, studies of policy diffusion centered on the subsequent adoption of a policy, with little concern to the changing of policy over time. Over the last three decades, however, scholars began looking at the changes a legislature performs to policies upon adoption, through a process known as policy reinvention (Mooney and Lee 1999; Jansa, Hansen, Gray 2018). Specifically, policy reinvention is the process of modifying policy to fit the needs of a legislature's own state (Glick and Hays 1991). Policy reinvention is an incremental process, with social learning occurring as later adopters learn from previous adopters (Rice and Rogers 1980). However, recent scholarship demonstrates that certain legislatures contain greater capacity for reinventing policy using more original language (Jansa, Hansen, and Gray 2018).

Currently, scholars explain a legislature's ability to use original language in policy reinvention by examining the resources available to legislators (Squire 1992; Squire and Moncrief 2015; Jansa, Hansen, and Gray 2018). Squire and Moncrief (2015) argue that resources are key factors in determining the capacity of legislators to generate and process information, which affect the innovative capacity of the legislature. Empirical findings support the idea that institutional resources contribute to a legislature's ability to draft and pass innovative legislation during policy reinvention. Jansa, Hansen, and Gray (2018) find that resources impact the likelihood of using original language during policy reinvention, an inherently innovative process.

Although resources are theoretically and empirically linked to legislative innovation, resources are not the only factor that influence the legislative capacity for innovation. In addition to resources, I contend that the collective characteristics of legislators (e.g. background knowledge, past experiences, and personal expertise) play a role in determining the innovative capacity of a legislature. I argue that more diverse legislative bodies will demonstrate greater innovation in policy reinvention than more homogenous state legislatures.

This argument is predicated on previous research performed inside and outside of political science. The work performed outside of political science is sociological and organizational research which analyzed the effects of group heterogeneity on group performance, group innovation, and group creativity, with the assumption of diverse groups having the opportunity to draw upon a wider pool of experiences, preferences, and expertise (Hoever et al. 2012; Kippenberg and Hoever 2018; Valls, González☐ Romá, and Tomás 2016). Additionally, my argument assumes that the drafting and passage of legislation with original language, necessarily relies, in part, on the innovative capacity of the legislature.

Demographic diversity and occupational diversity are similar in the fact that both are measured by analyzing the differences between individuals. However, individual demographic differences are distinct from occupational differences in a fundamental way. Demographic differences are assumed to be associated with differences in knowledge and experience derived from distinct group experiences and culture dissimilarity (Janssens and Zanoni 2005), whereas occupational differences involve a difference in task-specific skills gained from formal training, professional experience, or educational background (Dijk, Engen, and Van Kippenberg 2012). The differences in the foundations of demographic diversity and occupational diversity have motivated scholarship attempting to measure the effects of one against the other or one in lieu of the other.

The first research into diversity quickly became frustrated with inconsistent findings (Dijk, Engen, and van Kippenberg 2012), so researchers turned to analyzing different types of diversity in different settings and contexts. Valls, González☐Romá, and Tomás (2016) studied the effects of educational within-group diversity on group performance. Group performance was measured by analyzing "information processing, creative and innovative idea generation and problem☐solving, and high☐quality decision☐making (754-56)". Valls, González☐Romá, and Tomás (2016) found a positive link between group educational diversity and group performance, when the group's innovation climate and quality of communication were high. Group innovation climate and quality of communication were measured via survey, with questions assessing perceptions on the group's acceptance of articulating novel ideas and the fluidity of communication.

Using a multi-agent simulation, Chae, Seo, and Lee (2015) examine how group diversity and task complexity impact group creativity. The authors find that increased group creativity is

linked to group diversity when the group is very homogenous or very heterogenous, and group creativity is unaffected by middle-levels of diversity. Further, the simulation demonstrated an increase in creativity associated with an increase in task difficulty. Kristinsson, Candi, and Sæmundsson (2016) explore the role of diversity and causal logic in top-management-groups and the group's ability to generate and implement new ideas. Causal logic is a term used to define a goal driven group. If a group is driven by causal logic, actions are initiated to reach the consensus goal; the only conflict within the group concerns the best means for reaching the goal.

Within the context of a legislature, the causal logic would be developing comprehensive policies to serve the needs of the state. Again, the findings of Kristinsson, Candi, and Sæmundsson (2016) are mixed. Their models show support for greater group diversity increasing the likelihood of implementing new ideas and decreasing the generation of new ideas, when the group is not driven by causal logic.

Studies of the relationship between diversity and outcomes, often, show heterogenous conclusions. An illustration of these mixed findings is Dijk, Engen, and van Kippenberg's (2012) meta-analysis of diversity-performance and diversity-innovation studies, looking at several types of diversity. Initially, the authors find an insignificant relationship between demographic diversity and group performance and a mixed relationship between occupation diversity and group performance.

When Dijk, Engen, and van Kippenberg (2012) analyzed the diversity-innovation relationship, occupational diversity and demographic diversity were positively related to the ability of a group to innovate. To make sense of these disparate findings, Van Dijk, Van Engen, and Van Kippenberg (2012) argue that researchers will not find a direct link between diversity and innovation without accounting for quality of communication and a group's willingness to engage with new ideas and alternative solutions. Another recent work supports the proposal of

mediating factors affecting the diversity-innovation relationship arguing that previous work overlooked the mediating factors of communication and openness (Valls, González☐Romá, and Tomás 2016). An in-depth discussion of mediating factors is in a later section.

Three Measures of Diversity: Occupational, Race/Ethnicity, and Gender

Research on occupational diversity in state legislatures is limited. The work of Carnes (2013) and Carnes and Hansen (2016) approach the issue peripherally. As Carnes (2013) notes, a person's occupation plays a significant role in determining the social class and standing of the individual. Because of this link between occupation and social/economic standing, I consider the work of Carnes and Hansen (2016), analyzing economic diversity, to capture occupational diversity by proxy.

Carnes and Hansen (2016) examine occupational diversity from an institutional perspective, observing which institutional factors contribute to greater economic or occupation diversity in state legislatures. According to the authors, legislative professionalism reformers cite greater compensation for politicians will allow working class individuals to hold political office, because the compensation is great enough for people to forego income earned at their daily occupation. Yet, when observing legislator compensation and analyzing economic/occupational diversity, Carnes and Hansen (2016) discover that greater compensation of politicians entices affluent professionals and deters the working class from running for legislative offices, effectively capping occupational diversity.

In contrast to occupational diversity, gender diversity in legislatures is relatively well-documented. In an analysis of the role of gender diversity in state legislatures, Berkman and O'Conner (1993) display the influence of the representation of women legislators in abortion policy and legislation. Traditionally, the mechanism for gender diversity in a legislature impacting legislative formulation resides in the traditional theory of differing priorities of men

9

and women, with men emphasizing the importance of economic and business issues and women emphasizing the importance of social and familial issues (Berkman and O'Connor 1983). However, contemporary research indicates that female legislative preferences do not differ significantly from male legislative preferences on issues of family and society (Taylor-Robinson and Heath 2003). The driving mechanism for gender diversity affecting innovation is gender interacting with psychological development in the broader context of society generating different life experiences for men and women (Chodorow 1978; Gilligan 1982; Ruddick 1989; Skjeie 1991; Tamerius 1995).

Racial diversity is the third type of diversity analyzed in this study. Bratton (2002) analyzes the impact of greater demographic, racial and gender, diversity in six state legislatures. According to Bratton's model, increasing gender heterogeneity among legislators affiliated with the Democratic Party increased the amount of legislation passed pertaining to social and familial issues. The findings of Bratton (2002), however, indicate the positive and negative effects of legislature heterogeneity. Bratton's (2002) models show that the demographic composition of a state legislature has an impact on the legislation passed by representatives. When observing greater racial diversity in Democratic Parties in state legislatures, Bratton (2002) explains that the Republican Party is more likely to pass legislation conflicting with Black interests. Bratton's work, showing that legislative diversity can garner backlash, is an illustrative example of why some scholars questioned if diversity could be a double-edged sword.

Is Diversity a Double-Edged Sword?

West (2002) warned about excessive group heterogeneity. West (2002) theorized of a curvilinear relationship between group heterogeneity and innovation. At one end of the graph, where the group is homogenous, individual members will be focused on conforming to the norms of the group. On the other end of the spectrum, where the group is very heterogenous, individual

members may focus heavily on differences between group members, exacerbating out-group biases, having a negative impact on the capacity of a group to act innovatively (West 2002).

On one side, diversity could invite individual biases which disturb group cohesiveness and limit group communication (Williams and O'Reilly 1998). On the other side, diversity amalgamates individuals of differing backgrounds, expertise, and experiences which foster group performance, innovation and creativity (van Kippenberg and Schippers 2007). With diversity appearing to potentially negatively and positively impact innovation, scholars began searching for factors that enhance diversity's benefits. Two factors that either enhance or diminish the diversity-innovativeness relationship are quality of communication and open mindedness (Hoever et al. 2012; Valls, González Romá, and Tomás 2016; Van Dijk, Van Engen, and Van Kippenberg 2012).

Mediating Factors: quality of deliberation and open mindedness

Hoever et al. (2012), Kearney and Gebert (2009), van Ginkel and van Kippenberg (2008) and van Kippenberg and Hoever (2017) identify information elaboration, being directly associated with the quality of communication, as the primary mediating variable to reap the benefits of diversity in the diversity-innovation relationship. The central concept in information elaboration is "the exchange, discussion, and integration of task-relevant information" (van Kippenberg and Hoever 2017, 48).

A crucial part of information elaboration is the willingness of people to engage in listening to other perspectives (Hoever et al. 2012). Listening to the perspective of others indicates a willingness to meaningfully consider alternative solutions. In an experimental setting, Hoever et al. (2012) found support for the proposition that meaningfully considering alternative solutions is key for unlocking the benefits of diversity. According to their findings, only in situations where individuals attempted to understand the motivations and considerations of others

11

was the diversity-creativity relationship positive. Closely related to considering alternative solutions is open-mindedness, which was found by Pluut and Curşeu (2013) to be an effective mediating variable between diversity and innovativeness.

Valls, González Romá, and Tomás (2016) list quality of communication as an important mediating variable in the diversity-innovation relationship. When observing the effects of educational diversity on performance, without controlling for a setting conducive to quality communication, the diversity-innovation interaction was negatively affected. However, when adding quality communication as an intervening variable, the diversity-innovation relationship was positively affected and statistically significant. To include potential mediating variables in the context of state legislatures, I control for state legislature polarization. This does not directly test the mediating variables. By controlling for legislature polarization, I hold the potential mediating variables constant and test whether increased diversity is associated with increased innovation.

CHAPTER III

THEORY

Studies of descriptive representation illustrate the importance of diversity in legislative deliberation. Deliberation, whether in official channels (e.g. committees, subcommittees) or unofficial channels (e.g. in the office of a colleague) provides the environment for differences between individual legislators to expand the amount of information and alternative solutions which will assist in facilitating innovative drafts of bills and the passage of innovative legislation. Although individual studies render mixed results (Jackson, Joshi, and Erhardt, 2003; van Knippenberg and Schippers, 2007; Williams & O'Reilly, 1998), a consistently positive relationship between diversity, performance, and innovation is uncovered when accounting for mediating factors, such as quality of communication, information elaboration, and task complexity (Hoever et al. 2012; Valls, González☐Romá, and Tomás 2016).

When a diverse group of people focus on solving a problem, the pool of information, experience, perspective, skill, and knowledge is expansive relative to a homogenous group (Janssens and Zanoni 2005; Dijk, Engen, and van Kippenberg 2012). Researchers observe that diversity in the private sector increases the capacity of a group to act innovatively (Lorenzo et al. 2017). I explore the diversity-innovation connection in the public sphere. I argue that legislative diversity expands the pool of information, experience, perspective, skill, and knowledge available to

legislators when forming policy solutions. The mechanism by which diversity fosters innovative potential is through enhanced deliberation, whether in a formal or informal setting. Below, I discuss the foundational theorists of deliberation and the factors considered to enhance deliberation.

The first modern deliberation theorists drew from the classical works of Aristotle and Thomas Aquinas idealistically believing the creation of laws was a process of pure reason, insisting that reason unaffected by self-interest was critical to developing effective policy (Habermas 1989 [1962]). From the perspective of Habermas, the opening of deliberative processes to the working class was detrimental to the process of generating policy without self-interest, because it deteriorated the homogenous nature of interest which was the driving force of reasonable deliberation (Habermas 1989 [1962].

Rawls (1971) also pushed for a pure reasoning approach to deliberation. According to Rawls (1971), the most effective deliberators are those who rely on reason and logic, who are disconnected from their identity and self-interest. The first modern deliberative theorists, Habermas and Rawls, determined that the best deliberative bodies were comprised of individuals who engaged in "bracketed" deliberation without a sense of self, class, gender, ethnicity, or age (Schneiderhan, Khan, and Elrick 2014). Bracketing oneself involves the act of operating without a sense of personal identity, and, over time, scholars began to question the value of "bracketing" oneself before engaging in deliberation (Mansbridge 2012). I further the school of thought which scrutinizes the utility of encouraging individuals to deemphasize their differences, by arguing the differences between people enhance the ability of a legislative body to act innovatively.

Schneiderhan, Khan, and Elrick (2014) explore the idea of ethnic/racial differences expanding deliberation and leading to the adaptations of positions. According to the authors, whenever a heterogenous group emphasizes their differences, enhanced deliberation, fresh

perspectives, and improved communication occurs (Schneiderhan, Khan, and Elrick 2014). The primary error of early deliberative theory, as pointed out by Mansbridge (2012), is the assumption that a homogenous general interest for society exists. Society is comprised of many interests, and the ideal means for ensuring the representation of multiple interests in society is to provide bargaining power to different groups (Mansbridge 2012). The idea of incorporating multiple interests raises the two fundamental questions: What are the goals of deliberation? And, why are the goals of deliberation better met by the inclusion of multiple perspectives in the process of deliberation?

The first goal of deliberation is to determine when a policy will conflict with the interests of the polity. I argue that with a less diverse pool of voices potential conflicts with the interest of the population are less likely to be discussed. Proponents of substantive representation would argue that representatives do not need to have a personal connection to a particular group to represent the interests of the group. However, an accurate representation of diverse interests is less easily met by a homogenous legislature (Mansbridge 1999). While representing interests that are not necessarily close to one's own interests is possible, deliberation provides "communicative and informational advantages to representatives who are existentially close to the issues" (Mansbridge 1999, 636).

The second goal of deliberation is to develop policy outcomes which are beneficial to the entire population, which can be complicated by a homogenous group representing a diverse constituency. The third goal of deliberation is to generate commonality and compromise from conflictual interests (Mansbridge 1999). While a homogenous group, in theory, could substantively represent conflictual interests to reach a compromise. A legislator being existentially close to a policy position serves both the legislator and constituent in that the position is sincerely held. While not impossible to meet the goals of deliberation through homogenous deliberation, accurately representing the interests of diverse constituents is a

considerable task for a homogenous legislature. Therefore, expanding the work of Mansbridge (1999), I argue that the three goals of deliberation—determining potential conflicts with interests, developing beneficial policy, and generating commonality—are enhanced by the presence of multiple perspectives.

As the goals of deliberation are met by diverse legislative bodies, I expect to observe an increased ability to demonstrate greater originality when reinventing policy and less reliance on the past policy implementation of other states. Intuitively, when interests are diversely represented, the deliberative process is filled with people of differing experiences, background knowledge, task-specific skills, and expertise. When different people work together, past research demonstrates groups perform with a greater innovative capacity (Dijk, Engen, and van Kippenberg 2012). Since this research includes three measures of diversity, I test a hypothesis for each diversity measure.

Diversity Hypothesis – As the diversity (occupational, gender, racial) of a state legislature increases, the usage of original language in reinventing policy increases.

This research also attempts to explore the mediating variables in the diversity-innovation relationship. Past scholars demonstrate the effects of group heterogeneity on group performance, group innovation, and group creativity (Hoever et al. 2012; Kippenberg and Hoever 2018; Valls, González☐Romá, and Tomás 2016). The driving mechanism in this relationship is the wider pool of experiences, preferences, and expertise within a diverse group compared to a homogenous group. Yet, because research attempted to measure the diversity-innovation dynamic without controlling for mediating variables, results appear inconsistent (Dijk, Van Engen, and Van Kippenberg 2012; Hoever et al. 2012; van Kippenberg and Hoever 2017).

Scholars point to two mediating factors, which allow for diverse groups to produce innovative solutions: open-mindedness (Homan et al. 2007) and quality of communication and

information (Hoever et al. 2012; van Kippenberg and Hoever 2017). Within the public sphere, polarization receives blame for several ills affecting the legislative process. According to Barber and McCarty (2015), the expanse between policy preferences between politicians of either party leads politicians to be less willing to engage with ideas of opposing parties. Additionally, increased polarization is linked to brinkmanship, where a politician will push an extreme version of a bill, which limits viable compromises available in negotiation (Barber and McCarty 2015; McCarty 2007). Because of the effect of polarization on the willingness to engage with new ideas and the deleterious impact on the quality of communication, I expect innovativeness to suffer whenever a legislative body is more polarized.

The byproducts of polarization, an unwillingness to engage with opposing preferences and brinksmanship (Barber and McCarty 2015; McCarty 2007), I argue act as a proxy for a willingness to engage with new ideas and the ability to elaborate on alternatives, which decrease the likelihood of diversity leading to innovative behavior. Therefore, diversity in a legislature leads to a greater display of innovation; but, the diversity-innovation relationship is constrained by polarization.

An additional quality of legislative bodies that proves to be a stumbling block for collaboration is the institutional influence of the agenda setting power of the majority party (Bachrach and Baratz 1962; Cox and McCubbins 2005). Bachrach and Baratz (1962) label the ruling elite's ability to maintain the status quo by only allowing "safe" issues on the agenda the Second Face of Power, and Cox and McCubbins (2005) term the agenda setting power of the majority party the cartel agenda model. According to the cartel agenda model, the majority party in a legislature uses their institutional gatekeeping power to block bills against the status quo, in the "majority block-out zone", from becoming law (Cox and McCubbins 2005). By examining majority-party roll-rates in state legislatures, Anzia and Jackman (2012) empirically demonstrate a majority-party's gatekeeping power. By successfully defeating alternative ideas and solutions

17

through expansive gatekeeping rights, stronger majority-party institutional power is associated

with skirting the alternative ideas central to unlocking diversity's potential.

CHAPTER IV

METHODOLOGY

The dependent variable is legislative innovation. An area to observe legislative

innovation is in policy reinvention (Glick and Hays 1991). The process of policy innovation and

diffusion across the fifty U.S. states provide a well-suited context for measuring legislative

innovation. After a policy innovator passes legislation, other states will 'follow-the-leader'

drafting legislation covering the same policy area but adapting the exact language of the law to fit

the needs of their own state (Walker 1969; Rogers 1962; Rogers 1990; Mooney and Lee 1999;

Jansa, Hansen, and Gray 2018). Often, later adopters of a policy learn from the successes and

failures of previous adopters, adjust the policy accordingly, and cause laws to become more

comprehensive over time (Rice and Rogers 1980).

To determine the level of innovation in policy reinvention, a baseline from which to measure

innovation must be established. For this research, the previously-passed and most-similar state

law serves as a baseline for subsequent innovation. For example, Washington passed the first

state electronic-transaction law in 1996: since no other laws were passed between 1996 and 2000,

the Washington law serves as the baseline for judging the subsequent wave of reinvention in

2000. During the 2000 legislative session, Delaware, Florida, Iowa, Hawaii, Idaho, Kansas,

Kentucky, Maryland, Maine, Michigan, Minnesota, North Carolina, Nebraska, Ohio, Oklahoma,

South Dakota, Utah, and Virginia passed similar laws: these state laws are clustered in the same group, because the legislatures passed them the same amount of time from the original innovator state and no other state legislatures generated laws in the same policy area.

To analyze innovation in policy reinvention, I calculate a similarity score for each dyad of state laws and place the similarity scores in a matrix. Figure 1 illustrates the similarity scores in matrix form. The similarity matrix contains the similarity scores for a dyad of state laws. The similarity scores range from 0 to 1, with a score of 0 indicating that the document vectors are orthogonal, a right angle, sharing no similarity and a score of 1 indicating perfect similarity. If the state laws are identical, such as '1 OH (2004).txt' and '1OH(2004).txt', the similarity score is 1. In the Similarity Score Matrix. '1OH (2004)' is a text file of an Ohio law passed in 2004.

	1OH (2004).txt	1WY (2004).txt	AZ (2005).txt	CA (2000).txt	CT (2005).txt
1OH (2004).txt	1	0.884869112	0.627289813	0.476003816	0.916239061
1WY (2004).txt	0.884869112	1	0.722919331	0.4360408	0.91035266
AZ (2005).txt	0.627289813	0.722919331	1	0.285736725	0.67457852
CA (2000).txt	0.476003816	0.4360408	0.285736725	1	0.401866702
CT (2005).txt	0.916239061	0.91035266	0.67457852	0.401866702	1

Figure 1 - Similarity Score Matrix.

To calculate the amount of innovativeness, I examine the amount of original language used in drafting legislation previously adopted in another state. The columns in Similarity Score Matrix. contain a highlighted numeric value that represents the similarity between a state law and the most similar state law previously adopted in a different state. Notice that the "1 OH(2004)" law has .916 similarity score with the "CT(2005)". However, because the Connecticut law is adopted subsequent to the Ohio law, the .916 similarity score is not attributed to the Ohio law. Because the "CA(2000)" law occurred before the Ohio law and the similarity score between the CA-OH dyad is the highest among the Ohio law and all previous laws, this similarity score is used to determine the amount of innovation used by Ohio in drafting this particular law.

Using cosine similarity scores contain several benefits. First, cosine similarity is easy to interpret, with an assigned value falling between 0 and 1: the lower the assigned value, the lower the similarity. Second, cosine similarity is ideal for measuring the similarity of documents of different lengths, without confounding the results. For example, a pair of documents may a high dissimilarity score in Euclidean distance simply because of disparate document lengths. The advantage of cosine similarity in this application over Euclidean distance is because Euclidean distance uses a count of the common words approach, which measures the magnitude of difference between word vectors, and cosine similarity uses multidimensional space to calculate the angle between word vectors, which is flexible enough to accommodate comparing documents that may not be identical in length. Figure 2. compares cosine similarity and Euclidian distance. In Figure 2., the AB line is a vector of words for document 'B', and the AC line is a vector of words for document 'C'. The cosine similarity between the two documents is calculated by measuring the angle of the BAC. The Euclidean distance is measured by calculating the length, or magnitude, of the BC line. Clearly, if a researcher intends to measure document that may be of differing lengths, cosine similarity offers the greatest benefits.
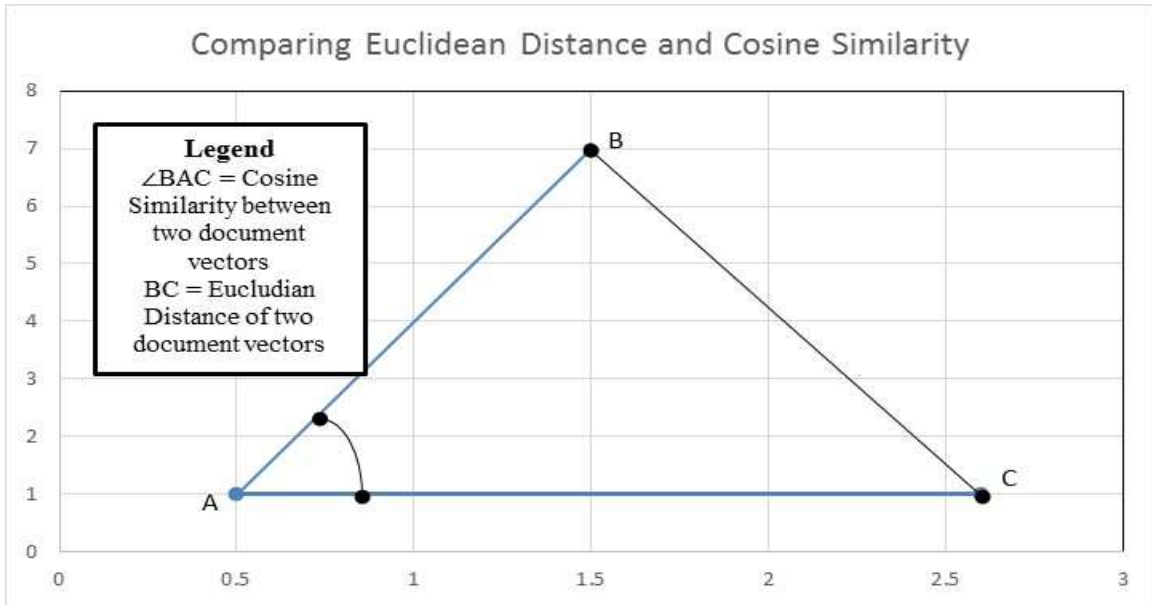
Figure 2 – Cosine Similarity and Euclidian Distance

The lower the similarity score, the greater the use of original language, and, I argue, the greater the innovation the state legislature displayed. Cosine similarity is calculated by comparing angle of the document-feature vectors of two documents (A and B in Equation 1. below). The first step in calculating cosine similarity is indexing each of the features, the individual words, of the document. The index of a feature is represented by the superscript *'i'* in Equation 1. When fitting the document features into a vector, the features of each document are paired to facilitate a similarity score. Next, the first indexed feature of document A is multiplied by the first indexed feature of document B. Then, the second feature of document A is multiplied by the second feature of document B. And, so on. Finally, the multiplied indices are added together to form the numerator of Equation 1. This is known as the dot product of vectors A and B.

To control for comparing documents of different dimensions (lengths), the dot product vectors A and B (the numerator of equation 1.) are divided by the norm matrix, the length of the absolute value of documents A and B, of the two documents (the denominator of equation 1).

The norm matrix is the term-frequency vector in matrix form. The formula for calculating cosine similarity is found in the Equation 1.

$$\text{cosSim(A, B)} = \frac{A^i * B^i}{||A|| * ||B||}$$

Equation 1. – Cosine Similarity

Bill Text Preprocessing

Before measuring text similarity, textual preprocessing must occur. The first step in preparing for textual comparison is the removal of stop-words, punctuation, numbers, special characters, and extra white-space characters. Stop-words are words such as "a", "the", "or", "and", "but". Stop-words are removed because they do not typically convey additional information, and the inclusion of stop-words could cause higher similarity scores between texts without the documents being fundamentally more similar.

While the inclusion of special characters, such as a hashtag, is important for comparing data gathered from Twitter, the removal of these characters ensures that likelihood of spurious similarity between documents is mediated (Denny and Spirling 2018). The lowercasing of words is also performed. By lowercasing words, computational analysis will equate "LOCAL PUBLIC HEALTH OFFICIAL" with "local public health official", which is especially important for the analysis of similarity between legal documents.

The next preprocessing step is the stemming of words. The stemming of words indicates that words are reduced to their root word (Porter 1980). The process of stemming words is completed because the roots of words represent a broader concept than words with attached prefixes or suffixes (Jivani 2011). For example, the words "organizes", "organizing", and "organize" speak to a broader concept, they are reduced to their root "organiz". While the dangers of under-stemming or over-stemming are a concern, empirical evidence shows that by reducing

the "noise" the stemming of words increases the accuracy of comparing and categorizing documents, (Denny and Spirling 2018 173).

Quantifying Textual Data

To render the bill texts appropriate for quantitative analysis, the words of the bill texts must be converted into numerical form. The primary assumption when converting textual data into quantitative data is that losing word order is not consequential for analyzation (Grimmer and Stewart 2013). This technique is commonly referred to as a "bag of words" representation of a text. A simplified example of fitting three documents into a document-feature matrix through the quantification of words for cosine similarity calculation is represented in Figure 3.

Idaho (2006) partial definition of bullying: "intentional written, verbal or physical act" New Jersey (2002) partial definition of bullying: "written, verbal or physical act" Georgia (1999) partial definition of bullying: "intentional display of force". This matrix is used to calculate the dot product between two documents, forming the numerator in the cosine similarity equation (see Equation 1.).

	Intentional	written	verbal	Physical	Act	Display
Idaho	1	1	1	1	1	0
Georgia	1	0	0	0	0	1
New Jersey	0	1	1	1	1	0

In the above scenario, the cosine similarity scores are Idaho-Georgia = .16; Idaho-New Jersey = .66; Georgia-New Jersey = 0.

Figure 3. Document Feature Matrix

The unit of analysis is state law-legislative session, specifically the dyadic relationship between an adopter of a policy and the most similar previously implemented state policy, with observations clustered in a legislative session. The analysis covers 101 observations in six separate policy areas: Antibullying laws, Public Breastfeeding laws, Employment Non-Discrimination Act laws, I'm Sorry laws (which prevent physicians from being held liable for expressing sympathy for a patient's medical outcome), Stand Your Ground laws, and E-Recycling laws. Since the policy areas are common to many states, the opportunity to reinvent policy is high, facilitating comparisons across state legislatures. Further, these policy areas represent a range of legislative topics and require various amounts of technical knowledge, giving the analysis greater robustness. Table 1. contains the adopting states within each policy area. Within the antibullying policy area, Arizona, Alaska, Delaware, Florida, Idaho, Indiana, Iowa, Kansas, Kentucky, Maine, Maryland, Minnesota, Nebraska, Nevada, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Utah, and Virginia adopted laws during the 2006-2007 legislative session.

Antibullying	E-Recycling	ENDA	I'm Sorry Laws	Stand Your Ground	Public Breastfeeding
Alaska	Connecticut	Colorado	Arizona	Alabama	Alabama
Arizona	Hawaii	Illinois	Connecticut	Alaska	Arizona
Delaware	Illinois	Iowa	Delaware	Arizona	Arkansas
Florida	Maryland	Maine	Georgia	Georgia	Colorado
Idaho	Michigan	Oregon	Hawaii	Indiana	Florida
Indiana	Minnesota	Pennsylvania	Idaho	Kansas	Kansas
Iowa	Missouri	Washington	Illinois	Kentucky	Kentucky
Kansas	New Jersey		Indiana	Louisiana	Massachusetts
Kentucky	North Carolina		Iowa	Maine	Mississippi
Maine	Oklahoma		Louisiana	Michigan	New Mexico
Maryland	Oregon		Maine	Mississippi	Ohio
Minnesota	Rhode Island		Maryland	North Dakota	Oregon
Nebraska	South Carolina		Missouri	Ohio	Pennsylvania
Nevada	Texas		Montana	South Carolina	Rhode Island
Ohio	Virginia		Nebraska	Tennessee	Vermont
Pennsylvania	Washington		New Hampshire	Texas	Virginia
South Carolina			North Dakota	West Virginia	Wyoming
Tennessee			South Carolina		
Texas			South Dakota		
Utah			Utah		
Virginia			Vermont		
			Virginia		
			West Virginia		

Table 1. – List of Observations

Data and Diversity Scores

The first issue to address when measuring the effect of diversity is determining a measure of diversity. Helpfully, the USA Today Diversity Index created by Meyer (1991) is a simple and intuitive means for assessing the diversity of a group. USA Today uses census data and the index to measure changing demographics in the United States. The index formula is flexible in that a diversity score can be calculated for any group with distinct within-group categories. To calculate a diversity score using the index, a researcher must adhere to the following steps. First, the group must be divisible by two or more categories. Second, each subgroup is represented as a proportion of the whole group. Third, the subgroup proportion of the whole group is represented as a percentage of the whole, and the percentage is displayed in decimal form. Finally, to calculate the probability of selecting two individuals from the whole group from the same subgroup, the subgroup proportions, represented as percentages of the whole, are squared,

summed, and multiplied by 100 (for ease of interpretation). An illustration of the USA Today Diversity Index is provided in equation 2.

$$((subgroupA)^2 + (subgroupB)^2 + (subgroupC)^2) * 100 = Diversity\ Score$$

Equation 2. [4] - Diversity Score Formula

To test the hypothesis that diversity influences a legislature's ability to demonstrate innovation in policy reinvention, I incorporate two measures of diversity, the USA Today Diversity Index score and the proportion of legislators not in the majority subgroup. The racial diversity score is computed by converting each race/ethnicity subcategory to a proportion of the total legislature. Data for the racial composition of state legislatures in 2006 was compiled by Sierra, Hardy-Fanta, Pinderhughes, and Lien (2019) with the Gender and Multicultural Leadership Project. The proportion of non-White legislators is used as the alternative measure of diversity, since, apart from Hawaii, White legislators comprise a majority of legislators in each legislature.

Similarly, to measure gender diversity in state legislatures, I use two measures. In the first measure, I apply the USA Today Diversity Index but replace the racial categories with categories for gender to calculate the likelihood of selecting two people of a different gender. Data for gender composition of state legislatures for all legislative years is accessible through the National Conference of State Legislatures (2018). Because the composition of state legislatures in 2006 is primarily binomial, the second measure uses the proportion of female legislators as a representation of gender diversity. Staying consistent, I measure occupational diversity in two ways. One measure uses the proportion of legislators who do not identify as a lawyer or a

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[4] Each subgroup is represented as a percentage of the whole group. For example, if a whole group is comprised of four subgroups, each consisting of twenty-five percent of the whole group. The equation would be set up as follows: ((.25)^2+ (.25)^2 + (.25)^2 + (.25)^2) * 100 = The liklihood of selecting two individual belonging to the same subgroup

professional politician, since lawyers and professional politicians comprise the largest

occupational subgroup. The other measure uses the USA Today Diversity Index. State legislature

occupational data for 2007 is accessible through the Carnes and Hansen (2016) study of working-

class representation in state legislatures.

Control Variables: Polarization

The factors mediating the diversity-innovation relationship are quality of communication

and openness to alternative solutions. Since we currently do not have access to direct measures of

these characteristics, I use legislature polarization as a proxy. Legislators are less willing to

engage with alternative solutions whenever the difference in policy preferences is substantial

(Barber and McCarty 2015). I use Shor's (2011) ideological mapping of state legislatures to

measure the level of polarization in each legislature. Shor's (2011) polarization measurement is

the premier comprehensive assessment of state legislature polarization and a good variable to

capture the quality of communication and openness to alternative solutions among and between

legislators.

Legislative Professionalism

When considering levels of professionalization, the time and resources available to each

member must play a role in the legislative innovativeness of each state. With an extended time to

deliberate alternative policy solutions, a more professionalized legislature has a greater

opportunity to generate innovative policy. With a larger staff size, the informational pool for

policy alternatives is expanded, positively affecting the innovative capacity of the legislature. An

illustrative example of the differing levels of legislative professionalism, used by Squire and

Moncrief (2015), are the Wyoming legislature (a less professionalized legislature) and the

California legislature (a more professionalized legislature). The Wyoming legislature meets

biennially, once every two years, for sixty-days. The California legislature meets annually for

around two hundred fifty days over two years. Additionally, the staff of the Wyoming legislator is

significantly smaller than the staff of the California legislator. (Squire and Moncrief 2015).

Because of legislative professionalism's influence on policy diffusion and policy reinvention, I

include legislative professionalism in the models by using the Squire Index (Squire 2017) and

professionalism measures from Bowen and Green (2014).

Institutional Control

Bachrach and Baratz (1962) termed the exclusionary ability of the majority party in a

legislature the Second Face of Power. According to Second Face of Power hypothesis, the ruling

elite, in the context of a state legislature, the majority party, controls the institution to an extent

that allows only "safe" issues on the agenda. To control for the institutional power of the majority

party, I include a control variable for majority party roll rates from Anzia and Jackman (2012).

The majority party roll rate is a good indicator of the majority party's institutional "block-out"

power. A high majority party roll rate indicates that the majority party is unable to block

alternative ideas and solutions from being placed on the agenda. If the majority party is able to

block alternative ideas from reaching the agenda, the diversity-innovation relationship is blunted.

CHAPTER V

FINDINGS

Remember that the relationship between the similarity score to innovation is the same as diversity score to legislature diversity but inverse to the proportion non-majority subgroup to diversity. To assist in understanding these relationships, see Figures 4, 5, and 6. Intuitively, using the USA Today Diversity Index formula, as the likelihood of selecting two legislators from the same subgroup decreases, the diversity within the legislature increases. If increased racial/ethnic diversity is linked to an increase in state legislature innovation, the relationship between the variables in the model will be direct – an increase in one will generate an increase in the other.

Similarity Score	Lower Score = Greater Innovation
Race Diversity Score	Lower Score = Greater Diversity
Proportion Non-White	Higher Value = Greater Diversity

Figure 4. – Racial Diversity Directionality

The next variable of interest is the occupational diversity score. Job-related diversity or occupational diversity is the diversity metric consistently attributed with increased innovative group performance (van Dijk, van Engen, and van Kippenberg 2012). Similar to the measure for racial/ethnic diversity, the occupational diversity measure provides the probability of selecting a similar legislator. See Figure 5. for an illustration of how the occupational diversity score is

related to the diversity of the legislature.

Similarity Score	Lower Score = Greater Innovation
Occupational Diversity Score	Lower Score = Greater Diversity
Proportion Non-Lawyer/Politician	Higher Value = Greater Diversity

Figure 5. – Occupational Diversity Directionality

Thus, if increased occupational diversity assists a legislature in using original language in reinventing policy, the results will show an inverse relationship and the coefficient will be negatively signed. Directionally, the results indicate support for occupational diversity increasing legislative innovation, although the effect of occupational diversity on a state legislature's use of original language when adopting policies from other states is statistically indistinguishable from zero.

Gender diversity is also assessed using two measures. The first measure is a diversity score. The USA Today Diversity Index formula is used to calculate a gender diversity score. For example, if a legislature is comprised of sixy percent male legislators and forty percent female legislators, the formula is set up as follows: $((.6)^2 + (.4)^2)) * 100 =$ Diversity Score. To check the robustness of the diversity score measure, an alternative measure of gender composition uses the proportion of female legislators to determine the gender diversity of a legislature[5]. To assist in understanding this relationship see Figure 6.

Similarity Score	Lower Score = Greater Innovation
Gender Diversity Score	Lower Score = Greater Diversity
Proportion Female Legislator	Higher Value = Greater Diversity

Figure 6. – Gender Diversity Directionality

The calculated OLS Regression table is located in Figure 7. Recall the race/ethnicity

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[5] The gender composition of state legislatures in 2006 is binomial. Proportion of female legislators will not work as a measure of gender diversity as the previous statement becomes less true.

hypothesis - The racial/ethnic diversity of a state legislature impacts the usage of original language in reinventing policy. Directionally, the results indicate support for racial/ethnic diversity decreasing the usage of original language in reinventing policy. These results however do not breach the 95 percent confidence interval. Therefore, I cannot reject the null hypothesis and cannot determine that the impact of racial/ethnic diversity on legislative innovativeness is statistically distinguishable from zero. These findings are not necessarily inconsistent with existing theory, however. According to Homan et al. (2008), if identities are salient but the identity of the group is not emphasized, diversity is unlikely to render positive results (Homan et al. 2008). Given our understanding of legislator behavior (Mayhew 1974), it seems unlikely that importance is placed on racial/ethnic identity in the legislature or committee as a whole.

As noted in Figure 7., the models show a statistically significant evidence indicating relationship between gender diversity and the borrowing of language from previous policy adopters. As the gender diversity of a legislature increases, the similarity between passed legislation and previously adopted legislation decreases – as the gender diversity of the legislature increases, the legislature displays greater innovation.

To ensure the robustness of these findings, I estimate five models. Controlling for legislative professionalism and legislative polarization, the first model shows a statistically significant relationship between gender diversity and the usage of original language in policy implementation. These findings support the hypothesis that gender diversity influences a state legislature's innovativeness.

Models two and three explore other types of diversity. Model two examines race/ethnicity diversity. Although the coefficient for racial/ethnic diversity is signed as expected, I am unable to reject the null hypothesis. The results of model two do not support the race/ethnicity diversity hypothesis. Model three contains a variable for occupational diversity. Prior studies of diversity and innovation demonstrate a consistent positive link. Yet, model three does not provide support for the occupational diversity hypothesis.

Model four mixes the diversity variables to test the robustness of the gender diversity

finding. As noted in Figure 7., the statistical significance is unaltered by the inclusion of

additional measures of diversity. In model 5, the most difficult test for the gender diversity

variable, I also control for the tendency for certain policies to be more heavily copied than others

by including an indicator variable for each policy. The antibullying law is the excluded reference

category. The statistical significance of gender diversity is unimpacted, demonstrating the

robustness of the finding that the gender composition of a state legislature affects the use of

original language in policy writing.

To get an idea of the size of the effect, an increase in the gender diversity score of a state

legislature of one unit corresponds with a .5 unit increase in document similarity with policies

previously adopted in other states. The gender diversity score has a mean of 65.73 and a standard

deviation of 7.69. Thus, an increase of one standard deviation above the average gender diversity

score results in a 3.85 increase in policy similarity. Conversely, a decrease of one standard

deviation from the average gender diversity score returns a 3.85 decrease in policy similarity.

The estimated effect size is slightly larger in model eleven, located in Figure 8, with a

one unit increase in the proportion of female legislators resulting in a .6 decrease in policy

similarity. The mean for the proportion of female legislators variable is 22.89 and the standard

deviation is 7.14.   This shows that increasing the proportion of female legislators by 7.14

decreases the policy similarity score by 4.28.

The reader must be cautioned from overstating the findings of the models in Figure 7

and Figure 8. The first sign that the findings may need further exploration is the fact that none

of the control variables reach statistical significance. This could indicate that the sampling of

observations is not a representative sample of the population of policy topics, which generated

findings not mirrored in the population of observations. Another limitation of the study is its

cross-sectional analysis. While the findings of a cross-sectional study can provide meaningful

insight on where to further analyze a phenomenon, future research should expand the

observations to facilitate a longitudinal analysis.

Figure 7. OLS Regression Results: Diversity Scores

	Dependent variable:				
	Similarity Score				
	(1)	(2)	(3)	(4)	(5)[6]
Gender DS	0.336			0.437**	0.502**
	(0.206)			(0.214)	(0.195)
Occupation DS		-0.193		-0.264	-0.071
		(0.276)		(0.289)	(0.262)
Racial DS			0.158	0.167	0.099
			(0.114)	(0.116)	(0.105)
E-recycle					-6.103
					(4.379)
ENDA					0.442
					(5.890)
I'm Sorry Laws					-8.363**
					(3.994)
Public Breastfeeding					-21.931***
					(4.389)
Stand Your Ground					-14.859***
					(4.386)
Professionalism	-0.233	0.004	-0.209	0.191	-0.192
	(0.229)	(0.444)	(0.232)	(0.456)	(0.411)
Polarization	-1.884	-6.308	-4.548	-2.557	-2.597
	(4.201)	(4.320)	(3.796)	(4.517)	(4.025)
Maj Party Roll Rate	-0.200	12.813	8.877	3.898	-5.470
	(21.866)	(22.393)	(21.311)	(22.298)	(19.885)
Constant	46.834***	73.881***	59.094***	25.438	38.720**
	(17.002)	(5.748)	(11.506)	(20.934)	(18.966)
Observations	101	101	101	101	101
R^2	0.063	0.042	0.056	0.097	0.336

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[6] A calculation of variance inflator factor (VIF) is performed for model 5. A VIF is a measure used to determine multicollinearity. If a VIF is over 5, the variable should be removed from the model. None of the variables reached this threshold. The results of the test are located in the appendix.

Adjusted R^2	0.024	0.002	0.017	0.040	0.254
Residual Std. Error	14.922 (df = 96)	15.089 (df = 96)	14.978 (df = 96)	14.801 (df = 94)	13.044 (df = 89)
F Statistic	1.613 (df = 4; 96)	1.049 (df = 4; 96)	1.421 (df = 4; 96)	1.689 (df = 6; 94)	4.097*** (df = 11; 89)

Note: One-Tailed Test *p<0.1; **p<0.05; ***p<0.01

Figure 7. and Figure 8. contain several control variables. An index variable for legislative professionalism is included in all models and although negatively signed never reaches statistical significance. Therefore, this study does not support legislative professionalism significantly explains the usage of original language in policy reinvention, which runs counter to previous studies of legislative professionalism and policy reinvention. The variable for polarization measures the mean ideological distance between conservative and liberal legislators. It is theorized that polarization within a legislature creates an environment where legislators are less willing to engage with alternative ideas and solutions (Barber and McCarty 2015)[7].

By using alternative measures of diversity, the OLS regression models in Figure 8. serve as a robustness check for the findings in Figure 7. The models in Figure 8. Use the USA Today Diversity Index formula to calculate the diversity scores for each of the diversity independent variables, while the models in Figure 8. use proportions to measure diversity. At first blush, the results add robustness to the finding that the gender diversity of a state legislature influences its ability to innovate when reinventing policy. Model eight adds robustness to the finding that gender diversity in state legislatures influence innovation in policy reinvention. By using an alternative measure of gender diversity in a one-tailed test, we continue to determine that the gender diversity of a state legislature has an impact on the innovation of policy during reinvention

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[7] Models 12-15 include a gender-polarization and a race-polarization interaction. The models are located in the appendix. Upon interacting the gender and polarization variables, the directionality of the coefficient switched to positive. However, the reduced degrees of freedom and multicollinearity with the interaction term causes the effect of gender and polarization to be indistinguishable from zero. These results are similar to the race-polarization interaction. See appendix for models 12-15.

that is discernable from zero.

The models in Figure 8. generate interest in the race/ethnicity variable. As indicated by
model six, a bivariate model with the proportion of non-White legislators acting as the variable of
interest, the results show that without controlling for other factors, racial/ethnic diversity impacts
innovating on policy during policy reinvention. These findings persist at a p-value of .1, when
controls are included, although statistical significance is diminished when accounting for other
measures of diversity. And, in model eleven, the standard error, for the proportion non-White
variable, is larger than the predicted effect size, indicating that the upper limit of the coefficient,
in this case, is higher than zero.

Figure 8. OLS Regression Results: Proportions

	Dependent variable:					
	SimScore					
	(6)	(7)	(8)	(9)	(10)	(11)
Prop non-White	24.284**	-22.476*			-16.326	-9.540
	(12.235)	(12.308)			(13.617)	(12.077)
Female Legislators			-0.411*		-0.448**	-0.582***
			(0.223)		(0.225)	(0.205)
Prop not Law/Pol				0.196	0.162	0.159
				(0.155)	(0.173)	(0.153)
E-recycle						-5.444
						(4.337)
ENDA						0.463
						(5.725)
I'm Sorry Laws						-8.053**
						(3.919)
Public_Breastfeeding						-21.746***
						(4.235)
Stand Your Ground						-15.168***
						(4.311)
Professionalism		-0.216	-0.233	0.199	0.182	0.066
		(0.229)	(0.228)	(0.430)	(0.456)	(0.402)

Polarization		-4.821	-1.547	-7.069[*]	-2.995	-3.785
		(3.761)	(4.173)	(4.165)	(4.409)	(3.880)
Majority Party Roll Rate		6.059	-0.615	9.379	-2.235	-7.403
		(21.193)	(21.697)	(21.358)	(21.493)	(18.874)
Constant	66.489[***]	75.306[***]	77.921[***]	56.527[***]	66.350[***]	80.612[***]
	(2.110)	(5.677)	(6.135)	(14.185)	(15.845)	(14.299)
Observations	101	101	101	101	101	101
R^2	0.038	0.069	0.070	0.053	0.110	0.357
Adjusted R^2	0.029	0.031	0.031	0.013	0.053	0.278
Residual Std. Error	14.886 (df = 99)	14.871 (df = 96)	14.865 (df = 96)	15.002 (df = 96)	14.700 (df = 94)	12.833 (df = 89)
F Statistic	3.939[**] (df = 1; 99)	1.788 (df = 4; 96)	1.808 (df = 4; 96)	1.339 (df = 4; 96)	1.928[*] (df = 6; 94)	4.501[***] (df = 11; 89)

Note: One-Tailed Test   [*]p<0.1; [**]p<0.05; [***]p<0.01

CHAPTER VI

CONCLUSION

The models show support for gender diversity impacting the innovative capacity of a state legislature. As the ratio of female to male legislators near parity, a state legislature's usage of original language in policy reinvention increases. These findings support the theoretical reasoning that when aggregated unique group experiences impact the innovative capacity of a state legislature, which influences the legislation being produced by the legislature.

Voters must understand that legislature gender composition is important when heading into voting booths. Knowing that gender diversity can impact a state legislature's policy formulation is an important piece of information, when casting a ballot. If policies become more comprehensive over time because of policy reinvention, better serving constituents, having a diverse legislature that is able to innovate when reinventing policy is critical. Although the findings support the gender diversity hypothesis, this study contains theoretical limitations, and I am unable to reach incontrovertible theoretical conclusions regarding gender diversity and innovation.

For example, are the models capturing gender diversity's influence on the innovative capacity of a state legislature? Or as a state legislature passes gender parity, and female senators and representatives comprise a majority, will the innovative capacity of a state legislature continue to increase as the proportion of female representatives increases? Luckily, as of 2019,

researchers can empirically investigate a majority female state legislature, with Nevada becoming

the first state legislature with majority female representation (NCSL 2019).

It is plausible that the theoretical model of Anzia and Berry (2010) is applicable to the

findings of this study. Anzia and Berry (2010) find female legislators outperform male legislators,

with female legislators securing nine percent greater federal funds for their districts than male

legislators. Additionally, female legislators sponsor and co-sponsor a greater number of bills than

male legislators (Anzia and Berry 2010).

Anzia and Berry argue that the causal mechanism is twofold. First, if voters hold

conscious or unconscious bias against female candidates, only the most charismatic and gifted

female politicians gain office. And, second, if female candidates judge the political arena to be

biased, only the most highly qualified female candidates will seek office (Anzia and Berry 2010).

The same causal mechanism driving female legislators to outperform male legislators could also

drive the findings of this study. Future research can delve deeper into why the gender

composition of legislatures impacts the borrowing of language from other legislatures.

This much is clear: as state legislatures near gender parity, the amount of borrowing

language in policy reinvention is decreased. Future research should attempt to determine if state

legislatures with greater gender diversity are displaying a greater capacity for innovation because

of gender diversity or because of an increase female legislators. Assisting in understanding this

phenomenon, through legislator interviews, future research should work to develop an individual

model for the diversity-innovation relationship. An individual model will explore when and in

which contexts individual differences aggregate to link diversity to innovation.

Despite the rigorous nature of data collection and analysis in this study, several

limitations exist. The lack of a repository for state legislature data restricted the timeframe of this

study to the 2006-2007 legislative sessions. Abbreviating the timeframe for analysis limited the

number of observations to slightly over one hundred, which meets the threshold for statistical

analysis, but could be expanded upon by future research to ensure the robustness of the findings.

Using the 2006-2007 legislative sessions contains several advantages. On the national level, the 2006-2007 politics looks similar to today. With presidential approval ratings hovering around forty percent and the national constituency questioning the foreign policy direction of the nation, the 2006-2007 state legislative sessions, as are the state legislative session in 2018-2019, were an ideal time for state legislators to feel emboldened to act on behalf of constituents, not simply differ to federal direction. Although truncated timeframe limits this study, this research establishes the groundwork for future research.

Future research has the potential to better understand the diversity-innovation link in state legislatures. For example, this study analyzes this phenomenon at the state legislature level, which results in consequential theoretical limitations. In an attempt to address these limitations, future research should also examine within-party diversity. By disaggregating legislator data from the legislature to within the party, scholars may reveal that the actual driver of innovation is within-party diversity, especially within the majority party, and unique party dynamics cause diversity to respond differently for the Republican and Democratic Parties.

Since the 1990s, in contrast to the Republican Party, the Democratic Party established itself as dedicated to the success of female candidates, playing an active role in candidate recruitment and support (Elder 2014). With 1,438 Democrat women and 661 Republican women serving in state legislatures in 2019 (NCSL 2019), the number of female Democratic state legislators compared to the number of female Republican state legislators reflect this effort. If scholars observe increased gender diversity associated with increased innovation in both parties, such findings would indicate that gender diversity is the main driver of innovation, without differences resulting from unique party dynamics. However, if researchers find increased gender diversity impacts innovation significantly greater in the Republican Party than the Democratic Party, such an observation would support the theoretical construct of Anzia and Berry (2010) which posits that female legislators will outperform male legislators because of societal bias toward selecting women to serve in legislative positions.

Additionally inspiring to the exploration of within-party gender diversity, scholarship identifies polarization from ideological sorting, with women seeing fewer successes in conservative areas (Norrander and Wilcox 2005), and the realignment over the role of women in society, with the Democratic Party championing the benefits of female state legislative representation (Elder & Greene, 2012, Chapter 3) as significant, divergent party dynamics. Examining the diversity-innovation relationship in these different contexts can serve to parse out the contexts that support the diversity-innovation phenomenon and the contexts that require the female candidates to overcome social biases which result in higher performance once in office.

Further research can also implement different operationalizations of innovation. This study operationalized innovation by exploiting policy reinvention. However, scholars can see if diversity impacts the likelihood of being an early policy adopter or being the innovator state a policy area. The avenues for future research are many and the study of this relationship is open for exploration from many angles. Two angles come readily to mind. First, scholars should analyze diversity among party leadership, especially the majority party, to see in diversity in party leadership sparks greater innovation. Second, scholars should explore committee compositions, to examine if deliberation is enhanced by greater diversity, with the views of society substantively represented.

In closing, this research is impactful for several reasons. First, the finding that gender diversity is associated with the less borrowing of language in policy reinvention is important for voters to understand. Generally, citizens want their state governments to draft legislation to fit the needs of their state. If a state legislature is homogenously gendered, these findings indicate that the legislature will have a tougher time drafting original legislation, which is arguably the reason for having governmental institutions "closer" to the people. If citizens understand that gender diversity is important to the formulation of original legislation and original policy reinvention, a conscientious, well-informed voter can provide their legislature with the additional capacity to innovate for the wellbeing of the state.

Second, the finding that gender diversity is associated with less borrowing of language in policy reinvention is impactful for political parties. When political parties make decisions about whom to run for office, the knowledge of the benefits of a legislative body with a balance of male and female legislators should influence their calculus. Additionally, if the majority party within the legislature possessed the institutional power to determine committee composition, understanding the benefits of gender diversity could unlock the potential for greater innovation in a committee setting.

Third, these findings are important for society. If greater gender diversity unlocks the innovative potential of a state legislature, the proposition of gender diversity unlocking innovation in other areas is encouraging. Fourth, these findings are impactful for achieving comprehensive legislation. If changes to policy through policy reinvention is crucial to generating more comprehensive policy (Mooney and Lee 1999) and different compositions of legislators innovate at higher levels, society can achieve more comprehensive policy by increasing the gender diversity of state legislatures. And, finally, this study demonstrates that descriptive representation also contains substantive benefits. As state legislatures more closely descriptively reflect the populations they represent, we should observe an increased capacity for innovation.

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APPENDICES

Diversity Interaction with Polarization

		Dependent variable:		
		SimScore		
	(1)	(2)	(3)	(4)
Prop non-male*Polarization	0.122			
	(0.479)			
Prop non-white*Polarization		16.471		
		(33.015)		
Gender DS*Polarization			-0.156	
			(0.483)	
Race DS * Polarization				-0.222
				(0.259)
Prop non-male Legislators	-0.747	0.578***		
	(0.674)	(0.206)		
Gender DS			0.705	0.515**
			(0.659)	(0.196)
Polarization	-6.758	-5.769	7.300	15.310
	(12.266)	(5.568)	(30.922)	(21.264)
Prop non-white	-9.611	-31.739		
	(12.144)	(46.121)		
Prop non-Law/Pol	0.154	0.141		
	(0.155)	(0.158)		
Race DS			0.101	0.423
			(0.106)	(0.392)
ODS			-0.071	-0.039
			(0.264)	(0.265)
E-recycle	-5.567	-5.288	-6.232	-5.762
	(4.386)	(4.366)	(4.419)	(4.403)
ENDA	0.266	0.737	0.193	0.880
	(5.807)	(5.776)	(5.970)	(5.921)

I'm Sorry Laws	-8.101**	-7.876**	-8.423**	8.167**
	(3.944)	(3.951)	(4.018)	(4.006)
Public Breastfeeding	-21.947***	22.096***	22.154***	22.461***
	(4.329)	(4.311)	(4.465)	(4.439)
Stand Your Ground	-15.257***	15.259***	14.943***	15.055***
	(4.347)	(4.333)	(4.416)	(4.399)
Professionalism	0.059	0.026	-0.182	-0.234
	(0.405)	(0.412)	(0.414)	(0.415)
Maj. Party Roll Rate	-6.736	-9.125	-4.604	-8.744
	(19.152)	(19.266)	(20.165)	(20.277)
Constant	85.011***	85.068***	25.395	11.947
	(22.420)	(16.911)	(45.461)	(36.540)
Observations	101	101	101	101
R^2	0.358	0.359	0.337	0.342
Adjusted R^2	0.270	0.272	0.247	0.252
Residual Std. Error (df = 88)	12.901	12.888	13.110	13.064
F Statistic (df = 12; 88)	4.088***	4.112***	3.726***	3.806***

Note: $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

Multicollinearity Test: Model 5

	GVIF	Df	GVIFDf))
Gender DS	1.519	1	1.233
Race DS	1.161	1	1.078
Occupation DS	4.867	1	2.206
factor(Bill_Classification)	1.347	5	1.030
Professionalization	4.623	1	2.150
Polarization	1.607	1	1.268
Majority Party Roll Rate	1.217	1	1.103

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