Geographic Proximity in the Diffusion of Concealed Weapons Permit Laws

JUSTIN A. TUCKER
California State University, Fullerton

JAMES W. STOUTENBOROUGH
Texas A&M University

R. MATTHEW BEVERLIN
Rockhurst University

Previous research has failed to adequately address why we should expect the diffusion of policy innovations in the realm of gun policy. As a social regulatory policy, gun policy may be highly influenced by policy adoptions in neighboring regions, in part due to the high likelihood of spillover effects. This article discusses under what conditions we should expect policy diffusion to occur from neighboring jurisdictions. We use event-history analyses to evaluate impact of neighboring states diffusion pressure on the adoption of “shall issue” concealed weapons laws between 1974 and 2007. Neighboring diffusion pressure has a significant effect on policy adoption even when controlling for National Rifle Association membership and a previous adoption of a similar policy (“may issue” permit). We provide a rationale why scholars should find neighboring diffusion effects in some policy areas but not others.

Keywords: Policy Adoption and Diffusion, Gun Policy, Firearms Control, United States, “Shall Issue” Concealed Weapons Permits, Event-History Analysis, Social Regulatory Policy, Trans-Jurisdictional Policy Problems.

Related Articles:

Acknowledgements: We are grateful to Don Haider-Markel and John Lott for the assistance they provided in gathering data. We would also like to thank Don Haider-Markel and all of the anonymous reviewers at Politics & Policy for their helpful comments on earlier drafts of this article.

Politics & Policy, Volume 40, No. 6 (2012): 1081-1105. 10.1111/j.1747-1346.2012.00399.x
Published by Wiley Periodicals, Inc.
© The Policy Studies Organization. All rights reserved.
Investigaciones anteriores no han tenido éxito en evaluar el por qué se debería esperar la difusión de políticas innovadoras en el ámbito de la regulación de armas. Vista como una política regulatoria social, la regulación de armas puede ser altamente influida por las regulaciones adoptadas en las regiones adyacentes, en parte debido a la alta probabilidad de efectos de propagación. Este estudio analiza bajo qué condiciones deberíamos esperar la difusión de políticas en jurisdicciones adyacentes. Usamos un Análisis de Eventos Históricos para evaluar el impacto de la presión en la difusión de estados adyacentes en la adopción de políticas “Shall Issue” para armas encubiertas entre 1974 y 2007. La presión en la difusión de estados contiguos tiene un efecto significativo en la adopción de regulaciones aún cuando se controle por membresía en la NRA y previas adopciones de políticas similares (permisos “May Issue”). Brindamos una explicación del por qué se deberían de encontrar efectos de difusión adyacentes en algunas políticas pero no en otras.

Unfortunately, gun violence occurs far too frequently in America. Occasionally, events like the “Batman” shooting in Aurora Colorado on July 20, 2012 (Brown 2012) or the attack at Virginia Tech on April 16, 2007 (BBC 2008; CNN 2007; New York Times 2012) are so shocking that they dominate the news cycle for several days. Consequently, armed with supportive evidence, advocates on both sides of the gun issue take advantage of this salience to square off in public forums to influence public and policy-maker views on gun control. Indeed, following the Virginia Tech massacre, there was an organized, silent protest by college students across the country to wear empty holsters to class (see e.g., Underwood 2007). Participants argued that the tragedy that struck Virginia Tech would be less likely to occur if students were allowed to carry a concealed weapon to class.¹

¹ Due to the tragic nature of the Virginia Tech shootings, the two sides were able to compromise around the NICS Improvement Amendments Act.
While there has been a great deal of research on gun policy, most of it tends to focus on the relationship between guns and violence (see e.g., Ayres and Donohue 2003; 2009; Cook and Ludwig 2006; Lott 1998; Lott and Mustard 1997; Moody and Marvell 2008; Vizzard 2000; Weir 1997), or its role as a social regulatory policy (see e.g., Spitzer 1998, 2007). Although the relationship between guns and crime has significant policy implications and is a substantial question in its own right, most of these studies overlook the policy processes that underlie the adoption of these policies. Of the few studies that examine gun policy adoptions, most tend to be qualitative in approach (see e.g., Spitzer 1998, 2007; Vizzard 2000; Wilson and Rozell 1998), with the few quantitative studies that exist suffering from theoretical or methodological concerns (see e.g., Bruce and Wilcox 1998; Carter 1997; Grossman and Lee 2008; Mixon and Gibson 2001).

One main argument for the adoption of more restrictive gun laws is that guns are inherently highly transportable and can create negative externalities (Cook and Ludwig 2006), including effects in surrounding jurisdictions (Weil and Knox 1996). Of significant note are studies arguing that less restrictive concealed carry laws discourage crime within an adopting jurisdiction by forcing would-be criminals into neighboring jurisdictions where they are less likely to face armed resistance (Bronars and Lott 1998; Lott and Mustard 1997). Thus a neighboring jurisdiction is disadvantaged by criminal spillover if they do not adopt a similarly less restrictive carry policy.

This characteristic of cross-jurisdictional transportability, both for firearms and for crime, affords policy adoption scholars a unique opportunity to identify one of the persistent missing pieces in the diffusion of policy innovations literature, the theoretical rationale for why neighboring jurisdictions adopt similar policies (Karch 2007).

As it is beyond the scope of any single study to reexamine the adoption of every gun policy, we have chosen to focus our examination on one of the more salient debates in gun policy—“shall issue” concealed weapons permits (CWPs). In recent decades, many states have authorized citizens to carry a concealed weapon either via a permit issued at the discretion of an official (a “may issue” permit process), or for any citizen who meets minimum requirements (a “shall issue” permit process). While this distinction between permit issuance appears to be only slightly different, it is not. “May issue” permit laws allow for significant discretion from the authorizing official who is eligible to receive the permit. The criteria for who might be eligible can be based on a variety of factors, including a demonstrable need for the permit. “ Shall issue” policies are significantly different. States with “shall issue” permit laws allow any citizen meeting certain requirements (normally the passage of a background check, a number of hours of classroom training, a skills/proficiency test, and an annual permit fee) to carry a concealed weapon in that jurisdiction. As a result, “shall issue” policies throughout the states have enabled a significant number of “average” citizens to carry concealed weapons in public and private spaces, largely beyond the oversight of those around them.
We seek to understand why a state would adopt a “shall issue” CWP law. This project proceeds in four parts. First, we explore the relevant literature on the diffusion of innovations and gun policies, including an explanation for why we can expect neighboring diffusion pressures in CWP policies. Next, we outline the analytical approach utilized. In this section, we focus more than usual on the different methodological choices available in modeling diffusion, including the need to control for previous policy adoptions. Third, we discuss the results of our analysis. Finally, we offer a discussion of the implications of our analysis and tender several conclusions.

**Gun Studies and Policy Diffusion**

Gun control policy has been the subject of varied studies in public policy, economics, criminology, and public health. These include histories of weapon laws from Roman times until the present (Spitzer 1998, 2007; Vizzard 2000; Weir 1997), the relationship between types of weapons and weapon control policies (Weir 1997), the link between guns and crime or victimization (Ayres and Donohue 2003, 2009; Cook and Ludwig 2006; Lott 1998; Lott and Mustard 1997; Moody and Marvell 2008; Spitzer 1998, 2007; Sugarmann 2001; Vizzard 2000; Weir 1997), and to a much smaller extent, the general adoption of gun control policies (Bruce and Wilcox 1998; Carter 1997; Grossman and Lee 2008; Kleck 1997; Weir 1997). Methodologically, such studies are also quite diverse, ranging from qualitative investigations to complex statistical analyses (Lott 1998; Lott and Mustard 1997; Spitzer 1998; Vizzard 2000; Weir 1997). The units of analysis of these examinations range from individual (Kleck, Gertz, and Bratton 2009) to the county (Lott 1998; Lott and Mustard 1997; Thompson and Stidham 2010), to state (Bruce and Wilcox 1998; Gimpel and Wolpert 1998; Godwin and Schroedel 1998; Kleck 2004; Spitzer 1998; Wilson and Rozell 1998) to regional (Bruce and Wilcox 1998), national (Weir 1997), and international (Carter 1997) levels. Significant and rich debates persist in the literature over the appropriateness of measurement schemes (see e.g., Azrael, Cook, and Miller 2004; Kleck 2004), modeling techniques (Ayres and Donohue 2003), time frames (Ayres and Donohue 2009; Moody and Marvell 2008), and any number of other methodological issues. As these debates rage, bigger policy theory questions remain unanswered.

From a policy theory standpoint, changes in gun policies have been modeled a variety of ways, including the “window of opportunity” model (Carter 1997; Kingdon 1995; Weir 1997), punctuated equilibrium theory (Baumgartner and Jones 1993; Birklund 1997; Bruce and Wilcox 1998; Godwin and Schroedel 1998; Vizzard 2000), and a variety of atheoretical “garbage can” statistical methods (Grossman and Lee 2008). Although these studies have found support, they do not adequately explain from a theoretical perspective why policy adoptions occur.
Few scholars have built on previous findings that gun politics can be categorized as social regulatory policy (Bruce and Wilcox 1998; Spitzer 1998). As a social regulatory policy, gun policy attempts to influence or modify existing beliefs and values as well as regulate behavior through the law (Bruce and Wilcox 1998; Haider-Markel 1998; Lowi 1998; Spitzer 1998; Tatalovich and Daynes 1988). Social regulatory policy issues are often dominated by advocacy groups (e.g., the Brady Campaign, the National Rifle Association [NRA]) and cultural conflict. Studies of public opinion suggest that a vocal minority have strong opinions concerning gun control, but most Americans do not (Kleck 1997), and that support for handgun bans is not tied to a perception of policy efficacy (that it would reduce crime), but rather to cultural or political identity (Kleck, Gertz, and Bratton 2009; Thompson and Stidham 2010). Because gun policy fits the general pattern of social regulatory policies, it may be best modeled using the policy diffusion framework (Berry and Berry 2007).

While a variety of mechanisms exist for policy innovation and diffusion studies, scholars have emphasized the geographic proximity of neighboring jurisdictions with policies as a driving factor in policy adoption, largely to the detriment and understanding of the mechanism or rationale for diffusive pressures (Grossman and Lee 2008; Karch 2007). Karch (2007) argues that meaningful work on the diffusion of innovations should move past simple proximity measures to more meaningful or theoretically rigorous explanations of policy diffusion. It is to this point that we now turn our attention. A significant amount of space in the diffusion of innovations literature has been devoted to neighboring jurisdictions without a theoretical linkage or rationale explaining why diffusion should occur. While we agree that Karch’s (2007) argument is largely correct, we believe geographic proximity in and of itself is an important factor due to the inherent nature of some policies. We should expect that neighboring effects should be more likely to exist for some policies, but not for others. In policy areas where outcomes, externalities, and citizen or business mobility across jurisdictional boundaries are plausible (Berry and Berry 1990; Saiz and Clarke 1999), we should expect to see competitive processes working in the diffusion of policy innovations. Where policy outcomes and effects remain contained within the jurisdiction, we should not expect that a neighboring jurisdiction should automatically affect policy change in another jurisdiction.

We echo our previous sentiment that it is the inherent nature of the policy problem that suggests that neighboring jurisdiction policy diffusion is likely to occur for gun policy. Our specific call for using a diffusion framework is

2 In measuring diffusive pressures, scholars have either used regional categorical variables (Lott 1998) to estimate differential effects on policy prevalence, or as a percentage of the neighboring states with the policy (Haider-Markel 2001).

3 Examples of such policies could include abortion, state lotteries, gambling, or bottle and can deposit redemption policies.
attenuated by the transportability of guns across jurisdictions (Cook and Ludwig 2006; Weil and Knox 1996) and the likelihood of criminal spilovers (Bronars and Lott 1998; Lott 1998; Lott and Mustard 1997). While at the federal level, gun policy is primarily focused on insulating the states from each other (Cook, Braga, and Moore 2011), empirical evidence suggests that gun-related problems cross state, local, and even regional boundaries. For example, restrictive purchasing policies in Virginia and Maryland reduced the number of guns recovered in Washington, DC that originated in Virginia and Maryland (Weil and Knox 1996). Cook and Ludwig (2006) point out that guns travel across county lines and that gun prevalence in nearby counties is substantively relevant to studies of within-county gun prevalence and homicide rates.4 Spitzer (1998) shows evidence of trans-boundary problems at a regional level, between New York and Virginia. New York pressured Virginia to adopt stronger purchasing requirements for guns because these guns were ending up being used in crimes committed in New York City (Spitzer 1998).

Gun control may not be effective if neighboring regions are less restrictive. Specifically, firearms may not be purchased outside of a citizen’s state of residence, but this does not affect the transportability of these firearms to neighboring jurisdictions where they may be sold or used by someone other than the purchaser. This leads to the conclusion that previous variables that have accounted for regional pressures may not adequately capture diffusion pressure. The public generally does not travel long distances on a regular basis, but will travel relatively short distances regularly. In general, this suggests that the public will be far more apt to cross into a neighboring jurisdiction than drive through that jurisdiction to one on the other side. This, in turn, suggests that guns generally are not going to be transported across vast distances, but may cross into a bordering state with greater frequency. Additionally, neighbor pressure might also be a much more significant influence if two neighboring states have reciprocity agreements between them. States may allow enforcement officers to cross jurisdictions in pursuit of criminals, or they may allow CWP holders to carry weapons inside these areas without having a CWP law on the books in their state.

Karch (2007) suggests that innovation and diffusion policy models need to move beyond proximity and consider competition between states, imitation (shared attributes), and emulation (recognition of policy success). States clearly enact policies to avoid being competitively disadvantaged (Berry and Berry 2007). States compete for a variety of limited resources including federal grants, the location of commercial enterprises (tax revenue), and the loyalty of their citizenry to not move elsewhere. More importantly, if some gun policy scholars

---

4 Cook and Ludwig (2006, 389) identified this cross-jurisdictional effect and attempted to model the out-of-county influence on within-county homicide rates. Unfortunately “the results were not very sensible.”
are correct concerning criminal spillovers from neighboring jurisdictions with CWPs (Bronars and Lott 1998; Lott 1998; Lott and Mustard 1997), governments may have an additional incentive to adopt a CWP law in order to prevent being disadvantaged by increased crime rates.

Imitation occurs as states look to other states that share similar characteristics or attributes. Artifacts of such an imitative phenomenon may be present in legislative hearings or in the media, but also in a properly specified statistical model. As the states share correlating values for variables, those would produce statistically significant relationships for the variables that had similar values for the imitative states. Emulation, or social learning, takes place between jurisdictions for moral policies (Mooney and Lee 1995), including social regulatory policies. This learning relates to both space and time. Neighboring states have an incentive to learn from each other (Berry and Berry 2007; Rogers 1983) both from successes and failures. Policy makers may feel pressure from citizens to enact policies similar to those enacted in neighboring areas.

In short, states face imitative, emulative, and competitive pressures to act on CWP policies if neighboring states have already adopted less restrictive “shall carry” policies. This is may be even more attenuated where metropolitan areas cross state boundaries (e.g., Kansas City, New York, Philadelphia, or St. Louis) or where two or more major population centers are reasonably proximate (Berry and Berry 2007).

Diffusion studies are not meant to exclude internal factors that might influence the adoption of policies within the given jurisdiction. What this approach attempts to do is delineate internal and external forces that may lead to a policy adoption. Internal determinants refer to social, economic, and political influences (Berry and Berry 2007) such as ideology, level of crime, and other variables that are related to the issue domain and jurisdiction examined. An important likely internal determinant in state policies is interest group pressure. Single-issue groups attempt to mobilize support and define the issue as one of a nonnegotiable, moral issue (Tatalovich and Daynes 1988). The NRA is arguably the most powerful interest group in the gun policy arena (Spitzer 1998) and has been fairly successful in convincing most scholars that they dominate the gun politics (Bruce and Wilcox 1998; Lott 1998). Moreover, in social regulatory policy, issues are generally framed around competing moral visions of right and wrong. This has a radicalizing effect on the population (Tatalovich and Daynes 1988) and leads to increased political participation and pressure on elected officials (Haider-Markel 1998; Lowi 1998; Mooney and Lee 1995;

Because many neighboring states share similar internal determinants, we can conceive of these as imitative pressures (Karch 2007). The strength of using a quantitative analysis is that we can estimate the individual relationships of these variables to the dependent variable. The weakness of this approach is that the statistical model cannot determine if this is an imitative effect or simply effects from similar internal determinants.
Tatalovich and Daynes 1988). Much previous policy research in the area of gun policy has found significant relationships between policy change and internal pressures that influence this process, but has neglected the influence of neighboring states (see e.g., Godwin and Schroedel 1998; Spitzer 1998; Vizzard 2000; Weir 1997).

The nature of the policy problem that both guns (Cook and Ludwig 2006) and criminals (Bronars and Lott 1998) cross borders suggests that the influence of neighboring states may significantly alter the policy process within the state. Thus, if we are to model the adoption of “shall issue” CWP, we need to look to both internal determinants and neighboring state pressures.

### Analytical Strategy

This project seeks to understand why “shall issue” policies spread throughout the country. The literature on state policy diffusion clearly illustrates that the event-history approach is the most appropriate analytical approach to examining these questions (see e.g., Berry and Berry 1990). There are several event-history analysis (EHA) approaches that can be utilized for the examination of policy diffusion and comparative state policy adoption. Recently, there have been two alternatives proposed to the traditional logit or probit distributed cross-sectional time series that has dominated this literature since Berry and Berry (1990) first introduced state policy scholars to EHA. One alternative was urged by Buckley and Westerland (2004), which uses the more appropriate complementary log-log (Cloglog) distribution in a cross-sectional time series (see also Stoutenborough and Beverlin 2008). Their argument is that the Cloglog is better able to model rare events. This is appropriate for studies of state policy adoption because adoption is inherently a rare event because no dataset will ever have more than 50 adoptions, but may have hundreds or thousands of nonadoption cases.

A second alternative was proposed by Volden (2006), which uses a dyadic approach (see also Gilardi 2010). This approach allows for a better way to determine if a policy is emulated and more accurately estimates the influence of successful policies. While we recognize the important contribution that the dyadic approach offers, it is not always the ideal analytical approach in all policy adoption scenarios because of its reliance on a variable that represents a successful policy. We are unable to utilize this method because there is no way to objectively determine if “shall issue” CWP policies are successful or failures as the literature reveals inconsistent evaluations.6 Any parsing on our part

6 See Donohue (2003) for a study that suggests these policies are bad; Polsby (1995), Lott and Mustard (1997), or Lott (2010) for studies that suggest these policies are good; or Dezhbakhsh and Rubin (1998) for an analysis that finds inconclusive, mixed results.
would necessitate introducing subjective evaluations. We therefore choose to utilize the Cloglog approach.\(^7\)

The dependent variable in our analysis is coded according to a state’s adoption of a “shall issue” CWP. Specifically, the year when a state adopts this policy is coded 1, and it is coded 0 for all years prior to adoption.\(^8\) As an EHA, states are removed from the analysis in the years following adoption. For instance, Oregon adopted their “shall issue” policy in 1989. Under this coding scheme, Oregon will have a 0 coded for each year prior to 1989, a 1 coded for 1989, and will be removed from the analysis from 1990 through the end of the data.

Our dataset contains information for 48 of the U.S. states for the period from 1974 through 2007. Unfortunately, we needed to remove the first state to adopt a “shall issue” policy. Washington adopted their policy in 1961. We chose to remove it from the analysis due to concerns over data reliability. Between 1961 and 1974, there were modifications made to the way some of our independent variables were calculated, and we did not want to introduce a data bias. By starting in 1974, we are able to have three years of baseline data prior to the second state adoption by New Hampshire in 1977, and we are able to avoid possible estimation biases due to data collection methods.

Additionally, we chose to remove Vermont, which allows anyone to carry a concealed weapon without any need for permits.\(^9\) Vermont has refused to adopt a “shall issue” policy for reciprocity purposes. Despite this, it would be inappropriate to code Vermont as a nonadoption because their policy is far more lenient than any “shall issue” policy, and it would be equally incorrect to code it as an adoption because that would imply the adoption of a policy that does not exist.\(^{10}\) We chose to remove Vermont because neither coding option appeared appropriate.

The primary independent variables for this analysis are a measure of neighbor diffusion, regional diffusion, and NRA membership. We believe it is likely that there are at least two sources of pressure on state legislatures to adopt “shall issue” policies. First is the threat of spillover (Bronars and Lott 1998; 7 For comparison purposes, we also analyzed the data using a logit approach. As Buckley and Westerland (2004) would suggest, the differences between the distributions resulted in substantively similar estimations. However, the model fit statistics of the Cloglog suggests that it was the better-specified model.
8 The adoption year for each state was determined using a variety of sources including Grossman and Lee (2008), National Rifle Association (2012), or an official state-sponsored webpage.
9 Alaska adopted a similar policy in 2003, but still retains the “shall issue” provisions for the purpose of reciprocity. More recently, Arizona also adopted a no permit necessary policy in 2010, and Wyoming adopted a similar policy in 2011. Both states continue to retain their “shall issue” provisions for reciprocity purposes. Similar legislation has been discussed in Montana, Utah, South Carolina, and New Hampshire.
10 Moreover, Vermont has not altered its concealed carry laws since before it became a state. If we were to code it as an adoption, it would generate the same data concerns that we had for Washington.
Cook and Ludwig 2006), where guns and criminals cross state borders. Because criminals face the possibility of an armed victim, they either choose not to commit the crime or choose another target in a jurisdiction where the potential victim is not likely to be armed. Second is interest group pressure from the NRA. We describe these pressures later.

Gun policies are likely to be of greatest concern within a geographical region than across the entire country. A gun owner in Florida is unlikely to be impacted by a gun policy in Idaho. Transporting guns is much easier when driving than when flying, and we are more likely to drive within a limited geographic region than across the country. Recall, Spitzer (1998) alludes to this regional effect when he discussed a situation where New York was trying to convince Virginia to change their gun policies because guns purchased in Virginia were finding their way to New York. New York and Virginia are not neighbors, but they are closely situated in a general region. To account for these regional influences, we created a regional diffusion measure of the percentage of states within a census region that had adopted a “shall issue” policy. Therefore, we expect that nonadopters are more likely to adopt as the percentage of the states in their region that have already adopted increases.

The other primary concern for adoption is criminal spillover. If criminals fear that they are more likely to face resistance following the adoption of “shall issue” CWP laws, they are more likely to cross the border to engage in criminal activity if a neighbor state has not adopted a “shall issue” policy. The problem with spillover is that it is very difficult to measure (Bronars and Lott 1998). An examination of crime statistics seem to suggest that this may be happening along state borders, but it is impossible to know if these increases would not have occurred had a neighboring state not adopted a “shall issue” policy.

While it appears that the threat of spillover is a legitimate concern (Bronars and Lott 1998), we are unaware of any way to accurately measure this phenomenon in our study. Instead, we operate under the assumption that if there is a perception of spillover, real or imaginary, a neighbor diffusion measure is most likely to capture this phenomenon. Spillover cannot occur until a neighbor adopts the policy that would cause spillover. Additionally, the regional diffusion measure will account for the influence of a nonadopter simply adopting the policy because those that are geographically proximate have done so. Because of this, we feel that the neighbor diffusion measure is the best way to account for the influence of spillover. Importantly, the neighbor diffusion measure does not presume that there is actually any criminal spillover, as it can just as easily represent the perception of spillover, which may be quite as powerful an influence as actual spillover. Based on this, we would expect that as the percentage of neighboring states that adopt a “shall issue” policy increases, nonadopters are going to be more likely to adopt their own policy.

Any analysis of gun policy should control for the influence of interest group pressure within the state. Rather than model both sides of the interest group
debate over guns, we simply focus on the NRA (Haider-Markel 1998; Spitzer 1998; Tatalovich and Daynes 1988). The NRA has established itself as the largest and most dominant force in gun lobbying in the country. While particularly vocal gun owners will lobby for adoption in their state, they may lack the voice necessary to create change. The NRA can fill that gap. Unfortunately, the NRA does not release membership information on a state-by-state basis. However, a proxy for membership numbers can be obtained by examining subscription information for the NRA’s monthly magazine, *American Rifleman* (O’Brien and Haider-Markel 1998). We purchased state-by-state subscription information from 1981 (the earliest year the data were available) through 2007. For the years prior to 1981, we interpolated subscription data using data trends between known years. We then calculated subscription numbers per 100,000 people in each state. Our expectation is that states with higher rates of gun ownership will be more likely to adopt a “shall issue” policy.

States are all different in important ways, and these differences influence the policy process. Therefore, we control for the influence of a common compilation of internal determinants of the state policy adoption. These variables feature in almost every examination of state policy diffusion because they are often found to be a predictor of policy adoption. Specifically, we control for the influence of population density, college graduates, legislative professionalism (from Squire 2007), citizen ideology (from Berry et al. 2010), and government ideology (from Berry et al. 2010).\(^{11}\) States that are more densely populated are more likely to suffer from crime (see e.g., Watts 1931). One of the arguments for concealed carry laws is that they will decrease crime (see e.g., Lott 2010). States that are more densely populated states may see an increase in the availability of guns as a spark in the powder keg, creating a high potential for even more violent crime. We see merits to both arguments and take no position on this issue, but rather posit that regardless of the expected direction of the relationship, population density is a factor that should be considered in any comparative state policy study.

Other demographic and institutional features of the state are likely to influence the likelihood of adopting a “shall issue” policy. Generally, states with higher levels of education are more likely to support gun control policies (Kleck 1996). Accordingly, we would expect that states with a higher percentage of college graduates would be less supportive of “shall issue” policies. Similarly, states that have more professional legislatures are more likely to spend more time deliberating a policy and have more professional staff that allow legislators to be more informed (Squire 2007), which should make them less susceptible to outside pressure. Gun ownership and gun rights are issues often considered to

---

\(^{11}\) Population density and college graduates were coded from publicly available U.S. Census data.
be associated with conservatives (Carlson 2006). Therefore, we would expect that state governments and citizenries that are more conservative would be more likely to adopt a “shall issue” policy.

Similarly, it should be essential to control for issue-specific characteristics that would likely influence the debate on the policy (Stoutenborough and Beverlin 2008). The debate surrounding the adoption of “shall issue” concealed carry policies often focused on the need to protect oneself from criminal elements (Lott 2010). This would suggest that crime rates ought to have played an important role in determining the likelihood of adoption (Lott 1998). Specifically, we control for the influence of the violent crime rate, property crime rate, and motor vehicle theft rate. Some would expect that states with higher rates in any of these areas would be more likely to adopt a “shall issue” policy. However, the “powder keg” counterargument could also prevail, which would suggest that states with higher crime rates may be less likely to adopt because they do not want to encourage additional violent crime.

The adoption of “shall issue” policies represents a situation where the policy could be the modification, extension, or other incremental change to an existing policy. A state that previously adopted a “may issue” policy could be more likely to adopt a “shall issue” policy. A “may issue” policy grants a great deal of discretion to those authorized to determine who should be allowed to carry a concealed firearm. In some states, this was used to largely limit the permit distribution to only those who were able to demonstrate a need for such protection. Many of the states that currently have “shall issue” policies previously had “may issue” policies. There are three possible reasons why a “may issue” state would choose to adopt a “shall issue” policy. First, the public may feel that the discretionary distribution of permits was too arbitrary, and there was a desire to allow all qualified residents the right to obtain a permit. Second, the “may issue” policy may have been a political compromise that, if it did not result in negative externalities, became more politically palatable to those who previously expressed misgivings toward a “shall issue” policy. Finally, it is possible that citizens in a “may issue” state were unaware of their state’s policy but were aware of arguments for “shall issue” permit policies more generally. To ensure that this variable does not have undue influence on the analysis, we chose to run two separate models of policy adoption. The only difference between the two is that one model includes a variable controlling for previously adopted “may issue” policies, and the other does not.

Finally, it is important for EHA models to ensure that the hazard rate is stable over time (Allison 1984). Because the diffusion variable is most likely always increasing, it is possible that this may create instability in the hazard rate (Beck, Katz, and Tucker 1998). There are two methods for addressing this

12 These variables were collected from publicly available U.S. Bureau of Justice Statistics.
problem. The first is to create annual dummy variables (see e.g., Allison 1984; Beck, Katz, and Tucker 1998; Mintrom 1997; Shipan and Volden 2008; Stoutenborough and Beverlin 2008), but this procedure requires several degrees of freedom. A second method is to calculate a trend variable (see e.g., Greene 2000; Haider-Markel 2001; Mooney and Lee 1995). We choose to create a trend variable and follow the approach outlined by Mooney and Lee (1995) (see also Chamberlain and Haider-Markel 2005; Haider-Markel 2001). This will ensure that there are no spurious relationships as a result of an unstable hazard rate (Mooney 2001).

Results

The cumulative distribution of “shall issue” CWP laws in the states generally follows the “S”-shaped curve described in the diffusion of innovation literature. Figure 1 identifies three time periods of significant numbers of policy adoptions in the states. These are from 1987-90, from 1993-96, and then from 2001-04. On its face, these clusters of adoptions suggest that something more than internal state politics is contributing to the expansion of “shall issue” CWP laws. We estimated two Cloglog cross-sectional time series regressions to model the determinants of state adoption of “shall issue” CWP policies. The results of these estimations are presented in Table 1. We will begin with a discussion of the base model.

Figure 1.
Cumulative Adoption of State “Shall Issue” Concealed Carry Permit Policies, 1961-2010

Sources: Compiled by authors.
The model reveals that states that are more densely populated, have
more professional legislatures, and more liberal governments were less likely
to adopt a “shall issue” CWP. The coefficient for population density indicates
that, independent of crime rates, states with greater population density are
less likely to adopt “shall issue” CWP laws. We speculate that this is due to a
concern that such a policy would increase the crime rates rather than decrease
them.

The results also indicate that states with lower violent crime rates, lower
property crime rates, and higher motor vehicle theft rates were more likely to
adopt “shall issue” policies. Again, the results for violent and property crime
rates were in the opposite direction that Lott (2010) would have anticipated, but
certainly reflect concerns that allowing citizens in areas with high crime rates to
carry a concealed weapon would likely cause those rates to increase, not
decrease as advocates suggest. This is consistent with the findings of Kleck
(1996) who found odd relationships between certain crime rates and public
support for gun control policies.

Turning to our three primary independent variables, we find support for
only one of these explanations of “shall issue” adoption. Most surprisingly,
the adoption of these policies appears to be unrelated to NRA membership in a state. Similarly, the results suggest that the adoption of “shall issue” policies is not significantly related to the percentage of states within a geographic region that have already adopted. This would suggest that nonadopters are not influenced by the activities of other regionally proximate states. Finally, the base model reveals that states did “learn from” or react to policies in their neighboring states. As neighboring states adopted “shall issue” CWP policies, nonadopters were significantly more likely to adopt their own version of the policy. Importantly, this would suggest that concerns over the threat of spillover may have been the primary motivation for nonadopters to adopt.

The results of the full model are also presented in Table 1. A comparison of the model fit statistics of the two models reveals that the base model is better specified despite the absence of the control for the influence of previously adopted “may issue” policies. The results indicate that states with more professional legislatures and more liberal governments were less likely to adopt “shall issue” policies. The results also reveal that states with lower violent crime rates and higher motor vehicle theft rates were more likely to adopt the policy. Interestingly, the inclusion of a previous “may issue” policy to the model removes the statistically significant influence that property crime rates and population density held on the likelihood of adoption.

The results of the full model reveal that states that previously adopted “may issue” policies were no more or less likely to adopt a “shall issue” policy. It is likely that this is a reflection of the current state of CWP laws in the country. With the exception of Wisconsin and Illinois, states that do not allow anyone to carry a concealed weapon, and Vermont, every state that does not currently have a “shall issue” policy has a “may issue” policy.

Turning to the three primary explanations of adoption, we find that neither the NRA membership nor the regional diffusion measures resulted in a statistically significant relationship with adoption. In fact, the relationship between NRA membership and adoption is weaker than in the base model. Finally, the full model continues to suggest that states learn from their neighbors. Nonadopters were more likely to adopt if their neighbors already have the policy.

Overall, the results from both models indicate a robust relationship, both in magnitude and statistical significance between internal state characteristics and external or diffusive pressure of neighboring states.

---

13 To ensure that this result was not an artifact of the way we coded the variable, for subscriptions per 100,000 citizens, we experimented with several alternative operationalizations, all of which resulted in similar results (the results presented here represent those that the model fit statistics indicated provided the best overall explanation for the adoption of “shall issue” policies).
Discussion and Conclusions

Our examination of the adoption of state “shall issue” gun policies has several implications. First, we find that adoption of “shall issue” policies is largely influenced by the policy actions of neighboring states (contiguous borders). We believe the influence of neighboring states is explained by policy makers in states that have not already adopted being fearful of the threat of criminal spillover that gun rights advocates argue before legislative hearings. In other words, we find evidence to suggest that at some level, policy makers believe they will be disadvantaged potentially by increased crime rates—if they do not adopt similar policies as neighboring states. The modeling of several alternative explanations for adoption allows us to conclude that this spillover threat is a powerful influence that may represent irrational, reactionary policy making.

Most importantly, we have provided a thorough theoretical rationale for why we should expect external pressures to affect adoption rates of gun policies in the states. In doing so, we have attempted to address many common concerns that plague the study of diffusion, most commonly the lack of a solid rationale why we should expect the neighboring states face pressures to adopt (Karch 2007). In this case, it is clear that the transportability of weapons across state lines and evidence pointing to crime spillover effects from jurisdictions with CWP laws to areas without them provide sufficient threats to neighboring states that they are encouraged to adopt “shall issue” policies.

On this point, we reaffirm our assertion that for some policies, it is the inherent nature of the policy problem that suggests that neighboring jurisdiction policy diffusion is likely to occur. For some policy domains, simple geographic proximity may be the causal driver for policy change. These pressures from trans-boundary policy problems could include the state or its citizens being substantively disadvantaged from policy inaction. We find it difficult to believe that legislators in largely, pro-life states would be unaware of abortion policy changes in neighboring states that could cause an influx of women into their state to obtain an abortion. The same could be said for state lotteries or gambling policies that would rob the state coffers of potential tax revenue. Alternatively, we expect that some policy areas should not conform to the neighboring diffusion model. Where a theoretical rationale is missing that would tie the two jurisdictions together through some sort of direct substantive impact, there is likely some other causal mechanism for policy diffusion (if it is occurring).

We have illustrated that “shall issue” policies conform to the broader set of influences predicted by theories of the diffusion of innovations and social regulatory politics. Interestingly, the results suggest that adoption is unrelated to NRA membership and the policy adoptions of other states in the geographic region. Moreover, the results also reveal that increases in violent crime rates and property crime rates are actually less likely to cause adoption. These last two are
particularly important since actual spillover would likely cause these rates to increase each time a neighboring state adopts a “shall issue” policy. This increases the likelihood that the perception of spillover was the primary causal mechanism for neighbor diffusion.

Of significant note, we attempted to control for the distinct adoption of a policy rather than an incremental policy modification or change. The previous adoption of “may issue” policies is unrelated to the adoption of “shall issue” policies, suggesting that something other than the traditional learning process is influencing adoption. Although some scholars have correctly noted that policy diffusion analyses could misinterpret the policy adoption process because states may have adopted a similar policy outside of the influence of other states (Berry and Berry 2007), these results suggest that this is not the case for the adoption of “shall issue” policies. By estimating both a baseline model and full model with the inclusion of a variable representing the adoption of the similar “may issue” policy, we find that the adoption of a “shall issue” policy is not merely the extension, expansion, reinvention, or adaptation of an existing policy. As such, it is unlikely that a state would have decided to adopt a “shall issue” policy without some sort of external pressure.

Previous studies have consistently argued that gun policy adoption conforms to models of a social regulatory policy process (see e.g., Bruce and Wilcox 1998; Spitzer 1998, 2007); they are dominated by single-issue groups (Tatalovich and Daynes 1988) and typically associated with increased political participation by a polarized public (Lowi 1998). In our analysis, not only is NRA membership not an important factor influencing adoption, but neither are citizen ideology or college graduates. This may suggest that gun policies may not be as easily classified as we might expect. For example, many gun policies concern limiting access to firearms, whereas CWP laws are concerned with transportation and use. We suspect that the results for citizen ideology reflect the diversity of gun ownership, where liberal citizens may also own a gun, and the differences between access to firearms and the transportability of firearms. Moreover, these results provide additional strength to our argument that geographic proximity should remain an integral component of diffusion studies, specifically when the effects of change in the policy area are trans-boundary in nature.

While these results provide strong support for the influence of neighboring states on the adoption of “shall issue” policies, there are some limitations to this analysis that should be expressed. First, the measure of NRA membership may not provide the best proxy for interest group influence in a state. High membership rates in a state do not automatically translate to the NRA being particularly mobilized or potent in that state. Additionally, it may not provide the best proxy for gun ownership either. For instance, Azrael, Cook, and Miller (2004) have demonstrated that NRA membership provides a less than ideal proxy for gun ownership (see also Cook and Ludwig 2006), and they found that the percentage of suicides committed by firearms
provides a more reliable measure. While our emphasis was on the interest group aspect associated with the NRA, it is important to note the limitation of this measure.

A second limitation revolves around the lack of data regarding criminal spillover. We present an argument as to why we would expect spillover to play an important role in the adoption of these policies, but we are unable to provide a definitive measure. Instead, we rely upon a proxy in the form of neighbor diffusion. In this situation, neighbor diffusion accounts for two aspects of spillover (1) actual spillover that we are unable to measure; and (2) the perception of spillover.

While this study has focused narrowly on a specific type of gun policy, it has much larger implications for the study of policy innovation and diffusion. By controlling for the previous adoption of a similar policy, we have shown that this policy diffusion was not a case of incremental policy change, but rather a distinct adoption. More importantly, we have shown that a theoretical rationale exists for why we might expect geographic proximity to be a dominant influence on policy adoptions in the states. We expect neighboring state policy diffusion to occur where states could be affected by trans-boundary policy problems. In policy areas where such trans-boundary policy consequences do not exist, we echo Karch’s (2007) call that a different theoretical linkage between geographic proximity and policy adoption should be made clear.

About the Authors

Justin A. Tucker is an assistant professor in the Division of Politics, Administration, and Justice at California State University, Fullerton. His research interests include comparative public policy, research methodology, and environmental policy. He is currently researching public opinion concerning neighborhood environmental hazards and standing decisions in state courts.

James W. Stoutenborough is a postdoctoral research associate in the Institute for Science, Technology and Public Policy in the Bush School of Government and Public Service at Texas A&M University. His research interests include public policy, state politics, public opinion, and political psychology with a substantive interest in science and technology issues like climate change and renewable energy. He is currently researching individual-level behavior in public policy, with an emphasis on state policy diffusion.

R. Matthew Beverlin is an assistant professor of politics at Rockhurst University. His research interests include federalism, state policy, and the presidency. He is currently researching interstate compacts and symbolic representation among street-level bureaucrats.
References


